

**M25 JUNCTION 10 / A3
WISLEY INTERCHANGE IMPROVEMENT
DEVELOPMENT CONSENT ORDER (DCO)
APPLICATION**

**WRITTEN REPRESENTATION BY
MIKE HIBBERT (MSc MCIT MIHT MILT MIO D DipEng)
VOLUME 1 of 2 – TEXT
(RHS/MH/1)**

TTHC Ltd – the Traffic, Transport & Highway Consultancy

**Manchester
St James Building
79 Oxford Street
Manchester
M1 6EJ**

**London
Mayfair Point
34 South Molton Street
London
W1K 5RG**

www.tthc.co.uk / www.tthc.com

TTHC Ref: MH/M16114-02B
Date: November 2019

© **COPYRIGHT:** The contents of this document must not be copied or reproduced in whole or in part without the written consent of TTHC Ltd

VOLUME 1 (TEXT) – RHS/MH/1 CONTENTS

	<u>Page No</u>
1.0 QUALIFICATIONS	1
2.0 INTRODUCTION & BACKGROUND	2
3.0 EXISTING HIGHWAY NETWORK	9
4.0 THE DCO SCHEME	15
5.0 THE RHS ALTERNATIVE	21
6.0 COMPARISON BETWEEN DCO SCHEME AND RHS ALTERNATIVE	28
7.0 CONSTRUCTION IMPACTS	32
8.0 SUMMARY & CONCLUSIONS	33

VOLUME 2 (APPENDICES) – RHS/MH/2

- A TTHC March 2018 Report
- B Atkins Technical Notes (March 2019 and September 2019)
- C Signage Scheme Comparison
- D Design Standard CD122 'Geometric Design of Grade Separated Junctions'
- E Travel Calculation Comparisons

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

1.0 QUALIFICATIONS

- 1.1 My name is Mike Hibbert and my evidence covers the Transport, Highway and Accessibility related aspects relating to the DCO. I have a Master of Science Degree in Transportation Planning and Engineering from Southampton University and a Diploma in Civil Engineering. I am a Member of the Chartered Institute of Transport, a Member of the Institute of Highways and Transportation and a Member of the Institute of Logistics and Transport.
- 1.2 I am the Managing Director of TTHC Limited, a specialist traffic, transport and highway consultancy which I founded in 2004. Prior to the formation of this consultancy, I was a Director of RPS Transport, which was part of the RPS Group Plc and, prior to this, a Technical Director with TPK Consulting, a traffic and highway consultancy.
- 1.3 I have thirty years' experience specifically within transportation planning and traffic engineering. My experience has been gained working with several engineering consultancies throughout the United Kingdom and has included input to an extensive range of development schemes as well as a broad range of highway and transportation projects.
- 1.4 For approximately twenty five years I have specialised in advising clients on the traffic and highway related aspects of site development for a variety of land uses. I have been advising the RHS specifically in connection with the M25 J10 / A3 proposal since late 2016.

Declaration

- 1.6 The evidence which I have prepared and provide to the DCO process is true and has been prepared and is given in accordance with the guidance of my professional institute and I confirm that the opinions expressed are my true and professional opinions.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

2.0 INTRODUCTION & BACKGROUND

Position Summary

- 2.1 This report has been prepared on behalf of the Royal Horticultural Society (RHS), to provide a response to the DCO Application for Highways England's proposals for the 'M25 Junction 10 / A3 Interchange' (the **DCO Scheme**). The preparation of this report follows technical exchanges with HE and their consultants over a period of almost 3 years.
- 2.2 Throughout this period I have advised RHS on technical highway matters and have highlighted what I consider to be fundamental flaws in the proposals which now comprise the DCO Scheme. Based on the technical review I have undertaken, RHS has consistently set out its concerns regarding the significant implications of the proposals on its flagship Garden at Wisley (the **Garden**) and the current £65m investment programme into the future of the Garden.
- 2.3 I consider that in respect of highway considerations, the DCO Scheme would result in significant additional travel, confusing access to the Garden and others bound for Wisley Lane, additional traffic through local villages which currently uses the A3 and a significant overall worsening of access to the Garden. All of this harm is unnecessary and avoidable.
- 2.4 Further to the work I have undertaken on its behalf, RHS has proposed amendments to the DCO Scheme (the **RHS Alternative Scheme**) which would address these significant detrimental implications.
- 2.5 Where possible, throughout this Written Representation, I make reference to the contents of a report I prepared on behalf of RHS which dealt with most of the technical considerations relating to DCO proposals. A copy of that report (the **March 2018 Report**) is attached to this representation in **Appendix A**.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

- 2.6 From the initial HE consultation, RHS has been supportive of the principle of improving J10 but has objected in relation to the proposed access arrangements to the Garden. The RHS position is set against the context of one of HE's original Key Benefits of the DCO Scheme being '**improved access to RHS Wisley**' [Pg 6 of APP-027]. Contrary to this aim, the DCO Scheme would result in a significant worsening of access to and from RHS Wisley.
- 2.7 The DCO Scheme proposes the stopping up of the existing Wisley Lane connection with the A3, with replacement access being by way of a new Link Road connection to the Ockham Roundabout. Given that the DCO Scheme does not propose to replace the access from the A3, the proposals require significant extra travel than at present.
- 2.8 The RHS Alternative Scheme avoids this unnecessary additional travel by way of the following key components;
- (i) retention of an improved Wisley Lane entry to A3 Northbound carriageway
 - (ii) addition of south facing slips at the Ockham Roundabout
- 2.9 Compared to the DCO Scheme, and on the basis of HE's suggested signing of Wisley Lane traffic via the A3 and J10, the RHS Alternative would result in 3.3 million miles per annum less travel¹ based on 2024 forecast visitors per annum (vpa). In addition to these RHS traffic related savings there would also be others associated with non-RHS trips using Wisley Lane.
- 2.10 If traffic does not follow the signed route and instead diverts off the A3 to avoid the additional travel, there would be impacts through local villages as a consequence of the DCO Scheme, which the RHS Alternative would avoid.

¹ This figure has been updated from the March 2018 Report to reflect minor changes in the DCO Scheme (compared with the PRA Scheme) and to reflect a forecast visitor number for 2024 of 1,494,000 vpa.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

2.11 For easy reference, a graphical comparison of the 'Existing', 'DCO Scheme' (as proposed to be signed) and 'RHS Alternative Scheme' routing is provided below:

<https://www.youtube.com/playlist?list=PLeCTDIIV1xbZAc-rWCeUahBGfetTJLWGh>

2.12 Given some of the diversion distances and inconvenience introduced by the DCO Scheme, it is expected that in practice some drivers will divert away from the A3 and route via Send and Ripley. Although this consequence had always been disputed by HE/Atkins, there is now acknowledgement within the DCO submissions that their traffic modelling shows this, albeit it is unclear at present precisely how much traffic HE/Atkins expect to divert off the A3 and through the local villages. Output from the traffic modelling which would clarify the scale of this diversion has been requested and is awaited.

2.13 I should note at this stage that further information and clarification is also awaited in respect of a number of other technical matters relating to; the modelled highway network, survey data analysis, model output (turning flows at junctions), select link output for 2015 Base scenario, junction models for the 2015 Base scenario and Accident information relating to the A3. Once received, I will need to supplement and update the content of this Written Representation.

2.14 Although not contained within the DCO submission documents, in respect of signage, a scheme has now been provided within a Technical Note prepared by Atkins and dated September 2019. A copy of the Technical Note is contained within **Appendix B**. By design, this requires multiple new 'u-turning' movements for trips to and from the south, as demonstrated by the graphical simulation referred to in paragraph 2.11 above. As a consequence of the need to pass the Garden up to three times, via two u-turns (at both J10 and at the Ockham Roundabout), the signed route will result in driver uncertainty, confusion and stress. In this regard the DCO Scheme provisions are fundamentally flawed and I know of no other arrangement anywhere in the UK

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

where such complex routing arrangements exist from the Strategic Road Network. In such circumstances, I consider there to be the potential for an increased risk of accidents.

- 2.15 In contrast with the provisions of the DCO Scheme, the RHS Alternative Scheme would provide vehicle routing which would be simple, clear and less stressful for visitors to RHS Wisley.
- 2.16 In respect of public transport, the combination of the retained left turn slip from Wisley Lane onto the A3 northbound and the provision of south facing slips at Ockham Roundabout as proposed within the RHS Alternative Scheme would enable bus services to continue to route along the A3 and serve RHS Wisley in a more efficient manner than the DCO Scheme.
- 2.17 The original HE scheme which was subject to a non-statutory consultation between 5 December 2016 and 6 February 2017 had a link road connection between Wisley Lane and the Ockham Roundabout which was situated on the north-west side of the A3, partially within the Garden. This particular Link Road would have required RHS land (and associated tree loss). Following RHS objections to HE and work by my team at TTHC to redesign this particular feature, the Link Road was realigned onto the eastern side of the A3.
- 2.18 Whilst the original proposal for a north-west sided Link Road was abandoned in favour of the Link Road being situated on the opposite side of the A3 (as proposed by the DCO Scheme), I now understand that uncertainty in respect of the trees at the A3 boundary of the RHS Garden remains as there is a root survey which has yet to be undertaken. The implications of the DCO Scheme on the trees along the A3 boundary cannot be established until the results of the root survey and the associated DCO engineering works are known. As such, I may need to revert back on this issue once the results of the root survey have been assessed.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

**Highways - Technical Review of Preferred Route Announcement Scheme
(March 2018)**

- 2.19 In overall highway provision terms, the DCO Scheme is essentially the same as that published in March 2018 at Preferred Route Announcement (PRA) stage. In response to the Statutory Consultation for the PRA Scheme, I prepared the March 2018 Report a copy of which is attached to this representation in **Appendix A**.
- 2.20 The preparation of the March 2018 Report followed technical exchanges with HE and their consultants, Atkins, over a period of around 14 months prior. Throughout this period, RHS consistently set out its concerns regarding the significant implications of the HE proposals on the Garden and the £65m investment programme into the future of the Garden. This is set against the backdrop of the very first public consultation (5/12/16-6/2/17) which identified one of six 'Key Benefits' being *improved access to RHS Garden Wisley*.
- 2.21 The March 2018 Report provides much of the technical basis (in respect of highway matters) of the RHS objections to the DCO scheme, albeit based on the earlier PRA Scheme. Where necessary, this Written Representation updates some of the technical aspects of the March 2018 submission.

Highways Feedback (March 2018 to September 2019)

- 2.22 Atkins has provided two written responses to the March 2018 Report. First, a short Technical Note dealing only with matters of 'Safety', 'Journey Distance' and 'Journey Times and Demand', which is dated 21/3/19. Second, a more detailed Technical Note dated 26/9/19 (i.e. after the submission of the DCO Scheme). Copies of these Technical Notes are attached in **Appendix B**.
- 2.23 In respect of Safety, the first Technical Note highlighted that many of the collisions which have contributed to the area around M25 J10's poor safety

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

ranking are on the northbound A3 approach. I have never disputed this and within sections 2.18 and 2.38 of the March 2018 I set out a detailed commentary in respect of the accident record, which in respect of the A3 northbound approach is characterised by 'shunt' type accidents, typical of congested/queuing situations.

- 2.24 The Technical Note suggests that from an assessment using COBA-LT a direct access from Wisley Lane onto the A3 northbound would result in two extra accidents per annum. The assessment itself isn't provided and there is no reference within the Technical Note to any wider assessment of accident reductions due to less overall travel and reducing the routing of traffic through local villages, which such a connection would result in.
- 2.25 In respect of Journey Distance, the first Technical Note quotes some slightly different travel distances for the effect of the then PRA Scheme than I had quoted within Table 1 of the March 2018 Report. This response does, however, highlight that the journey distances via the local villages (as opposed to the HE's proposed scheme) would be shorter.
- 2.26 There is no equivalent assessment provided within the Technical Note which compares distances with the RHS Alternative Scheme.
- 2.27 In respect of Journey Times and Demand, the first Technical Note states that journey times from the south to the Garden are expected to increase by up to 6 minutes in the AM and PM peaks as a result of the scheme if the proposed A3 route is used but that the route via the local villages would be quicker than this. The journey times quoted in the Technical Note were derived from the HE's transport model, details of which were not included with the Note.
- 2.28 In terms of the following matters, the HE did not respond to the March 2018 Report prior to the DCO application being accepted by the Planning Inspectorate on 17 July 2019:

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

- Removal (Stopping Up) of Wisley Lane junction with A3
- Implications for Wisley Lane Trips
- Ockham Roundabout South Facing Slips
- Travel Distance and Air Quality
- Signage and Ease of Use
- Bus Service Implications
- Other Access Improvements

2.29 Where relevant, I refer to the content of these points throughout this Written Representation. However, some of this relates to information which remains outstanding and so I will need to revert back on some matters once the data and responses have been received.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

3.0 EXISTING HIGHWAY NETWORK

Overview

- 3.1 A detailed description of the existing highway network and conditions is provided in Chapter 2 of the March 2018 RHS submission. The March 2018 Report also provides Site Photographs (Appendix F) and a Local Highway Network Plan (Appendix G). An overview of the highway network is provided below.
- 3.2 Access to RHS Wisley is taken from Wisley Lane. This existing highway serves and provides access to Wisley Village, Wisley Common car park, Pyrford, West Byfleet and a route to Woking.
- 3.3 Wisley Lane connects with the A3 via a simple priority left-in / left-out junction requiring a turn onto a parallel link road which has a nearside bus stop / shelter and layby with parking which is predominantly used by HGVs (avoiding charges at Cobham services). The link road has a kerbed offside until a point where the 'back of nose' commences for a sub-standard taper type merge arrangement onto the A3.
- 3.4 Owing to the presence of the layby, it is necessary (currently) to connect with the A3 via the Link Road rather than serve the left-in / left-out connection of Wisley Lane with the A3 via a more traditional diverge and merge arrangement.
- 3.5 At present, this Link Road merge with the A3 joins a 3-lane northbound carriageway. This 3-lane section continues for around 1km before the nearside lane 'drops' to form the off-slip for the M25 movements (clockwise and anti-clockwise) at J10. The two offside lanes continue through the existing J10 interchange towards London.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

- 3.6 The existing interchange between the A3 and M25 slip roads is formed by a fully signal controlled roundabout with a 3-lane circulatory carriageway and 3/4-lane off-slips for all approach arms at the stopline.
- 3.7 During the AM and PM peak periods in particular, all approach arms are subject to congestion and queuing. Often, this congestion results in queuing and slow-moving traffic blocking back down the slip road and onto the A3 mainline. It is an existing lack of capacity at the J10 interchange which is the primary cause of this congestion and traffic queuing traffic back onto the A3 mainline.
- 3.8 During such congested periods, some traffic uses the Link Road as a form of rat-run by diverging off the A3 onto the parallel link in order to bypass the slower moving A3 carriageway before re-joining the mainline carriageway at the merge described above.
- 3.9 The Ockham Roundabout is situated approximately 2.7km and 1km south west of the J10 Interchange and Wisley Lane junctions respectively. It comprises a 4-arm roundabout with single or two lane entries and a circulatory carriageway width which is unmarked but essentially 2 lanes wide. There is currently no signal control.
- 3.10 Two of the arms to the junction are provided by the north-facing slips with the A3, although the first section of the northbound on-slip is a two-way carriageway with Mill Lane. As indicated, there are currently no south-facing slips between the A3 and Ockham Roundabout.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

- 3.11 The other two arms of the junction are the B2039 Ockham Road, which provides access to/from Ockham and the surrounding villages to south-east, and the B2215 Portsmouth Road, which routes through Ripley and Send. To the south of Send there are south facing slip roads but currently no north facing slips. Between the Ockham and Send interchanges the A3 provides 'Ripley Bypass' but the lack of south facing slips at Ockham and north facing slips at Send (Burnt Common) mean that some A3 related movements currently have to pass through Ripley and Send.
- 3.12 In order to provide some context for the consideration of the DCO scheme, and the RHS Alternative proposal, it is important to first understand the current journey routes which are available via the existing junction and access provisions.
- 3.13 The plans in Appendix H of the March 2018 Report provide a diagrammatic representation of each of the following movements and the link referenced in paragraph 2.11 of this Written Representation provides a moving graphical simulation of the movements.

Approach from the South

- 3.14 At present, travelling northbound from the South/Guildford direction, vehicles route via the A3 and take the diverge onto the Link Road before turning left into Wisley Lane.

Return Trip to the South

- 3.15 For the return trip from Wisley Lane heading to the South/Guildford direction, vehicles turn left out of Wisley Lane heading northbound on the A3 and then diverging off to the left at J10, performing a 'U-turn' around the J10 roundabout and back on to the A3 southbound carriageway passing the Wisley Lane (on the right-hand side) and over the Ockham Roundabout continuing south.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

- 3.16 It should be noted that although this movement joins the A3 from Wisley Lane, it does not add to the weaving component in the northbound direction because such movements retain a nearside position to turn off at J10.

Approach from the North

- 3.17 Travelling southbound from the North/London direction, vehicles route via the A3 and take the diverge onto the Ockham Roundabout slip road, performing a u-turn movement around the junction before re-joining the northbound A3 carriageway via the northbound on-slip, continuing on the A3 until the Wisley Lane turn off on the left.

Return Trip to the North

- 3.18 The return trip from Wisley Lane heading to the North/London direction, requires a left turn out of Wisley Lane onto the Link Road and then joining the A3 northbound carriageway. Those movements heading for the M25 (either clockwise or anti-clockwise) remain in the nearside lane to take the diverge off to the left up to J10. These are non-weaving movements.
- 3.19 Those continuing on the A3 into London move across to the middle or off-side lanes and so constitute part of the weaving component between Ockham and J10. As will be discussed, in respect of RHS traffic, this movement constitutes less than ¼ of all trips.

Personal Injury Accidents

- 3.20 As indicated earlier, Chapter 2 of the March 2018 Report provides details of the accident data review which I have undertaken.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

- 3.21 Also as noted, there is some information which is still awaited from HE/Atkins in respect of accidents and so I may need to revert back in respect of safety matters once this has been received. However, there are some points which I have highlighted now as they are based on information within the DCO submission which need to be properly understood within the context of the Wisley Lane connection with the A3 Northbound.
- 3.22 The poor highway geometry of the existing left turn arrangement is described in paragraph 1.3.11 of the DCO TA (**APP-136**). Road Safety and Accident Statistics are presented in Chapter 4 of this TA.
- 3.23 The DCO Scheme proposes the closure (stopping-up) of the existing Wisley Lane connection to the A3 northbound. The primary justification for this continues to be an implied safety improvement – section 4.3 of the TA refers to the predicted reduction in accidents through several operational improvements, one of which includes the closure of side road accesses on the A3, with a reference to Wisley Lane by way of example.
- 3.24 However, as with previous submissions, no evidence is provided of actual safety issues which are directly related to the Wisley Lane connection to the A3.
- 3.25 Paragraph 4.3.7 of the TA suggests benefits '*are largely derived from widening the A3, particularly on the A3 northbound carriageway due to the closure of the Wisley Lane access and the relocation of merges away from the junctions.*' As set out below, this assertion is wholly unjustified.
- 3.26 TTHC has previously undertaken a review of accidents (described in the March 2018 submission) to determine causation and established the most accidents on the A3 northbound carriageway between the location of Wisley Lane and the Junction 10 off-slip are shunt-type accidents arising from congestion and queuing back from J10 itself. Whilst there is some recognition of shunt-related

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

accidents (in paragraph 4.2.4 of the DCO TA) later references seek to make a connection with Wisley Lane which doesn't exist.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

4.0 THE DCO SCHEME

4.1 When reviewing this section of my Representation, it may again assist to make reference to the moving graphical presentation of the respective movements which I refer to in paragraph 2.11.

Removal of Wisley Lane junction with A3

4.2 It should be noted that in respect of the DCO Scheme, it is proposed to stop-up the existing Wisley Lane connection with the A3.

4.3 This proposed stopping-up results in the need to make alternative provision for the existing Wisley Lane movements, which the DCO Scheme proposes by way of u-turns at M25 J10 and the Ockham Roundabout in combination with a Link Road connecting Wisley Lane with the Ockham Roundabout.

4.4 As a consequence of the need to pass the Garden up to three times, via two u-turns (at both J10 and at the Ockham Roundabout), the signed route is significantly less commodious and convenient for traffic using Wisley Lane.

Ockham Roundabout to Wisley Lane Link

4.5 This component of the DCO Scheme provides a connection from the south-eastern end of Wisley Lane (where its existing connection with the A3 is proposed to be stopped-up) to the Ockham Roundabout. The DCO scheme proposes the link to bridge over the A3 and pass along the south-eastern side of the A3.

4.6 Whilst the original proposal for a north-west sided Link Road was abandoned in favour of the Link Road being situated on the opposite side of the A3 (as proposed by the DCO Scheme), I now understand that uncertainty in respect of the trees at the A3 boundary of the RHS Garden remains as there is root survey

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

which has yet to be undertaken. The implications of the DCO Scheme on the trees along the A3 boundary cannot be established until the results of the root survey and the associated DCO engineering works are known. As such, I may need to revert back on this issue once the results of the root survey have been assessed.

Implications for Wisley Lane Trips

- 4.7 With regard to the DCO Scheme, it is important to understand the change in journey routes which would result as a consequence of the Wisley Lane stopping up and the replacement Link Road provisions. The plans in Appendix I of the March 2018 Report provide diagrammatic representation of each of the following movements associated with the DCO Scheme as intended to be signed and the link in paragraph 2.11 provides the graphical simulation of the movements.

Approach from the South

- 4.8 Travelling northbound from the South/Guildford direction, vehicles routing via the A3 would be expected to continue (past the Garden) on the nearside up to J10, taking the diverge off and passing through 4 sets of traffic signals on the enlarged roundabout in order to u-turn and to then head southbound on the on-slip merging with the mainline A3 southbound carriageway (past the RHS site on the offside), taking the diverge off to Ockham Roundabout, turning left onto the Link Road northbound (passing the RHS site again on the nearside) over the A3 before joining Wisley Lane.
- 4.9 Compared to the existing route, the DCO Scheme would add 3.7 miles to each of these trips.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

Return Trip to the South

- 4.10 The return trip from Wisley Lane and heading to the South/Guildford direction, would require vehicles to take the Link Road over the A3 and southbound down to the Ockham Roundabout (passing the RHS site on the offside) before u-turning at the roundabout and taking the northbound slip road onto the A3 (passing the RHS site on the nearside), merging with the mainline carriageway travelling northbound, then diverging from the mainline up to J10, passing through 4 sets of traffic signals on the enlarged roundabout in order to u-turn and then head southbound on the on-slip merging with the mainline A3 southbound (past the RHS site on the offside) and continuing on the southbound carriageway.
- 4.11 Compared to the existing route, the DCO Scheme would add 1.6 miles to each of these trips.

Approach from the North

- 4.12 This movement is the only one which would be similar to the existing provisions. Travelling southbound from the North/London direction, vehicles would route via the A3 and take the diverge onto the Ockham Roundabout slip road, taking the left turn onto the new Link Road northbound over the A3 and then joining Wisley Lane.
- 4.13 Compared to the existing route, the DCO Scheme would reduce travel by 0.1 mile for each of these trips.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

Return Trip to the North

- 4.14 The return trip from Wisley Lane heading to the North/London direction, would require vehicles to take the Link Road over the A3 and southbound down to the Ockham Roundabout (passing the RHS site on the offside) before u-turning at the roundabout and taking the northbound slip road onto the A3 (passing the RHS site on the nearside), merging with the mainline carriageway to the travel northbound.
- 4.15 Compared to the existing route, the DCO Scheme would add 1.5 miles to each of these trips.

Ease of Use of DCO Scheme Signed Route

- 4.16 Within the September 2019 Technical Note contained within **Appendix B**, in response to concerns I raised within the March 2018 Report regarding the routing of Wisley Lane traffic to and from the south (as described above), a signage scheme has been provided. Within the Technical Note itself (paragraph 6.1.2) it is suggested that signage '*will be used to encourage drivers to use the A3 and M25 Junction 10 to access RHS*' [MH emphasis added].
- 4.17 The proposed signage scheme itself is provided in Appendix C of the September 2019 Technical Note. As shown on the first drawing within Appendix C, if travelling from the south the HE scheme proposes a total of 12 'RHS' Brown signs to direct visitors to the Garden.
- 4.18 By design, the DCO Scheme requires these multiple new 'u-turning' movements for trips to and from the south to be undertaken. As a consequence of the need to pass the Garden up to three times, via two u-turns (at both J10 and at the Ockham Roundabout), I believe that the signed route will result in driver uncertainty, confusion and stress, with drivers questioning the logic of passing the Garden and u-turning more than once. In this regard the DCO Scheme

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

provisions are fundamentally flawed and I know of no other arrangement anywhere in the UK where such complex routeing arrangements exist from the Strategic Road Network. In such circumstances, I consider there to be the potential for an increased risk of accidents.

- 4.19 Within the next chapter of my Written Representation, I make reference to the equivalent signage required for the RHS Alternative Scheme.
- 4.21 Within the March 2018 Report [paragraphs 3.24 to 3.26], I had disputed the assumed likelihood that all Wisley Lane traffic to and from the south would follow the intended signed route. Rather than undertake this significant additional journey distance incorporating a number of u-turn manoeuvres, I believed that for some the alternative route via the local road network would become more attractive than the A3 route. This alternative is available now from the south but with the existing access arrangements this is not the route taken by visitors.
- 4.22 In any event, given the additional travel distance, journey time and inconvenience, in practice there will be some drivers who will route via Send and Ripley in order to reach Wisley Lane rather than travel via the circuitous signed route and this is now recognised within the traffic modelling results which have been reported within the DCO. Once I have the outstanding traffic model information from HE, I am expecting to be able to estimate the proportion of traffic which could be expected to divert more precisely.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

- 4.23 In considering this point, it should be noted that the A3 in the location of Send and Ripley is the 'Ripley Bypass' and has performed this function since 1976. Although we do not yet know the proportion of traffic which would be expected to route via the villages, we now know that the latest traffic modelling as relied on by the DCO application is now showing that as a consequence of the proposed Scheme, some A3 traffic will divert off the Ripley Bypass in favour of routeing through Ripley and Send.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

5.0 THE RHS ALTERNATIVE

5.1 In considering alternative options, RHS has sought to ensure that one of the Key Benefits identified by HE at the start of the consultation process (ie *Improved access to RHS Garden, Wisley*) would be achieved whilst also being mindful of other interests within the surrounding area.

5.2 In this regard, the objective was to consider options which:

- would not result in the loss of the most important Garden land and trees;
- would not result in an increase in vehicle travel and emissions;
- would not require difficult and unusual journeys;
- would not result in RHS (and other Wisley Lane) traffic diverting through local villages such as Send and Ripley
- which would be capable of retaining bus access for the Site and the local area;
- would be easy to sign and follow (thereby avoiding driver confusion and stress).

5.3 Much of the above derives directly from seeking scheme simplicity.

5.4 In particular, TTHC has sought to minimise U-turning movements at J10 and the Ockham roundabout where possible. U-turning movements at roundabouts are the most onerous and have the most significant impact on highway capacity as they have a bearing on the operation of all arms of an interchange. Drawings relating to the RHS Alternative Scheme are provided in Appendix J of the March 2018 Report.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

- 5.5 The RHS Alternative Scheme makes provision for the Ockham to Wisley Lane Link in the same way as that proposed by the DCO Scheme but incorporates the;
- (i) retention of an improved Wisley Lane entry to A3 Northbound carriageway
 - (ii) addition of south facing slips at the Ockham Roundabout
- 5.6 The RHS Alternative Scheme retains the existing provision for the Wisley Lane to A3 Northbound movement through the replacement of the existing priority left turn and link (with layby and merge type taper) with a free-flow turn onto a slip road comprising a Type B Parallel Merge connection with the A3. As shown on the second drawing within Appendix J of the March 2018 Report, the resulting LAct weaving length for this scheme is 1017m and so meets the HE requirement without the need for a Departure from Standard.
- 5.7 It should be noted at this stage that, in considering this weaving matter, it is only the Wisley Lane traffic which is heading northbound on the A3 towards London which actually results in a weaving component from the slip. Any traffic routeing clockwise or anti-clockwise on the M25 would be in a nearside position and as such would be a non-weaving component.
- 5.8 In respect of RHS traffic, the A3 London bound movement equates to around 24% of trips. Also, during the morning and evening peak periods, RHS related traffic is more limited as most of the trip activity associated with the Garden occurs during the inter-peak, when other background traffic on the A3 would be lower.
- 5.9 In paragraph 2.24 I noted that the September 2019 Technical Note suggests that a direct access from Wisley Lane onto the A3 northbound would result in two extra accidents per annum. I also noted that the assessment itself isn't provided and there is no reference within the Technical Note to any wider assessment of accident reductions due to less overall travel and reducing the

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

routing of traffic through local villages, which such a connection would result in. The outstanding information referred to in paragraph 2.12 of my Written Representation may provide greater clarity on this matter.

- 5.10 Nevertheless, in the meantime, I would note that whilst it is now claimed (within the September 2019 Technical Note – see **Appendix B**) that a Wisley Lane access onto the A3 northbound would result in two extra accidents per annum, earlier work contained within the November 2017 Scheme Assessment Report – Side Roads Addendum at page 66 (copy attached in **Appendix C**) suggested there would be one additional accident per annum.
- 5.11 In connection with the inclusion of the south facing slips at Ockham Roundabout, these have a very significant effect on reducing overall travel. Details of the vehicle kilometre savings against both the existing highway network provisions and the proposed DCO Scheme are considered in more detail in Chapter 6 of my Written Representation.
- 5.12 I would note, however, that the combination of retaining of an improved Wisley Lane entry to A3 Northbound carriageway with the addition of south facing slips at the Ockham Roundabout results in significant vehicle kilometre savings as well as scheme simplicity (layout and signage) and which avoids Garden and other Wisley Lane traffic routing through Ripley and Send and which provides a more efficient bus service routing.
- 5.13 With regard to additional matters raised within the September 2019 Technical Note which haven't already been discussed within my Written Representation and which I am able to address in the absence of the outstanding information from HE, these are covered below.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

Removal (Stopping Up) of Wisley Lane junction with A3

- 5.14 As set out in paragraph 2.4 of the March 2018 Report, the existing Wisley Lane connection with the A3 comprises a simple priority left-in/left-out junction onto a parallel link road which includes a nearside bus stop/shelter and layby with parking which is predominantly used by HGVs. However, within the RHS Alternative Scheme, described from paragraph 4.10 of the March 2018 Report, it is stated that the existing priority arrangement would be replaced with a slip road comprising a Type B Parallel Merge to cater for the Wisley Lane connection with the A3 northbound carriageway.
- 5.15 Paragraph 2.1.2 of the Technical Note seeks to apply a recently superseded (in August 2019) priority junction design standard (TD42/95 from the Design Manual for Roads and Bridges (DMRB)) to this component of the RHS Alternative Scheme, to then '*by implication*' suggest that this is not the appropriate standard. I have never been suggested that TD42/95 should be the appropriate standard.
- 5.16 In paragraph 2.1.3 the Technical Note goes on to state that another recently superseded standard (August 2019), TD22/06, is also not the appropriate standard because Wisley Lane at present has an at-grade junction with the A3. TD22/06 was the standard which applied when the RHS Alternative Scheme had been prepared and included within the March 2018 Report.
- 5.17 Although TD22/06 has been superseded by CD122 'Geometric Design of Grade Separated Junctions', the September 2019 Technical Note provides a review of the RHS Alternative Scheme against the old standard. There are a number of aspects of paragraphs 2.1.4 to 2.1.5 that I do agree with. However, given that this standard has been superseded, I have focused my response on the sections of the Technical Note which make reference to the latest standard CD122 (paragraphs 2.1.9 to 2.1.10). A copy of CD122 is attached at **Appendix D**.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

- 5.18 The September 2019 Technical Note includes a plan at Appendix A which provides an Atkins Geometric Review of the RHS Alternative Scheme in respect of the Wisley Lane connection with the A3 northbound.
- 5.19 In respect of the turn off Wisley Lane itself, there are three matters raised where Atkins are suggesting greater geometry. It is noted that the higher Rural Road standard (100kph/60mph) for Wisley Lane is being proposed for the taper and nose, as opposed to the lesser requirements for 50mph roads or less (Wisley Lane has a 40mph speed limit at present, although the potential to reduce this to 30mph has been discussed in meetings with HE). In any event, there is scope on Wisley Lane to amend these details if required.
- 5.20 In terms of the slip road radius, it is suggested that this should be 88m (currently proposed to be 56m). However, the minimum radius stated at paragraph 5.10 of CD122 is 30m onto an All Purpose Road and so this component could be reduced if necessary.
- 5.21 The more critical component of the Wisley Lane connection with the A3 Northbound is, however, the Merge standard and the weaving length.
- 5.22 The type of Merge arrangement proposed within the RHS Alternative Scheme would now (under the new standard) be described as a Layout B (Figure 3.14c of CD122), which comprises a Nose, Auxiliary Lane and Taper (see page 18 of CD122). The geometric parameters of this type of layout are set out in Table 3.21 (page 21) of CD122 [for 120kph Rural All Purpose road: Nose = 85m, Min Auxiliary Lane Length = 190m, Length of Auxiliary Lane Taper = 55m].
- 5.23 For the purpose of Layout B weaving calculations, the start of the weaving length is determined by projecting the nearside slip edge to meet the mainline carriageway (see Figure 4.4a of CD122). I introduced the auxiliary lane into our design for the RHS Alternative Scheme to assist with the weaving length and to

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

ensure this met the 1km design standard without the need for a Departure from Standard. In this regard, and contrary to what is suggested in Figure 1 of the September 2019 Technical Note, it is important to understand the purpose of the Auxiliary Lane. This is defined on page 7 of CD122. It is clear from this definition that, when considering weaving length, a Layout A taper should not be applied to a Layout B arrangement in order to determine the start of the weaving length calculation because it would negate the benefit of introducing a Layout B arrangement.

5.24 Additional comments are made within paragraphs 2.1.11 to 2.1.19 regarding the accident record and safety aspects of the RHS Alternative Scheme. I am awaiting further information from HE/Atkins in respect of accidents and so will revert back on these matters once received.

5.25 Similarly, with regard to Section 3 of the September 2019 Technical Note, there is traffic model output that is awaited before I am able to answer these matters.

Ockham Roundabout South Facing Slips

5.26 In considering the points raised in Section 4 of the September 2019 Technical Note, it is noted that HE confirm (at paragraph 4.1.6) that the south facing slips at Ockham could, if feasible and affordable, provide more direct access to Wisley Lane and the Garden. This supplements previous comments by HE that it does not have an in principle objection to the slips.

5.27 In the third bullet of section 4.1.6 of the September 2019 Technical Note, it is noted that Ripley Service Area is approximately 1.5km from Ockham Roundabout. It is then suggested that the weaving length would be around 600m against a standard of 1km. This particular weaving length matter is new in that this has not been suggested as an issue previously. Nevertheless, 600m is not the minimum length which can be achieved.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

5.28 In responding to this particular matter, I should note that there is scope within the spacing available and through the provision of Layout B Merges and Layout A option 2 Diverges (see Figures 3.30b and 4.4f in CD122) between Ripley Service Area and the Ockham Roundabout to provide a 1km weaving length, with the possibility of a very minor shortfall in the southbound direction, which potentially could be addressed by way of relatively minor modification to the Ockham Roundabout.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

6.0 COMPARISON BETWEEN DCO SCHEME AND RHS ALTERNATIVE SCHEME

Scenarios

6.1 DCO Scheme will result in a combination of the following implications:

- Additional Travel Distance (if signed route is followed)
- Diversion of traffic off the A3 (add Ripley bypass ref) through Ripley & Send
- Reduction in Visits

6.2 Mr Bunney deals with the economic consideration of these and examines the potential reduction in the number of visits to the Garden. Within my Written Representation, I have updated the March 2018 Report work in respect of travel distances (including a comparison with the RHS Alternative Scheme) assuming the signed route is followed.

6.3 As noted earlier, in order to estimate the likely diversion of Wisley Lane traffic from the A3 onto the B2215 through Ripley and Send I require the outstanding traffic model information from HE.

Travel Distance Implications

6.4 Within the March 2018 Report, I set out details of the difference in journey distance between the 'Existing', the then 'PRA Scheme' and the 'RHS Alternative Scheme'. As a consequence of relatively minor amendments to the alignment of some of the proposed highway components within the DCO Scheme, this work has been updated.

6.5 Table 1 below has been updated, although the amendments are very minor.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

	Highways England PRA Scheme (compared to existing)	RHS Alternative (compared to Existing)	RHS Alternative (compared to HE Scheme)
From Guildford	+3.7 miles*	+0.2 miles	-3.5 miles
To Guildford	+1.6 miles	-2.2 miles	-3.8 miles
Round Trip (south)	+5.3 miles	-2.0 miles	-7.3 miles
From London	-0.1 miles	-0.1 miles	0
To London	+1.5 miles	0	-1.5 miles
Round Trip (north)	+1.4 miles	-0.1 miles	-1.5 miles
	*Alternative Route via Send/Ripley 3.6 miles shorter		

Table 1 – Comparison of Respective Travel Distances

- 6.6 As shown, the RHS Alternative Scheme would result in significant journey distance savings when compared to the DCO Scheme, with a saving of 7.3 miles on the round trip from/to the South and a saving of 1.5 miles for the round trip to/from the North.
- 6.7 By reference to earlier work undertaken by Motion Transport Consultants, these savings have been applied to an estimate of the RHS related annual trip movements in order to determine the scale of vehicle mileage savings through the year and to estimate the potential emission savings which could result.
- 6.8 Within the March 2018 Report, these calculations had been based on an annual visitor number of 1,200,000 visitors per annum (vpa) and adjusted for travel

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

mode/vehicle occupancy. However, with reference to Mr Bunney's Written Representation, I have updated the figures to reflect the latest RHS forecast for 2024, which as a result of the RHS Investment programme was expected to be 1,494,000 etc. Details of the updated calculations are provided in **Appendix E**.

6.9 Compared to the DCO Scheme, the RHS Alternative Scheme would result in 3.3 million miles per annum less travel (5.4 million kilometres per annum).

6.10 With regard to other Wisley Lane trips further savings in travel distance would also be expected.

Implications for Surrounding Area and Villages

6.11 All of the above calculations are based on traffic travelling on the network as signed with the DCO scheme. However, given some of the diversion distances and inconvenience, it is expected that in practice some drivers will divert away from the A3 and route via Send and Ripley.

6.12 Following the receipt of outstanding traffic model information an estimate of what proportion of traffic is likely to divert will be undertaken and this Written Representation updated.

Signage and Ease of Use

6.13 The proposed signage for the DCO Scheme is provided in Appendix C of the September 2019 Technical Note (copy in **Appendix B**). As shown on the first drawing within Appendix C of the Note, if travelling from the south the HE scheme proposes a total of 12 'RHS' Brown signs to direct visitors to the Garden.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

- 6.14 In order to provide a comparison with the RHS Alternative Scheme, I have attached a plan (see **Appendix C**) which shows the HE proposed signage alongside that which I would propose for the RHS Alternative Scheme. As shown, with the RHS Alternative Scheme, with the provision of south facing slips at Ockham, the equivalent trip from the south would require just 2 'RHS' Brown signs.
- 6.15 In contrast with the provisions of the DCO Scheme, the RHS Alternative Scheme would provide vehicle routeing which would be simple, clear and less stressful for visitors to RHS Wisley.

Bus Service Implications

- 6.16 One of the consequences of the DCO Scheme is the relocation of the existing bus stops which are currently situated either side of the A3 adjacent to the junction with Wisley Lane.
- 6.17 These stops serve the hourly 715 service between Guildford and Kingston Upon Thames, including stops at Burnt Common, Ripley, RHS, Cobham and Esher.
- 6.18 A further benefit of the combination of the retained left turn slip from Wisley Lane onto the A3 northbound and the provision of south facing slips at Ockham Roundabout, as proposed within the RHS Alternative Scheme, is that bus services can continue to route along the A3 but still turn off to serve RHS Wisley before re-joining the A3 carriageway conveniently in both directions without any significant diversion.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

7.0 CONSTRUCTION IMPACTS

- 7.1 Whilst details of the construction phasing have yet to be disclosed, I understand from discussions I have had previously with HE/Atkins that the early phases of the DCO Scheme Construction are likely to relate to parts of the network close to the Garden and that they are likely to commence in Spring 2021, which would coincide with the completion of the RHS Investment works,
- 7.2 I also understand that the DCO works are likely to continue until Summer 2023.
- 7.3 In addition to concerns in relation to the locational implications of the early phase DCO Scheme works, being close to the Garden, and the potential timing of these, commencing closely after the completion of the RHS works, there is also concern regarding the uncertainty of what capacity will be retained on the A3 and around M25 Junction 10 during the works.
- 7.4 The Economic Impact Assessment prepared by Mr Jon Bunney takes account of disruption to the garden, but cannot be conclusive until a Construction Plan is submitted as part of the DCO. I am aware, as noted, that work has been undertaken by HE and RHS team has highlighted the importance of timing and sequence of works and mitigation arrangements but have not been provided with the information required to provide a full assessment.
- 7.5 Greater clarity is vital to the RHS and its visitors in respect of the DCO construction programme. Mr Bunney's assessments suggest that construction impacts on the garden will be significant and the RHS consider that reasonable mitigation is required in the interests of maintaining operations and financial viability of the garden and surrounding businesses and residents.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

8.0 SUMMARY & CONCLUSIONS

Overview

- 8.1 This report has been prepared on behalf of the RHS, to provide a response to the DCO Application for Highways England's proposals for the 'M25 Junction 10 / A3 Interchange'.
- 8.2 I have advised RHS on technical highway matters and have highlighted what I consider to be fundamental flaws in the proposals which now comprise the DCO Scheme.
- 8.3 Through the work I have undertaken, RHS has proposed amendments to the DCO Scheme which would address the significant detrimental implications which would be created.
- 8.4 Throughout this Written Representation, I make reference to the contents of a report I prepared on behalf of RHS which dealt with most of the technical considerations relating to DCO proposals.
- 8.5 From the initial HE consultation, RHS has been supportive of the principle of improving J10 but has objected in relation to the proposed access arrangements to the Garden.
- 8.6 The RHS position is set against the context of one of the HE's original Key Benefits of the DCO Scheme being '***improved access to RHS Wisley***'.
- 8.7 Contrary to this aim, the DCO Scheme would result in a significant worsening of access to and from RHS Wisley.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

The DCO Scheme and RHS Alternative Scheme

- 8.8 The DCO Scheme proposes the stopping up of the existing Wisley Lane connection with the A3, with replacement access being by way of a new Link Road connection to the Ockham Roundabout.
- 8.9 Given that the DCO Scheme does not propose to replace the access from the A3, the proposals require significant extra travel than at present.
- 8.10 The RHS Alternative Scheme avoids this unnecessary additional travel by way of the following key components;
- (i) retention of an improved Wisley Lane entry to A3 Northbound carriageway
 - (ii) addition of south facing slips at the Ockham Roundabout
- 8.11 I have included a link to a graphical simulation of the '**Existing**', '**DCO Scheme**' (as proposed to be signed) and '**RHS Alternative Scheme**' routing to assist in the appreciation of the issues faced in respect of the proposals.
- 8.12 The proposed signage for the DCO Scheme shows that if travelling from the south the HE scheme proposes a total of 12 'RHS' Brown signs to direct visitors to the Garden.
- 8.13 With the RHS Alternative Scheme, the equivalent trip from the south would require just 2 'RHS' Brown signs.
- 8.14 Given some of the diversion distances and inconvenience introduced by the DCO Scheme, it is expected that in practice some drivers will divert away from the A3 and route via the local villages of Send and Ripley.
- 8.15 Although this consequence had always been disputed by HE/Atkins, there is now acknowledgement within the DCO submissions that their traffic modelling

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

shows this, albeit it is unclear at present precisely how much traffic HE/Atkins expect to divert off the A3 and through the local villages. Output from the traffic modelling which would clarify the scale of this diversion has been requested and is awaited.

- 8.16 Further information and clarification is also awaited in respect of a number of other technical matters. Once received, I will need to supplement and update the content of this Written Representation.
- 8.17 Although not contained within the DCO submission documents, in respect of signage, a scheme has now been provided within a Technical Note prepared by Atkins and dated September 2019. By design, this requires multiple new 'u-turning' movements for trips to and from the south, as demonstrated by the graphical simulation referred to.
- 8.18 As a consequence of the need to pass the Garden up to three times, via two u-turns, the signed route will result in driver uncertainty, confusion and stress. In this regard the DCO Scheme provisions are fundamentally flawed and I know of no other arrangement anywhere in the UK where such complex routeing arrangements exist from the Strategic Road Network. In such circumstances, I consider there to be the potential for an increased risk of accidents.
- 8.19 In contrast with the provisions of the DCO Scheme, the RHS Alternative Scheme would provide vehicle routeing which would be simple, clear and less stressful for visitors to RHS Wisley.
- 8.20 In respect of public transport, the RHS Alternative Scheme would enable bus services to continue to route along the A3 and serve RHS Wisley in a more efficient manner than the DCO Scheme.
- 8.21 There remains uncertainty in respect of the trees at the A3 boundary of the RHS Garden as there is a root survey which has yet to be undertaken. The

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

implications of the DCO Scheme on the trees along the A3 boundary cannot be established until the results of the root survey and the associated DCO engineering works are known.

- 8.22 In overall highway provision terms, the DCO Scheme is essentially the same as that published in March 2018 at Preferred Route Announcement stage. In response to the Statutory Consultation for the PRA Scheme, I prepared the March 2018 Report.
- 8.23 The March 2018 Report provides much of the technical basis (in respect of highway matters) of the RHS objections to the DCO scheme, albeit based on the earlier PRA Scheme.
- 8.24 Atkins has provided two written responses to the March 2018 Report. First, a short Technical Note dealing only with matters of 'Safety', 'Journey Distance' and 'Journey Times and Demand', which is dated 21/3/19. Second, a more detailed Technical Note dated 26/9/19 (i.e. after the submission of the DCO Scheme).
- 8.25 The Technical Note suggests that a direct access from Wisley Lane onto the A3 northbound would result in two extra accidents per annum. The assessment itself isn't provided and there is no reference within the Technical Note to any wider assessment of accident reductions due to less overall travel and reducing the routing of traffic through local villages, which such a connection would result in.
- 8.26 In respect of Journey Distance, the first Technical Note quotes some slightly different travel distances for the effect of the then PRA Scheme than I had quoted within the March 2018 Report. This response does, however, highlight that the journey distances via the local villages (as opposed to the HE's proposed scheme) would be shorter.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

- 8.27 There is no equivalent assessment provided within the Technical Note which compares distances with the RHS Alternative Scheme.
- 8.28 With regard to additional matters raised within the second Technical Note of September 2019 this raises matters of weaving length in respect of the proposed Wisley Lane connection with the A3 Northbound component of the RHS Alternative Scheme as well as a new weaving length point in connection with the proposed south facing slips at Ockham (to Ripley Service Area).
- 8.29 The type of Merge arrangement proposed within the RHS Alternative Scheme would now (under the new standard) be described as a Layout B, which comprises a Nose, Auxiliary Lane and Taper which all meet the latest design standard.
- 8.30 I introduced the auxiliary lane into our design for the RHS Alternative Scheme to assist with the weaving length and to ensure this met the 1km design standard without the need for a Departure from Standard. The weaving length of 1km is provided by the RHS Alternative Scheme.
- 8.31 With regard to the south facing slips at Ockham, within the September 2019 Technical Note, it is noted that Ripley Service Area is approximately 1.5km from Ockham Roundabout. It is then suggested that the weaving length would be around 600m against a standard of 1km.
- 8.32 In responding to this particular matter, I should note that there is scope within the spacing available and through the provision of slips with auxiliary lanes to provide a 1km weaving length, with the possibility of a very minor shortfall in the southbound direction, which potentially could be addressed by way of relatively minor modification to the Ockham Roundabout.
- 8.33 In respect of construction impacts, greater clarity is vital to the RHS and its visitors with respect of the DCO construction programme.

**M25 Junction 10 / A3 Wisley Interchange Improvement
Development Consent Order (DCO) Application
Written Representation by Mike Hibbert**

Overall Summary and Conclusion

- 8.34 I consider that in respect of highway considerations, the DCO Scheme would result in;
- (i) significant additional travel,
 - (ii) confusing access to the Garden and others bound for Wisley Lane,
 - (iii) additional traffic through local villages which currently uses the A3, and
 - (iv) a significant overall worsening of access to the Garden.
- 8.35 All of this harm is unnecessary and avoidable.
- 8.36 Based on the signed route, the RHS Alternative Scheme would result in significant journey distance savings when compared to the DCO Scheme, with a saving of 7.3 miles on the round trip from/to the South and a saving of 1.5 miles for the round trip to/from the North.
- 8.37 Adopting the latest RHS forecast of 1,494,000 visitors for 2024, the RHS Alternative Scheme would result in 3.3 million miles per annum less travel (5.4 million kilometres per annum) compared to the DCO Scheme.
- 8.38 In addition to these RHS traffic related savings there would also be others associated with non-RHS trips using Wisley Lane.
- 8.39 I therefore conclude that in respect of Wisley Lane provisions and the impact of the proposals on RHS Garden Wisley, the DCO Scheme is fundamentally flawed.

**M25 JUNCTION 10 / A3
WISLEY INTERCHANGE IMPROVEMENT
DEVELOPMENT CONSENT ORDER (DCO)
APPLICATION**

**WRITTEN REPRESENTATION BY
MIKE HIBBERT (MSc MCIT MIHT MILT MIO D DipEng)
VOLUME 2 of 2 – APPENDICES
(RHS/MH/2)**

TTHC Ltd – the Traffic, Transport & Highway Consultancy

**Manchester
St James Building
79 Oxford Street
Manchester
M1 6EJ**

**London
Mayfair Point
34 South Molton Street
London
W1K 5RG**

www.tthc.co.uk / www.tthc.com

TTHC Ref: MH/M16114-02B
Date: November 2019

© **COPYRIGHT:** The contents of this document must not be copied or reproduced in whole or in part without the written consent of TTHC Ltd

APPENDIX A
TTHC March 2018 Report

M25 JUNCTION 10 TO A3 INTERCHANGE

**RESPONSE TO
PREFERRED ROUTE ANNOUNCEMENT CONSULTATION
(FEBRUARY/MARCH 2018)**

ON BEHALF OF RHS

TTHC Ltd – the Traffic, Transport & Highway Consultancy

Manchester
St James Building
79 Oxford Street
Manchester
M1 6EJ

London
Mayfair Point
34 South Molton Street
London
W1K 5RG

www.tthc.co.uk / www.tthc.com

TTHC Ref: M16114-01A
Date: March 2018

© **COPYRIGHT:** The contents of this document must not be copied or reproduced in whole or in part without the written consent of TTHC Ltd

CONTENTS

EXECUTIVE SUMMARY

	<u>Page No</u>
1.0 INTRODUCTION & BACKGROUND	1
Public Consultation (5 December 2016 – 6 February 2017)	
RHS Consultation Response – 6 February 2017	
Meetings and Further Feedback – March to October 2017	
RHS Letter (Pre-Preferred Route Announcement) - 11 October 2017	
Preferred Route Announcement - November 2017	
Public Consultation (12 February 2018 – 26 March 2018)	
Highways England Documents	
2.0 EXISTING HIGHWAY NETWORK AND CONDITIONS	10
Wisley Lane connection with the A3	
M25 Junction 10	
Ockham Roundabout	
Current Routes to and from Wisley Lane and RHS	
Personal Injury Accidents	
3.0 OVERVIEW OF HE PREFERRED ROUTE ANNOUNCEMENT SCHEME	18
Removal of Wisley Lane junction with A3	
Ockham Roundabout to Wisley Lane Link (WIS01 and WIS10/11)	
Implications for Wisley Lane Trips	
Additional Implications of the PRA Scheme	
Other components of the HE Scheme	
4.0 DESCRIPTION OF RHS ALTERNATIVE SCHEME	24
Ockham Roundabout to Wisley Lane Link	
Retention of Wisley Lane connection with A3 Northbound	
Ockham Roundabout South Facing Slips	
5.0 COMPARISON OF SCHEMES	30
Travel Distance and Air Quality	
Implications for Surrounding Area and Villages	
Signage & Ease of Use	
Bus Service Implications	
Non-Highway Economic Impacts	
7.0 SUMMARY AND CONCLUSIONS	35

APPENDICES

- Appendix A Highways England – Public Consultation Brochure (5/12/16 – 6/2/17)
- Appendix B RHS Consultation Response – 6 February 2017
- Appendix C RHS Letter (Pre-Preferred Route Announcement) - 11 October 2017
- Appendix D Highways England - Preferred Route Announcement Brochure
- Appendix E Highways England - Public Consultation (12/2/18 – 26/3/18)
- Appendix F Site Photographs
- Appendix G Local Highway Network Plan
- Appendix H Current Routes To and From Wisley Lane and RHS (**Existing**)
- Appendix I Proposed Routes To and From Wisley Lane and RHS (**PRA Scheme**)
- Appendix J RHS Alternative Scheme Drawings
- Appendix K RIS Scheme Scope Amendment Examples
- Appendix L Proposed Routes To and From Wisley Lane and RHS (**RHS Alternative Scheme**)
- Appendix M Travel and Emission Calculations

EXECUTIVE SUMMARY

This report has been prepared by TTHC on behalf of the Royal Horticultural Society, to provide a response to Highways England's statutory consultation in respect of its Preferred Route Announcement of the Route Investment Strategy Scheme proposals for the 'M25 Junction 10 to A3 Wisley Interchange'. The preparation of this report follows technical exchanges with HE and their consultants over a period of around 14 months whereby features of the RIS scheme have been discussed and alternatives examined and proposed. In this regard, it is noted that over the course of the consultations to date, the associated HE documents state that customers and stakeholders views and needs will be considered and that the PRA Scheme will be adapted in order to ensure that the most appropriate solution is arrived at for all.

Throughout this period, RHS has consistently set out its concerns regarding the significant implications of the HE proposals on its flagship Garden at Wisley and the current £65m investment programme into the future of the Garden. RHS consider that many of these implications (which result from the current HE proposals for the PRA Scheme) are unnecessary and have avoidable consequences. Pursuant to this, RHS has sought to propose alternative, supplementary and complementary components which would address its key concerns.

From the initial HE consultation, RHS has been supportive of the principle of improving J10 but have noted that the proposals for the A3 were of greatest concern. RHS's subsequent exchanges with HE have set out consistent concerns whilst also proposing alternative arrangements which would better address these issues and impacts. This is against the backdrop of one of the HE's original Key Benefits of the RIS scheme being '*improved access to RHS Wisley*'.

The RHS Alternative scheme promotes the retention of an improved Wisley Lane to A3 Northbound and the addition of south facing slips at the Ockham Roundabout. Details of the RHS scheme which address the weaving requirements of HE and which set out the benefits of retaining a Wisley Lane connection to the A3 northbound and of extending the current RIS scope to include the south facing slips are provided. Compared to the HE PRA Scheme, the RHS Alternative would result in 2.7 million miles per annum less travel. These savings have been calculated to equate to a reduction of 780 tonnes of CO₂ and 4.4 tonnes of N₂O. With regard to other Wisley Lane trips further savings in travel distance and vehicle emissions would also be expected. Given some of the diversion distances and inconvenience, it is expected that in practice some drivers will divert away from the A3 and route via Send and Ripley.

Concerns are raised as to how the PRA Scheme could be signed, particularly without resulting in driver confusion. It is considered that a signage strategy should be prepared to determine how this issue could be addressed. It is also noted that the technical documents make no reference to traveller/vehicle user amenity relating to the ease of use of the proposed PRA scheme. Complex routeing arrangements such as that proposed can result in Driver Stress which in turn could affect road safety.

One of the consequences of the RIS proposal is the relocation of the existing bus stops which are currently situated either side of the A3 adjacent to the junction with Wisley Lane. The HE scheme does not indicate where these stops will be relocated to but RHS has been advised that there is no suitable location for them on the A3 itself. One of the benefits of the combination of the retained left turn slip from Wisley Lane onto the A3 northbound and the provision of south facing slips at Ockham Roundabout is that bus services can continue to route along the A3 but still turn off to serve RHS Wisley before re-joining the A3 carriageway conveniently in both directions without any significant diversion. Such provision is not possible with the HE scheme.

There is a considerable risk to RHS that the additional travel and inconvenience of reaching the Garden at Wisley and returning home will be such a deterrent to visitors that many will simply choose not to travel. The impacts in isolation have been estimated to reduce the annual charitable income by £2m and therefore resulting in a loss-making position. Further impacts on the local economy have also been highlighted.

The report concludes that the issues and implications of the current HE PRA Scheme are unnecessary and avoidable. RHS has suggested additional components to the PRA scheme which would significantly improve the proposals and which would address these concerns. RHS will continue to work with HE and Atkins to address the current objections to the PRA Scheme.

1.0 INTRODUCTION & BACKGROUND

1.1 This report has been prepared by TTHC on behalf of the Royal Horticultural Society (**RHS**), to provide a response to Highways England's (**HE's**) statutory consultation in respect of its Preferred Route Announcement (**PRA**) of the Route Investment Strategy (**RIS**) Improvement Scheme proposals (the **PRA Scheme**) for the 'M25 Junction 10 to A3 Wisley Interchange' (the **Interchange**).

1.2 The preparation of this report follows technical exchanges with HE and their consultants, Atkins, over a period of around 14 months whereby features of the RIS scheme have been discussed and alternatives examined and proposed.

1.3 In this regard, it is noted that over the course of the consultations to date, the associated HE documents state that customers and stakeholders views and needs will be considered and that the PRA Scheme will be adapted in order to ensure that the most appropriate solution is arrived at for all.

1.4 Throughout this period, RHS has consistently set out its concerns regarding the significant implications of the HE proposals on its flagship Garden at Wisley and the current £65m investment programme into the future of the Garden. RHS consider that many of these implications (which result from the current HE proposals for the PRA Scheme) are unnecessary and have avoidable consequences. Pursuant to this, RHS has sought to propose alternative, supplementary and complementary components which would address its key concerns.

1.5 As part of the work which informs this response, a review has been undertaken of further documents which have been published since the PRA in late 2017 and 2018 to date. In particular, the Scheme Assessment Report (**SAR**) V2.5 (Nov 2017) and associated Side Roads Addendum report (**SRA**) V2.5f (Nov 2017) have been examined. The response makes a number of references to information and data contained within these reports.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 1.6 The Scheme, and the RHS alternative components for the PRA Scheme, are described in detail later within this report but for the purpose of this introduction and background the following sections provide a summary of the evolution of the scheme and the feedback provided by RHS to date.

Public Consultation (5 December 2016 – 6 February 2017)

- 1.7 The preliminary consultation period ran from 5 December 2016 to 6 February 2017 with the intention that the consultation period would provide general information surrounding the scheme background, constraints and issues, environmental considerations and the benefits and objectives of the scheme.
- 1.8 The public consultation brochure which supported this (see **Appendix A**) listed a number of **Key Benefits**, including one specifically relating to access for RHS Wisley, and **Key Objectives** as follows:

Key Benefits:

- *increased road capacity at M25 J10 roundabout*
- *increased road capacity on A3 between Ockham & Painshill*
- *improved traffic flow & reduced delays at M25 J10 & on A3*
- *improved safety on A3, entry & exit roads and M25 J10 roundabout*
- *reduced queuing as traffic enters M25 J10 roundabout*
- *improved access to RHS Garden, Wisley*

Key Objectives:

- *improve current layout of J10 & interchange*
- *reduce delays at M25 J10*
- *smooth traffic flow at M25 J10 and exit & entry roads for A3 Wisley*
- *reduce stopping & starting across the junction*
- *address issues at noise important areas where possible*
- *support sustainable travel routes*
- *support economic growth and ensure the junction can accommodate extra traffic*
- *mitigate environmental impacts wherever possible*

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 1.9 At that time, the proposals comprised of two improvement options for Junction 10 (Options 9 and 14); widening of the A3 and the removal (stopping-up) of existing accesses and junctions onto the A3, including that with Wisley Lane which currently connects to the northbound carriageway via a left-in/left-out junction.
- 1.10 The HE proposals sought to replace the existing left turn out of the Wisley Lane junction onto the A3 northbound by diverting those movements onto a Link Road which would connect Wisley Lane to the Ockham Roundabout. This Link Road was proposed on the north/west side of the A3, requiring RHS land (and associated tree loss), and would provide the replacement of the left turn **out of Wisley Lane** onto A3 northbound movement only.
- 1.11 There was no new scheme infrastructure proposed which would provide the replacement left turn from the A3 northbound **into Wisley Lane**, the expectation being that these movements would therefore be required to undertake a significant diversion past Wisley Lane, u-turning firstly at Junction 10 and then again at Ockham Roundabout.

RHS Consultation Response – 6 February 2017

- 1.12 A number of features relating to the proposals were of concern to RHS at this time and so a letter of objection was prepared and submitted on the 6 February 2017 in response to the consultation. A copy of this letter is contained in **Appendix B**.
- 1.13 The consultation response provided background to the Garden and details of a £65m investment which had commenced at Wisley, which set the context of the concerns regarding loss of land, accessibility and impacts during construction. With regard to access, it was noted that Wisley Lane not only served the RHS Garden but also Wisley Village.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 1.14 The letter explained that RHS were very supportive of the principle of improving J10 but noted that the proposals for the A3 were of greatest concern.
- 1.15 Reference was made to the Wisley Lane connection with the A3 and the HE requirement for a weaving length of 1000m, which at that time didn't appear to be achievable. Nevertheless, it was noted that the accident statistics did not appear to suggest an existing safety issue in respect of weaving traffic. The consultation response stated that it was RHS's preference to retain the Wisley Lane connection with the A3 northbound and in this regard Option 14 for Junction 10 appeared to provide the most suitable arrangement for weaving length considerations.
- 1.16 With regard to access from the south along the A3 it was noted that the HE proposals required the current left turn in to Wisley Lane to be replaced with u-turning movements at J10 and Ockham Roundabout resulting in significant additional travel distance. It was also noted that many visitors would not follow signage but would use local knowledge or SatNav guidance which was more likely to route them through Ripley.
- 1.17 It was suggested that the most obvious solution to this issue would be the provision of south facing slips at the Ockham Roundabout and that it was surprising the current scope of the M25 J10 to A3 Interchange work didn't extend to including this, particularly given that this would provide the opportunity to significantly reduce vehicle kilometres.
- 1.18 Similar comments were made in the context of the return journey southbound on the A3 in that this would provide the opportunity for reduce travel distance.
- 1.19 With regard to land take, particular concern was expressed in respect of the impact of the proposals on the Garden adjacent to the A3, which would result in the unacceptable loss of significant and historic trees.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 1.20 The impact during construction was noted particularly in combination with the investment within the Garden and the potential Wisley Airfield development.
- 1.21 Finally, a further meeting and details were requested.

Meetings and Further Feedback – March to October 2017

- 1.22 A number of meetings took place between representatives from RHS and HE over the proceeding months where information and potential proposals and refinements were discussed and shared. This included some refinements of options relating to an alternative Link Road (to connect Wisley Lane with the Ockham Roundabout) on the south/eastern side of the A3. A petition against the HE's option of promoting a Link Road on the RHS side of the A3 was also extensively supported.

RHS Letter (Pre-Preferred Route Announcement) - 11 October 2017

- 1.23 This letter was submitted in advance of HE's PRA to summarise the RHS position and set out its Preferred Arrangements for the RIS scheme. A copy of the letter and associated attachments is provided in **Appendix C**.
- 1.24 At that time, RHS made the assumption that the most likely proposals to come forward from HE at the PRA stage would be Option 14 for J10 and a south/east Link Road connection between Wisley Lane and Ockham Roundabout. The letter included a drawing of this assumed HE scheme.
- 1.25 Within the context of this assumed scheme, RHS included details of additional components which it was seeking, namely; retention of the Wisley Lane left turn connection to the A3 northbound and provision of south facing slips at the Ockham Roundabout. It was noted that, although the alternative proposals sought to retain existing levels of accessibility, the original consultation brochure has stated that one of the key benefits would be '*improved access to RHS Garden, Wisley*'.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 1.26 The letter reiterated the concerns relating to the stopping-up of the current direct connection between Wisley Lane and the A3 and that replacement features of the HE scheme would not provide a suitable alternative for trips affected by the closure. This included not only RHS Garden trips but would also detrimentally affect others using Wisley including trips from Wisley Village, West Byfleet, Pyrford and Woking and that there would be a consequential effect of increased traffic through the local villages of Ripley and Send in particular.
- 1.27 In order to demonstrate how effective the RHS alternative scheme would be at addressing these issues, plans comparing the respective routes to and from the site were included along with a number of journey distance comparisons of the RHS Alternative vs the HE Scheme. These showed that for those travelling from/to the south on the A3, the net difference between the two proposals was more than 7 miles and for those travelling from/to the north on the A3 the net difference was around 1.5 miles.
- 1.28 The letter also highlighted that based on a sample of RHS Members, it had been established that the HE proposals would have a significant effect on visitors.
- 1.29 Within the context of 80% of RHS Members visiting the Garden more than 5 times per annum, it was noted that 60% of these visitors indicated that they would visit less often and 7% of those based to the south of the Garden had indicated that they would not renew their membership.
- 1.30 These impacts in isolation had been estimated to reduce the annual charitable income by £2m and therefore resulting in a loss-making position. Further impacts on the local economy were also highlighted. It was noted that all of these issues were avoidable and unnecessary.
- 1.31 The correspondence made reference to HE's position that the extent of the RIS apparently prevented the south facing slips from being included within the current scheme proposals, despite HE having no in principle objection to

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

these features. As such, it was requested that the concerns relating to the current scope of the RIS be relayed to the Minister, whilst noting that RHS would continue to protect its asset and work with HE.

Preferred Route Announcement - 29 November 2017

- 1.32 On 29 November 2017 HE published the PRA Scheme which included its preferred arrangements for side roads as well as Junction 10. A copy of the PRA brochure is provided in **Appendix D**.
- 1.33 The PRA brochure noted that, as had been assumed by RHS, Option 14 had been selected by HE for J10 in favour of Option 9.
- 1.34 In respect of side roads, and again as had been assumed by RHS, the PRA Scheme proposes a Wisley Lane connection on the south/east side of the A3 with a bridge over the mainline carriageway with all direct connection between Wisley Lane and the A3 removed/stopped-up.
- 1.35 The PRA Scheme does not, therefore, retain or include the Wisley Lane left turn slip onto the A3 northbound nor does it incorporate the south-facing slips at Ockham Roundabout.
- 1.36 Within the last section of the brochure under the heading of “What happens next?” it is stated that “*Highways England would like to ensure that the most appropriate solutions for side road access are developed with landowners, residents and key stakeholders. As such we will be working to develop these further over the coming months and presenting these during the statutory public consultation in winter 2017/18.*”.

Public Consultation (12 February 2018 – 26 March 2018)

- 1.37 This latest public consultation brochure omits the key benefits which the original consultation described, including the “*improved access to RHS Garden, Wisley*”. Indeed, within this latest publication, the only direct

reference to the RHS is in relation to its significance as a nationally important registered historic garden (Page 2). A copy of the brochure is included within **Appendix E** of this report.

1.38 The scheme presented within the brochure is the PRA scheme and so does not retain the existing Wisley Lane connection with the A3 nor does it include the south facing slip roads at the Ockham Roundabout.

1.39 With respect to side roads and local access arrangements, the brochure states that; *“Highways England has undertaken extensive engagement with stakeholders and landowners about the access arrangements on and off the A3 between the Painshill and Ockham junctions. The safety of all road users is our highest priority. For this scheme, we wish to ensure that there is no conflict between vehicles directly entering and exiting what will become a 4-lane, high speed section of the A3. Allowing these direct accesses to continue would be unsafe and we are therefore proposing to provide alternative arrangements as summarised in the table below.”*

1.40 The basis for removing the existing Wisley Lane connection with the A3, which is one of the existing side roads, appears therefore to be based on the conclusion that it would be unsafe for it to remain. This means therefore that the existing junction is either unsafe at present and HE do not consider this can be improved in conjunction with the proposals or that it is not unsafe at present but would become so as a consequence of the proposals. This point is relevant to the review provided within this report.

1.41 No reference is made to south facing slip roads at Ockham.

Highways England Documents

1.42 As indicated, much of this review has had regard to the content of the SAR and SRA reports, both of which are available via the HE website.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 1.43 Additionally, TTHC has obtained and reviewed a copy of HE's Economic Assessment Report (dated August 2017) (**EAR**) which describes the economic appraisal undertaken for Stage 2 of the Interchange Study and which informed some of the content of the SAR and SRA reports.
- 1.44 The next section of this report provides a description of the relevant highway network and conditions.

2.0 EXISTING HIGHWAY NETWORK AND CONDITIONS

2.1 To assist with referencing this part of the report, **Appendix F** contains a number of photographs which relate to the descriptions which follow below and the plan in **Appendix G** provides a plot of the local highway network.

Wisley Lane connection with the A3

2.2 Starting with Wisley Lane, this public highway serves not only as the route to and from the RHS Garden, it also provides access to Wisley Village, Wisley Common car park, Pyrford, West Byfleet and a route to Woking.

2.3 Given these characteristics, Wisley Lane is not in itself an 'access' but a 'highway'. This is an important distinction, particularly in respect of connection to part of the Strategic Road Network (**SRN**) managed by HE as will be discussed later within this report. The reason for highlighting this feature is that section 2.2.4 of the SAR describes this junction as leading to the RHS Garden only.

2.4 Wisley Lane connects with the A3 via a simple priority left-in / left-out junction requiring a turn onto a parallel link road which has a nearside bus stop / shelter and layby with parking which is predominantly used by HGVs (avoiding charges at Cobham services). The link road has a kerbed offside until a point where the 'back of nose' commences for a sub-standard taper type merge arrangement onto the A3.

2.5 Owing to the presence of the layby, it is necessary (currently) to provide the Link Road rather than serve the left-in / left-out connection of Wisley Lane with the A3 via a more traditional diverge and merge arrangement.

2.6 At present, this Link Road merge with the A3 joins a 3-lane northbound carriageway. This 3-lane section continues for around 1km before the nearside lane 'drops' to form the off-slip for the M25 movements (clockwise

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

and anti-clockwise) at J10. The two offside lanes continue through the existing J10 interchange towards London.

M25 Junction 10

- 2.7 The existing interchange between the A3 and M25 slip roads is formed by a fully signal controlled roundabout with a 3-lane circulatory carriageway and 3/4-lane off-slips for all approach arms at the stopline.
- 2.8 During the AM and PM peak periods in particular, all approach arms are subject to congestion and queuing. Often, this congestion results in queuing and slow-moving traffic blocking back down the slip road and onto the A3 mainline. It is a lack of capacity at the J10 interchange which is the primary cause of this congestion and queuing traffic back onto the A3 mainline.
- 2.9 During such congested periods, some traffic uses the Link Road as a form of rat-run by diverging off the A3 onto the parallel link in order to bypass the slower moving A3 carriageway before re-joining the mainline carriageway at the merge described in paragraph 2.4 above.

Ockham Roundabout

- 2.10 The Ockham Roundabout is situated approximately 2.7km and 1km south west of the J10 Interchange and Wisley Lane junctions respectively. It comprises a 4-arm roundabout with single or two lane entries and a circulatory carriageway width which is unmarked but essentially 2 lanes wide. There is currently no signal control.
- 2.11 Two of the arms to the junction are provided by the north-facing slips with the A3, although the first section of the northbound on-slip is a two-way carriageway with Mill Lane. As indicated earlier, there are currently no south-facing slips between the A3 and Ockham Roundabout.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 2.12 The other two arms of the junction are the B2039 Ockham Road, which provides access to/from Ockham and the surrounding villages to south-east, and the B2215 Portsmouth Road, which routes through Ripley and Send. To the south of Send there are south facing slip roads but currently no north facing slips. Between the Ockham and Send interchanges the A3 provides 'Ripley Bypass' but the lack of south facing slips at Ockham and north facing slips at Send (Burnt Common) meant that some A3 related movements currently have to pass through Ripley and Send.

Current Routes to / from Wisley Lane and RHS

- 2.13 In order to provide some context for the consideration of the HE PRA scheme and the RHS Alternative proposal, it is important to first understand the current journey routes which are available via the existing junction and access provisions. The plans in **Appendix H** provide diagrammatic representation of each of the following movements:

Approach from the South

- 2.14 At present, travelling northbound from the South/Guildford direction, vehicles route via the A3 and take the diverge onto the Link Road before turning left into Wisley Lane.

Return Trip to the South

- 2.15 The return trip from Wisley Lane and heading to the South/Guildford direction, vehicles turn left out of Wisley Lane heading northbound on the A3 and then diverging off to the left at J10, performing a 'U-turn' around the J10 roundabout and back on to the A3 southbound carriageway passing the Wisley Lane (on the right-hand side) and over the Ockham Roundabout continuing south. It should be noted that although this movement joins the A3 from Wisley Lane, it does not add to the weaving component in the northbound direction because such movements retain a nearside position to turn off at J10.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

Approach from the North

- 2.16 Travelling southbound from the North/London direction, vehicles route via the A3 and take the diverge onto the Ockham Roundabout slip road, performing a u-turn movement around the junction before re-joining the northbound A3 carriageway via the northbound on-slip, continuing on the A3 until the Wisley Lane turn off on the left.

Return Trip to the North

- 2.17 The return trip from Wisley Lane heading to the North/London direction, requires a left turn out of Wisley Lane onto the Link Road and then joining the A3 northbound carriageway. Those movements heading for the M25 (either clockwise or anti-clockwise) remain in the nearside lane to take the diverge off to the left up to J10. These are non-weaving movements. Those continuing on the A3 into London move across to the middle or off-side lanes and so constitute part of the weaving component between Ockham and J10. As will be discussed, in respect of RHS traffic, this movement constitutes less than ¼ of all trips.

Personal Injury Accidents

- 2.18 At section 2.3.2 of the SAR it is noted that, over an assessment period covering 2009 to 2011 across the SRN, M25 J10 was found to have the highest number of casualties at any junction and, that over a period covering 2010 to 2015, this junction was found to have the fourth highest number of personal injury accidents (PIAs) on the M25. The severity of accidents was found to be typical of other junctions on the M25.
- 2.19 This section of the SAR continues to examine local 'hotspots' and it is stated that the highest link (not junction) accident clusters are observed on:

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- M25 clockwise & anti-clockwise off-slips (9 and 13 PIAs respectively)
- Northbound A3 off-slip (10 PIAs)
- Western circulatory carriageway & A3 Nb'd on slip at Ockham (10 PIAs)
- Links in proximity to the access/egress at Wisley Lane (13 PIAs)
(TTHC emphasis added)

2.20 No further detail is provided in the SAR but the final bullet does not mean that the junction of Wisley Lane with the A3 is the cause of these accidents. It is stated that these are link based accidents and so would have mostly occurred on the A3 itself.

2.21 Section 6.3.3 of the SAR describes the 'Accident Analysis' which has been undertaken to assess the benefits of the PRA scheme, although the detail of this analysis is not provided and the savings are only presented for the junction itself (no information is provided in respect of the A3). In any event, it is noted that the largest savings in accidents based on the HE analysis are derived from M25 J10.

2.22 The information provided in respect of J10 is given for both Option 14 (the PRA scheme) and Option 9 (the rejected layout). On the basis of the HE assessment, the rejected layout would actually save 72% more accidents than the scheme which now constitutes part of the PRA Scheme. Clearly, however, the choice of Scheme is not based entirely on accident savings as the option which saves the most has been rejected.

2.23 The choice of Scheme is based on a balance of many factors and in this regard it is noted that the overall Benefit to Cost Ratio (set out in Table 6.6 of the SAR) is higher for Option 14 than for Option 9.

2.24 One of the key discussion areas between RHS and HE has been the retention of a Wisley Lane connection with the A3 northbound carriageway.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 2.25 As noted in paragraph 1.15, it had been assumed by HE that the retention of such a connection would not be capable of meeting the HE's 1km weaving length standard without a change of speed limit to 50mph.
- 2.26 Indeed, section 5.8.6, 5.9.1 and 5.11.4 of the HE's earlier Technical Appraisal Report (**TAR**) suggests that the decision to close the Wisley Lane junction with the A3 was due to the 'shortened' weaving length resulting from the Interchange scheme proposals (from a quoted 870m to 560m, presumably for the now rejected Option 9 scheme).
- 2.27 Scheme design in respect of weaving length is dealt with later within this report but for the purpose of this 'Existing Conditions' part of the report it is the accident record of the current layout which is considered.
- 2.28 In addition to this design requirement (assuming no application for a Departure from Standard), weight has been given by HE to the accident record for this part of the network where it is suggested that there is an accident hotspot in proximity to the Wisley Lane junction (as referenced in para 2.19 above), although little detail is given in the SAR.
- 2.29 The SRA provides a little more information in this regard and on page 66 it is stated that there were 6 reported accidents which HE suggested were directly related to the Wisley Lane junction and '*primarily due to the conflict between the A3 traffic and traffic merging onto the A3 from Wisley Lane rather than traffic exiting the A3*'. The proportion of the 6 accidents merging rather than diverging isn't quantified.
- 2.30 Paragraph 1.6 of the Preliminary Environmental Information Report (**PEIR**) also suggests that accidents in the area are '*partly attributable to high levels of congestion but also number of side roads which connect directly thus reducing safe weaving distances*'.
- 2.31 With regard to the 6 suggested Wisley Lane junction accidents, there is little in the way of detail to see how this number has been arrived at. Reference is

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

made in the SAR to an Economic Impact Assessment Report (**EIAR**) which HE has recently supplied to TTHC where it was hoped that more detail might be found. However, this does not include the relevant information for a more detailed interrogation of this suggestion.

- 2.32 In any event, putting the 6 PIAs into context, section 3 of the EIAR notes that in the area of interest over a 6-year period between 2010 and 2015 there were a total of 196 PIAs. It is also noted that from the HE analysis set out in the EIAR it is stated that *'There is no particular common feature of the accidents (time of day/weather etc.) although the average number of vehicles involved was 2.6 (with a maximum of nine), indicating congestion related shunts and collisions as the cause.'* The problems associated with this congestion is also acknowledged within section 2.5 of the SAR.
- 2.33 PIA data obtained by TTHC for the purpose of the original consultation would concur with this statement and suggests that most of the accidents on the A3 northbound are due to shunt accidents characteristic of congested conditions on higher speed roads. Based on the TTHC collected PIA data, it is suggested that perhaps only 1 accident was possibly due to a conflict of a vehicle merging and weaving with traffic on the A3, even on the basis of the current sub-standard merge provisions associated with the layout.
- 2.34 Examination of the 'Serious' accident classification would suggest that none are due to weaving movements from Wisley Lane.
- 2.35 By reference to HE's assessment of hotspots (page 18 of the SAR) we also know that other features of the Interchange have a greater number of accidents (M25 clockwise & anti-clockwise off-slips = 9 and 13 PIAs respectively, Northbound A3 off-slip = 10 PIAs and Western circulatory carriageway & A3 Northbound on slip at Ockham = 10 PIAs) but the proposals haven't sought to 'remove' these components from the scheme.
- 2.36 Of course, the removal of a junction will 'save' junction accidents occurring in the future but this has to be put into the context of other assessed costs and

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

benefits, otherwise, applying this logic would suggest removing J10 itself would be the most effective scheme. Furthermore, the additional safety implications of any trips diverted as a consequence of the lost convenience and accessibility should also be examined, a point which will be referenced later within the report.

- 2.37 In any event, based on the data and information provided within the various supporting documents to the PRA scheme, no evidence has been provided which demonstrates that there is an existing weaving accident issue resulting from the Wisley Lane connection with the A3, despite the sub-standard nature of the existing merge arrangements.
- 2.38 Finally for this section, given the passage of time since this original search, an updated interrogation of data has been requested by TTHC to ensure the most up to date data is reviewed but at the time of preparing this response this information hadn't yet been received. It is therefore proposed to provide a supplementary report in respect of the updated accident assessment once this data has been received.

3.0 OVERVIEW OF THE PRA SCHEME

Removal (Stopping Up) of Wisley Lane junction with A3

3.1 First, it should be noted that the PRA Scheme is not merely not providing for a Wisley Lane connection with, and movements off and onto, the A3, it would remove current junction provisions by stopping-up the existing connection.

3.2 This results in the need to make alternative provision for such movements, although the current RIS scheme proposals are less convenient for most traffic using Wisley Lane.

3.3 Within section 5.5.4 of the SAR, it is suggested that the removal of side road connections and accesses from the A3 is based on the requirements of TD41/95 'Vehicular Access to All-Purpose Trunk Roads'. However, there is a distinction to be made here in that some of the side roads are public highways and not merely accesses and so the applicability of TD41/95 to Wisley Lane is questioned.

3.4 The purpose of TD41/95 is to control development access to Trunk Roads. It is not a tool which justifies the stopping-up of existing public highway connections to Trunk Roads and this is clear from the associated Road Circular history which this standard relates to.

Ockham Roundabout to Wisley Lane Link (WIS01 and WIS10/11)

3.5 RHS is pleased that the earlier WIS01 proposal (north/west sided Link Road) has been abandoned in favour of the Link Road being situated on the opposite side of the A3.

3.6 However, WIS10 (as referred to in the SAR) is not favoured as this provides no opportunity for the Wisley Lane to retain a connection to the northbound A3 without having an impact of the SPA.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 3.7 Although requiring more RHS land, the WIS11 alignment (as included within the SRA reports) incorporating a skewed bridge is preferred as this allows such an arrangement (with the A3) to be incorporated.
- 3.8 Ultimately, RHS would be supportive of this component of the scheme, albeit subject to the precise positioning/alignment of the bridge as required to accommodate a Wisley Lane to A3 northbound slip road.

Implications for Wisley Lane Trips

- 3.9 With regard to the PRA Scheme, it is important to understand the change in journey routes which would result as a consequence of the Wisley Lane stopping up and the replacement Link Road provisions. The plans in **Appendix I** provide diagrammatic representation of each of the following movements associated with the PRA Scheme.

Approach from the South

- 3.10 Travelling northbound from the South/Guildford direction, vehicles routing via the A3 would be expected to continue (past the RHS site) on the nearside up to J10, taking the diverge off and passing through 4 sets of traffic signals on the enlarged roundabout (Option 14) in order to u-turn and to then head southbound on the on-slip merging with the mainline A3 southbound carriageway (past the RHS site on the offside), taking the diverge off to Ockham Roundabout, turning left onto the Link Road northbound (passing the RHS site again on the nearside) over the A3 before joining Wisley Lane.
- 3.11 Compared to the existing route, the PRA Scheme would add 3.6 miles to each of these trips.

Return Trip to the South

- 3.12 The return trip from Wisley Lane and heading to the South/Guildford direction, would require vehicles to take the Link Road over the A3 and southbound

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

down to the Ockham Roundabout (passing the RHS site on the offside) before u-turning at the roundabout and taking the northbound slip road onto the A3 (passing the RHS site on the nearside), merging with the mainline carriageway travelling northbound, then diverging from the mainline up to J10, passing through 4 sets of traffic signals on the enlarged roundabout (Option 14) in order to u-turn and then head southbound on the on-slip merging with the mainline A3 southbound (past the RHS site on the offside) and continuing on the southbound carriageway.

- 3.13 Compared to the existing route, the PRA Scheme would add 1.6 miles to each of these trips.

Approach from the North

- 3.14 This movement is the only one which would be similar to the existing provisions. Travelling southbound from the North/London direction, vehicles would route via the A3 and take the diverge onto the Ockham Roundabout slip road, taking the left turn onto the new Link Road northbound over the A3 and then joining Wisley Lane.

- 3.15 Compared to the existing route, the PRA Scheme would reduce travel by 0.1 mile for each of these trips.

Return Trip to the North

- 3.16 The return trip from Wisley Lane heading to the North/London direction, would require vehicles to take the Link Road over the A3 and southbound down to the Ockham Roundabout (passing the RHS site on the offside) before u-turning at the roundabout and taking the northbound slip road onto the A3 (passing the RHS site on the nearside), merging with the mainline carriageway to the travel northbound.

- 3.17 Compared to the existing route, the PRA Scheme would add 1.5 miles to each of these trips.

Additional Implications of the PRA Scheme

- 3.18 The proposed PRA Scheme would result in significant increases in all round trips to/from RHS Wisley as well as all other trips currently using Wisley Lane. The full implications of these increases are set out later within the report. However, in addition to the extra travel distance, in highway terms it is clear from the convoluted routeing required by the PRA Scheme is very 'unfriendly' for vehicular road users and lacks traveller amenity. In this regard, TTHC have been unable to find a comparable scheme requiring similar u-turning and diversions anywhere in the UK.
- 3.19 Section 3.1.2 of the SRA (page 19) claims that; *'The marginal increase in journey distance is considered to be a negligible inconvenience and the direct access to Wisley Lane from Ockham Interchange with improved access to the A3 is an overall improvement on the existing condition.'*
- 3.20 This part of the SRA, which considers parts of the RHS Alternative scheme, continues to note that; *'It is recognised that traffic travelling northbound on the A3 would incur a larger diversion of approximately 6km before entering Wisley Lane. WIS12 also includes south facing slips at Ockham interchange to address this issue. Analysis of an Automatic Number Plate Recognition survey undertaken by Atkins reveals that only 20% of users of Wisley Lane on a typical day arrive and depart via the A3 to/from the Guildford direction. Journey times would be approximately four minutes longer and at this stage of analysis it is not evident that there are sufficient benefits to these road users to justify extending the scope of this project to include south facing slips for this reason alone.'*
(TTHC emphasis added)
- 3.21 Firstly, TTHC has not seen the ANPR data upon which it is suggested that the proportion of RHS traffic travelling from the south is only 20% and so it is not possible to comment on this other than to note that it differs from that used by Motion Transport Consultants (31%) in earlier work they had undertaken.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 3.22 Secondly, whilst it is claimed that the additional journey time would only be four minutes, TTHC calculates that this would equate to an average speed of around 54mph, which includes passing through J10, through four signal controlled nodes etc which appears very unlikely to be achieved in practice even during off-peak periods. Subject to the provision and review of junction assessment output, TTHC consider that the additional journey time (for the inbound movement alone) would be between around 6 to 8 minutes.
- 3.23 With regard to the significance of such journey time impacts, by reference to the 'Delay' component of the need for the Interchange Scheme (SAR Executive Summary), it is noted that a delay of 40 seconds per vehicle per mile is considered significant for the A3 by HE.
- 3.24 In any event, given the additional travel distance, journey time and inconvenience, in practice there will be some drivers who will route via Send and Ripley in order to reach Wisley Lane rather than travel via the circuitous signed route.
- 3.25 This is against a backdrop of the HE model assessment (as set out at the end of section 6.2.3 of the SAR) already suggesting that there would be an increase in traffic through Ripley.
- 3.26 The difficulty associated with the proposed routeing will manifest itself also when considering highway signage. Indeed, TTHC would suggest that signage is a matter which is considered now (rather than later in the design process as would normally be the case) as this in itself will demonstrate the difficulties which drivers will face and the potential for driver confusion and stress, which as yet has not been assessed either in isolation or in connection with its implications in respect of road safety and accidents.
- 3.27 Also, whilst it is noted that the PRA Scheme will remove the existing bus stops on the A3 which are situated at the Wisley Lane connection, there appears to be no replacement provision within the current proposals.

- 3.28 Other implications in respect of impacts on the charitable income of the RHS and the local economic impacts will be set out in a separate study which has been commissioned.

Other components of the HE Scheme

- 3.29 Within the context of the removal of the Wisley Lane connection with the A3, on the assumption to date that it would not be possible to achieve the 1km weaving length required by design standards, it is worth noting that Departures from Standards in connection with RIS schemes such as that proposed at the Interchange are not uncommon. Indeed, in this regard, it is noted in Section 5.6 of the SAR that 6 Departures have already been identified with the current PRA proposals, two of which relate to weaving lengths.
- 3.30 The next section of this report relates to the changes to the PRA Scheme that RHS proposes (the **RHS Alternative Scheme**).

4.0 DESCRIPTION OF RHS ALTERNATIVE SCHEME

4.1 In considering alternative options, RHS has sought to ensure that one of the Key Benefits identified by HE at the start of the consultation process (ie *Improved access to RHS Garden, Wisley*) would be achieved whilst also being mindful of other interests within the surrounding area.

4.2 In this regard, designs have been considered which:

- would not result in the loss of the most important Garden land and trees;
- would not result in an increase in vehicle travel and emissions;
- would not require difficult and unusual journeys;
- would not result in RHS traffic diverting through local villages such as Send and Ripley and which would be capable of retaining bus access for the Site and the local area; but which
- would be easy to sign and follow (thereby avoiding driver confusion and stress).

4.3 Much of the above derives directly from seeking scheme simplicity and by way of a scope which is sufficient to ensure that any removal of accessibility can be suitably replaced with alternative arrangements.

4.4 In particular, TTHC has sought to minimise U-turning movements at J10 and the Ockham roundabout where possible. U-turning movements at roundabouts are the most onerous and have the most significant impact on highway capacity as they affect all arms of an interchange.

4.5 Drawings relating to the RHS Alternative Scheme are provided in **Appendix J** of this report. These drawings have been shared with HE previously (via email on 6 March 2018).

Ockham Roundabout to Wisley Lane Link

- 4.6 As shown on the first drawing in **Appendix J**, the RHS Alternative Scheme makes provision for the principle of the Ockham to Wisley Lane Link equivalent to the HE option WIS11, which forms part of the PRA Scheme.
- 4.7 Whilst TTHC has not yet had the opportunity to overlay the RHS proposal with the PRA scheme within CAD, based on a visual inspection the differences between the two relate to a very minor difference in the position and alignment of the Link Road overbridge, whereby the RHS scheme provides a little more space to accommodate the proposed retention of the Wisley Lane to A3 northbound connection via an improved slip road arrangement.
- 4.8 A key feature of this Link Road is the avoidance of impact on the Ancient Woodland adjacent to the A3 near the Ockham Roundabout.
- 4.9 It is not expected that the differences in respect of this particular component between the HE and RHS schemes are significant in terms of layout or cost.

Retention of Wisley Lane connection with A3 Northbound

- 4.10 The RHS Alternative Scheme retains the existing provision for the Wisley Lane to A3 Northbound movement through the replacement of the existing priority left turn and link (with layby and merge type taper) with a free-flow turn onto a slip road comprising a Type B Parallel Merge connection with the A3. As shown on the second drawing within **Appendix J**, the resulting LAct weaving length for this scheme is 1017m and so meets the HE requirement without the need for a Departure from Standard.
- 4.11 An earlier version of this arrangement has been considered by HE and is referred to as WIS12 within the SRA. This earlier version impacted on the corner of the SPA land to the north, whereas the proposed RHS Alternative scheme avoids the need for this. This earlier scheme as considered in the

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

SRA also connected with the A3 further north and so, unlike the latest proposal, was not able to achieve the required 1000m weaving length.

- 4.12 It should be noted at this stage that, in considering this weaving matter, it is only the Wisley Lane traffic which is heading northbound on the A3 towards London which actually results in a weaving component. Any traffic routeing clockwise or anti-clockwise on the M25 would be a non-weaving component.
- 4.13 In respect of RHS traffic, the A3 London bound movement equates to around 24% of trips. Also, during the morning and evening peak periods, RHS related traffic is more limited as most of the trip activity associated with the Garden occurs during the inter-peak.
- 4.14 It is noted that on page 66 of the SRA, it is claimed that if the Wisley Lane connection were to be retained there would be one additional accident per annum and that over a 60-year appraisal period this would equate to £3-£4m economically. It should be noted that TTHC have seen no evidence of this within any of the technical documents published by HE. Given that the arrangements proposed by RHS would provide improvement to the current layout it is not clear how HE have calculated that there would be an additional PIA per annum as a consequence of this component, particularly given that none of the other consequential effects on accidents (as a result of removing this junction) appear to have been calculated or assessed.
- 4.15 The cost of HE's WIS12 option (equivalent to the RHS Alternative Scheme component) hasn't been separately identified within the SRA. However, it is expected that this component in isolation would have a cost not exceeding £1m.

Ockham Roundabout South Facing Slips

- 4.16 Whilst there is no in principle objection from HE regarding the provision of south facing slips at the Ockham Roundabout it is recognised that the current

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

scope of the RIS does not make provision for these to be included within the Interchange proposals at present.

- 4.17 TTHC believe there is precedent for a change in the scope of the RIS and some examples of such cases are provided in **Appendix K**.
- 4.18 Although the inclusion of these slips would require an amendment to the scope of the RIS, as a consequence of feedback received from stakeholders during the earlier consultation, which requested the inclusion of south-facing slips at Ockham, Section 5.3.3 of the SRA provides a preliminary assessment of such slips.
- 4.19 There is recognition within this section of the SRA that the incorporation of the slips could generate some environmental benefits it is noted that these have not been assessed by HE at this stage. Potential benefits include reduced noise and emissions within Ripley.
- 4.20 Section 2.4 of the SRA notes that the cost of providing the south facing slips at Ockham Roundabout would represent around £8m. This is a little higher than earlier estimates given. The scheme assessed by HE for the modifications to the Ockham Roundabout is not the scheme promoted by RHS, which should have a lower cost and will not impact to the same degree on the flood plain.

Implications for Wisley Lane Trips

- 4.21 Plans showing the proposed Routes to and from Wisley Lane under the RHS Alternative Scheme are presented in **Appendix L**.

Approach from the South

- 4.22 In the with 'RHS Alternative Scheme' scenario, traffic travelling northbound from the South/Guildford direction would route via the A3 and take the diverge provided by the proposed south facing slip before travelling around the

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

Ockham Roundabout onto the Link Road northbound (passing the RHS site on the nearside) over the A3 before joining Wisley Lane.

- 4.23 Compared to the existing route, the RHS scheme would add 0.2 miles to the travel distance for each of these trips but compared to the HE PRA Scheme would reduce distance travelled by 3.4 miles.

Return Trip to the South

- 4.24 The return trip from Wisley Lane heading to the South/Guildford direction would require vehicles to take the Link Road over the A3 and southbound down to the Ockham Roundabout (passing the RHS site on the offside) before joining the proposed south facing on slip and travelling southbound on the A3.

- 4.25 Compared to the existing route, the RHS Scheme would reduce distance travelled by 2.2 miles and compared to the HE PRA Scheme would be some 3.8 miles shorter.

Approach from the North

- 4.26 Again, this movement would be similar to the existing provisions and the route the same as with the HE scheme

- 4.27 Compared to the existing route, the RHS scheme would reduce travel by 0.1 mile for each of these trips.

Return Trip to the North

- 4.28 With the RHS Scheme the return trip from Wisley Lane heading to the North/London direction would be similar to the existing provision in terms of travel distance.

- 4.29 However, compared to the PRA Scheme the RHS proposal would reduce travel by 1.5 miles..

Additional Implications of the PRA Scheme

- 4.30 The proposed RHS Scheme would result in significant decreases in all round trip distance to/from RHS Wisley as well as all other trips currently using Wisley Lane when compared to the HE PRA proposals.
- 4.31 However, in addition to these savings, in highway terms it is clear that the RHS scheme would avoid the need for convoluted and circuitous routing as required by the PRA scheme. The RHS proposal is very 'user-friendly' for vehicular road users and provides good traveller amenity. There would be a reduction in the need for u-turning movements as a consequence of the south-facing slip roads.
- 4.32 The improved journey distances would keep RHS and other Wisley Lane bound traffic on the A3 for longer avoiding the need to route via Send and Ripley.
- 4.33 Highway signage would be very straightforward and the RHS proposals would avoid the likelihood of driver confusion and stress, resulting in indirect safety benefits.
- 4.34 It should also be noted that there is scope adjacent to Wisley Lane within the RHS site boundary to provide a bus turnaround such that current services would not be lost. The retention of the Wisley Lane connection to the A3 northbound will assist in retaining the existing bus service.
- 4.35 By maintaining and improving the accessibility of the Garden, there would be no loss of charitable income once the Interchange scheme is operational. Nor would there be any negative implications for the local economy.
- 4.36 The next section of the report provides a more detailed comparison of the respective schemes.

5.0 COMPARISON OF SCHEMES

Travel Distance and Air Quality

5.1 The previous sections of the report set out the travel distances associated with the 'Existing', 'HE PRA Scheme' and 'RHS Alternative Scheme'. **Table 1** below draws this information together and compares the schemes against the Existing situation and each other.

	Highways England PRA Scheme (compared to existing)	RHS Alternative (compared to Existing)	RHS Alternative (compared to HE Scheme)
From Guildford	+3.6 miles*	+0.2 miles	-3.4 miles
To Guildford	+1.6 miles	-2.2 miles	-3.8 miles
Round Trip (south)	+5.2 miles	-2.0 miles	-7.2 miles
From London	-0.1 miles	-0.1 miles	0
To London	+1.5 miles	0	-1.5 miles
Round Trip (north)	+1.4 miles	-0.1 miles	-1.5 miles
	*Alternative Route via Send/Ripley 3.5 miles shorter		

Table 1 – Comparison of Respective Travel Distances

5.2 As shown, the RHS Alternative Scheme would result in significant journey distance savings when compared to the PRA Scheme, with a saving of 7.2 miles on the round trip from/to the South and a saving of 1.5 miles for the round trip to/from the North.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 5.3 By reference to earlier work undertaken by Motion Transport Consultants, these savings have been applied to an estimate of the RHS related annual trip movements in order to determine the scale of vehicle mileage savings through the year and to estimate the potential emission savings which could result.
- 5.4 These calculations have been based on an annual visitor number of 1.2m people and adjusted for travel mode/vehicle occupancy etc. Details of the calculations are provided in **Appendix M**.
- 5.5 Compared to the HE PRA Scheme, the RHS Alternative would result in 2.7 million miles per annum less travel.
- 5.6 These savings have been calculated to equate to a reduction of 780 tonnes of CO₂ and 4.4 tonnes of N₂O.
- 5.7 With regard to other Wisley Lane trips further savings in travel distance and vehicle emissions would also be expected.

Implications for Surrounding Area and Villages

- 5.8 Of course, all of the above calculations are based on traffic travelling on the network as intended with the PRA scheme (following signage and undertaking the required U-turns and other movements). However, given some of the diversion distances and inconvenience, it is expected that in practice some drivers will divert away from the A3 and route via Send and Ripley.
- 5.9 For example if travelling from the Guildford direction, the PRA scheme would require a 3.6 mile diversion in order to reach the Garden than at present, whereas this extra distance can be completely avoided if the chosen route is via Send and Ripley.
- 5.10 Whilst HE estimates this extra travel to take around 4 minutes, TTHC consider that in practice, negotiating 4 sets of traffic signals at J10 and undertaking U-turns and other associated manoeuvres will take between 6 to 8 minutes. The

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

travel time cost-penalty routing via Send and Ripley may only be 2 or 3 minutes and so there is likely to be both travel distance and journey time savings as well as greater convenience.

Signage and Ease of Use

- 5.11 As indicated earlier, TTHC has applied some thought as to how the PRA could be signed, particularly without resulting in driver confusion.
- 5.12 Arriving from the South, drivers would be expected to pass the Site three times and undertake two U-turns at J10 and Ockham. It is not considered possible, by way of reasonable signage, to destination mark the RHS Garden. TTHC consider that a signage strategy should be prepared to determine how this issue could be addressed.
- 5.13 It is also noted that the current technical document makes no references to traveller/vehicle user amenity relating to the ease of use of the proposed PRA scheme. Complex routing arrangements such as that proposed can result in Driver Stress, contrary to DMRB Vol 11 Section 3 Part 9, which in turn could affect road safety.

Bus Service Implications

- 5.14 One of the consequences of the RIS proposal, as identified within the original consultation brochure, is the relocation of the existing bus stops which are currently situated either side of the A3 adjacent to the junction with Wisley Lane.
- 5.15 These stops serve the hourly 715 service between Guildford and Kingston Upon Thames, including stops at Burnt Common, Ripley, RHS, Cobham and Esher. They are connected by an overbridge of the A3 which is situated just south of the junction with Wisley Lane.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 5.16 At this stage, the HE scheme does not indicate where these stops will be relocated to but RHS has been advised that there is no suitable location for them on the A3 itself.
- 5.17 One of the benefits of the combination of the retained left turn slip from Wisley Lane onto the A3 northbound and the provision of south facing slips at Ockham Roundabout is that bus services can continue to route along the A3 but still turn off to serve RHS Wisley before re-joining the A3 carriageway conveniently in both directions without any significant diversion. Such provision is not possible with the HE scheme.

Non-Highway Economic Impacts

- 5.18 Finally, there is a considerable risk to RHS that the additional travel and inconvenience of reaching the Garden at Wisley and returning home will be such a deterrent to visitors that many will simply choose not to travel.
- 5.19 In late 2017, RHS carried out a sample survey of RHS Members in order to determine how the HE proposals would affect their visits.
- 5.20 A key finding from this survey was that 80% of RHS Members at present visit the Garden more than 5 times per annum.
- 5.21 60% of these visitors indicated that they would visit less often and 7% of those based to the south of the Garden had indicated that they would not renew their membership.
- 5.22 These impacts in isolation had been estimated to reduce the annual charitable income by £2m and therefore resulting in a loss-making position. Further impacts on the local economy were also highlighted. It was noted that all of these issues were avoidable and unnecessary.
- 5.23 In order to better assess the full implications of the proposals, RHS has recently commissioned an Economic Study of the implications of the PRA

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

Scheme. Results from this study will be shared with HE once they become available.

6.0 SUMMARY AND CONCLUSIONS

- 6.1 This report has been prepared by TTHC on behalf of the Royal Horticultural Society, to provide a response to Highways England's statutory consultation in respect of its Preferred Route Announcement of the Route Investment Strategy Improvement Scheme proposals for the 'M25 Junction 10 to A3 Wisley Interchange'.
- 6.2 The preparation of this report follows technical exchanges with HE and their consultants, Atkins, over a period of around 14 months whereby features of the RIS scheme have been discussed and alternatives examined and proposed.
- 6.3 In this regard, it is noted that over the course of the consultations to date, the associated HE documents state that customers and stakeholders views and needs will be considered and that the PRA Scheme will be adapted in order to ensure that the most appropriate solution is arrived at for all.
- 6.4 Throughout this period, RHS has consistently set out its concerns regarding the significant implications of the HE proposals on its flagship Garden at Wisley and the current £65m investment programme into the future of the Garden. RHS consider that many of these implications (which result from the current HE proposals for the PRA Scheme) are unnecessary and have avoidable consequences. Pursuant to this, RHS has sought to propose alternative, supplementary and complementary components which would address its key concerns.
- 6.5 As part of the work which informs this response, a review has been undertaken of further documents which have been published since the PRA in late 2017 and 2018 to date. In particular, the Scheme Assessment Report and associated Side Roads Addendum report have been examined.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 6.6 From the initial HE consultation, a number of features relating to the proposals were of concern to RHS and so a letter of objection was prepared and submitted on the 6 February 2017 in response to the consultation.
- 6.7 The consultation response provided background to the Garden and details of a £65m investment which had commenced at Wisley, which set the context of the concerns regarding loss of land, accessibility and impacts during construction. With regard to access, it was noted that Wisley Lane not only served the RHS Garden but also Wisley Village.
- 6.8 The letter explained that RHS were very supportive of the principle of improving J10 but noted that the proposals for the A3 were of greatest concern.
- 6.9 RHS's subsequent exchanges with HE have set out consistent concerns whilst also proposing alternative arrangements which would better address these issues and impacts. This is against the backdrop of one of the HE's original Key Benefits of the RIS scheme being '*improved access to RHS Wisley*', although it is noted that this no longer features in the most recent promotional material.
- 6.10 The RHS Alternative scheme promotes the retention of an improved Wisley Lane to A3 Northbound and the addition of south facing slips at the Ockham Roundabout. This report has provided details of the RHS scheme which addresses the 1km weaving requirement requested by HE for the A3 northbound connection from Wisley Lane and which sets out the benefits of retaining a Wisley Lane connection to the A3 northbound and of extending the current RIS scope to include the south facing slips.
- 6.11 Compared to the HE PRA Scheme, the RHS Alternative would result in 2.7 million miles per annum less travel. These savings have been calculated to equate to a reduction of 780 tonnes of CO₂ and 4.4 tonnes of N₂O.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 6.12 With regard to other Wisley Lane trips further savings in travel distance and vehicle emissions would also be expected.
- 6.13 These calculations are based on traffic travelling on the network as intended with the PRA scheme (following signage and undertaking the required U-turns and other movements). However, given some of the diversion distances and inconvenience, it is expected that in practice some drivers will divert away from the A3 and route via Send and Ripley.
- 6.14 TTHC has also identified concerns as to how the PRA Scheme could be signed, particularly without resulting in driver confusion. It is considered that a signage strategy should be prepared to determine how this issue could be addressed.
- 6.15 It is also noted that the current technical document makes no references to traveller/vehicle user amenity relating to the ease of use of the proposed PRA scheme. Complex routing arrangements such as that proposed can result in Driver Stress, contrary to DMRB Vol 11 Section 3 Part 9, which in turn could affect road safety.
- 6.16 One of the consequences of the RIS proposal is the relocation of the existing bus stops which are currently situated either side of the A3 adjacent to the junction with Wisley Lane. The HE scheme does not indicate where these stops will be relocated to but RHS has been advised that there is no suitable location for them on the A3 itself.
- 6.17 One of the benefits of the combination of the retained left turn slip from Wisley Lane onto the A3 northbound and the provision of south facing slips at Ockham Roundabout is that bus services can continue to route along the A3 but still turn off to serve RHS Wisley before re-joining the A3 carriageway conveniently in both directions without any significant diversion. Such provision is not possible with the HE scheme.

**M25 JUNCTION 10 TO A3 INTERCHANGE
RESPONSE TO PRA CONSULTATION ON BEHALF OF RHS**

- 6.18 Finally, there is a considerable risk to RHS that the additional travel and inconvenience of reaching the Garden at Wisley and returning home will be such a deterrent to visitors that many will simply choose not to travel. The impacts in isolation have been estimated to reduce the annual charitable income by £2m and therefore resulting in a loss-making position. Further impacts on the local economy have also been highlighted. It was noted that all of these issues were avoidable and unnecessary.
- 6.19 In order to better assess the full implications of the proposals, RHS has recently commissioned an Economic Study of the implications of the PRA Scheme. Results from this study will be shared with HE once they become available.
- 6.20 It is concluded that the issues and implications of the current HE PRA Scheme are unnecessary and avoidable. RHS has suggested additional components to the PRA scheme which would significantly improve the proposals and which would address these concerns. RHS will continue to work with HE and Atkins to address the current objections to the PRA Scheme.

APPENDIX A

M25 junction 10/A3 Wisley interchange Improvement scheme

Have your say



5 December 2016 to 6 February 2017

About us

Highways England is the government company charged with operating, maintaining and improving England's motorways and major A roads. Formerly the Highways Agency, we became a government company in April 2015.

Have your say

We want your views on our plans to improve the M25 junction 10/A3 Wisley interchange to tackle issues including congestion, capacity, safety, noise and environmental impacts.

Inside this brochure you will find early proposals for 2 options for improvements to the junction. The consultation on potential improvements will run from **5 December 2016 until 6 February 2017**.

The 2 options which this consultation is seeking views on are:

- **Option 9** – a new flyover to link right-turning movements from the A3 onto the M25
- **Option 14** – enlarging the existing roundabout, to add more capacity

We are also looking at the A3 between Ockham and Painshill. Improvements could include widening parts of the A3 to 4 lanes, creating an extra lane for vehicles turning left onto the A245 at the Painshill roundabout, and changing local accesses to make these safer and cause fewer delays on the A3.

This scheme has a budget of £100 million – £250 million.

Please tell us what you think by:

- completing the questionnaire included with this brochure and returning it to **FREEPOST M25 junction 10/A3 Wisley interchange**
- attending a public consultation event and completing a questionnaire or completing the consultation questionnaire online at **www.highways.gov.uk/m25j10**
- emailing **info@highwaysengland.co.uk**
- calling **0300 123 5000**

Scheme background

This section of the M25 is of nationally-strategic importance, as it is vital for access to and from Heathrow and is a key route from the Kent ports to much of the rest of the country. The cost to the economy of ongoing delays here would be considerable if left unchanged.

The A3, which is the key route between London and Portsmouth, intersects the M25 at junction 10, and has its own issues with traffic flow. Painshill interchange, to the north of the junction, creates a pinch-point or bottleneck, because its current layout and proximity to junction 10 restricts traffic flow through the area.

The M25 junction 10/A3 Wisley interchange has been identified for improvements as it experiences heavy congestion on a daily basis. This causes queues and prevents access from Ockham Park junction (A3) to the M25 junction 10 and on to Painshill junction (A3) in both directions. A similar problem is experienced by traffic entering and exiting the M25 junction 10/A3 Wisley interchange. The area around the M25 junction 10/A3 Wisley interchange has the highest recorded collision rate across the Highways England network.

This consultation aims to get your views on 2 potential options for improvements. A number of other options have also been looked at but they either fail to reduce congestion or improve safety, or have a very significant impact on the surrounding environment.

Details on the 2 options, with maps, are contained in this brochure.

Once we have analysed your feedback, a preferred route will be chosen and more detailed plans will be developed. You will have a further opportunity to give feedback via public consultation once the preferred route is announced – this is expected to be in late 2017.

Benefits and objectives

The proposed improvements for the M25 junction 10/A3 Wisley interchange will smooth the flow of traffic and improve journey time reliability on the A3 by reducing average delays (time lost per vehicle per mile). The proposed options also improve safety at this interchange.

In terms of planning for the future, the current junction is already operating at capacity, and, without intervention, will fail to support future traffic increases.

And while the M25 junction itself is a major part of the scheme, we also want your views on potential changes to a number of local access routes. We will work with customers and stakeholders to develop and review options as we progress to ensure we deliver a scheme which works for the local area, as well as the wider south east region.

The key **benefits** are:

- **increased road capacity at the M25 junction 10 roundabout**
- **increased road capacity on the A3 between Ockham and Painshill**
- **improved traffic flow and reduced delays at M25 junction 10 and on the A3**
- **improved safety on the A3, its entry and exit roads and the M25 junction 10 roundabout**
- **reduced queuing as traffic enters the M25 junction 10 roundabout**
- **improved access to RHS Garden, Wisley**

The key **objectives** are:

- **improve the current layout of the junction and interchange**
- **reduce delays at M25 junction 10**
- **smooth traffic flow at M25 junction 10 and the exit and entry roads for the A3 Wisley**
- **reduce stopping and starting across the junction**
- **address issues at noise important areas where possible**
- **support sustainable travel routes**
- **support economic growth and ensure the junction can accommodate extra traffic**
- **mitigate environmental impacts wherever possible**

Rejected option

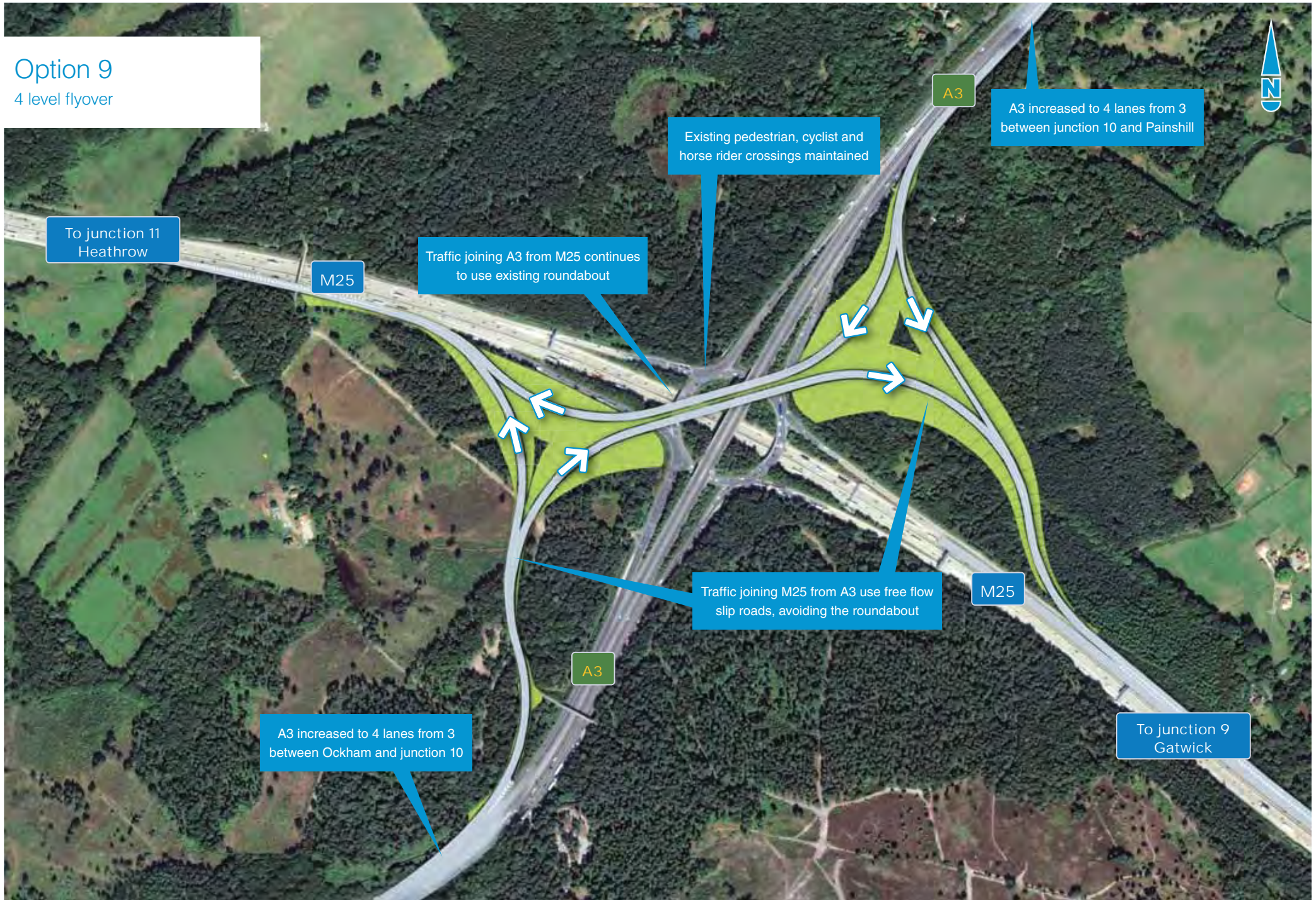
Over the past year, we have been looking at 3 options that address the key objectives for this scheme. An alternative design, Option 16, meets the scheme objectives, but has been rejected because we consider that the slightly increased level of benefit compared with option 9 is not worth the additional cost and greater environmental impact.

Option 9 delivers almost the same level of benefit, with less environmental impact and at a lower cost than Option 16.

As a result, we are not taking option 16 forward to consultation. However, we would like your views on whether we were right not to take this option forward. A map of Option 16 can be found on page 8 along with key information and a benefit comparison table can be found on pages 10 and 11 so you can compare like-for-like with the 2 options we are presenting.

Option 9

4 level flyover



To junction 11
Heathrow

M25

Traffic joining A3 from M25 continues
to use existing roundabout

Existing pedestrian, cyclist and
horse rider crossings maintained

A3 increased to 4 lanes from 3
between junction 10 and Painshill

A3



M25

Traffic joining M25 from A3 use free flow
slip roads, avoiding the roundabout

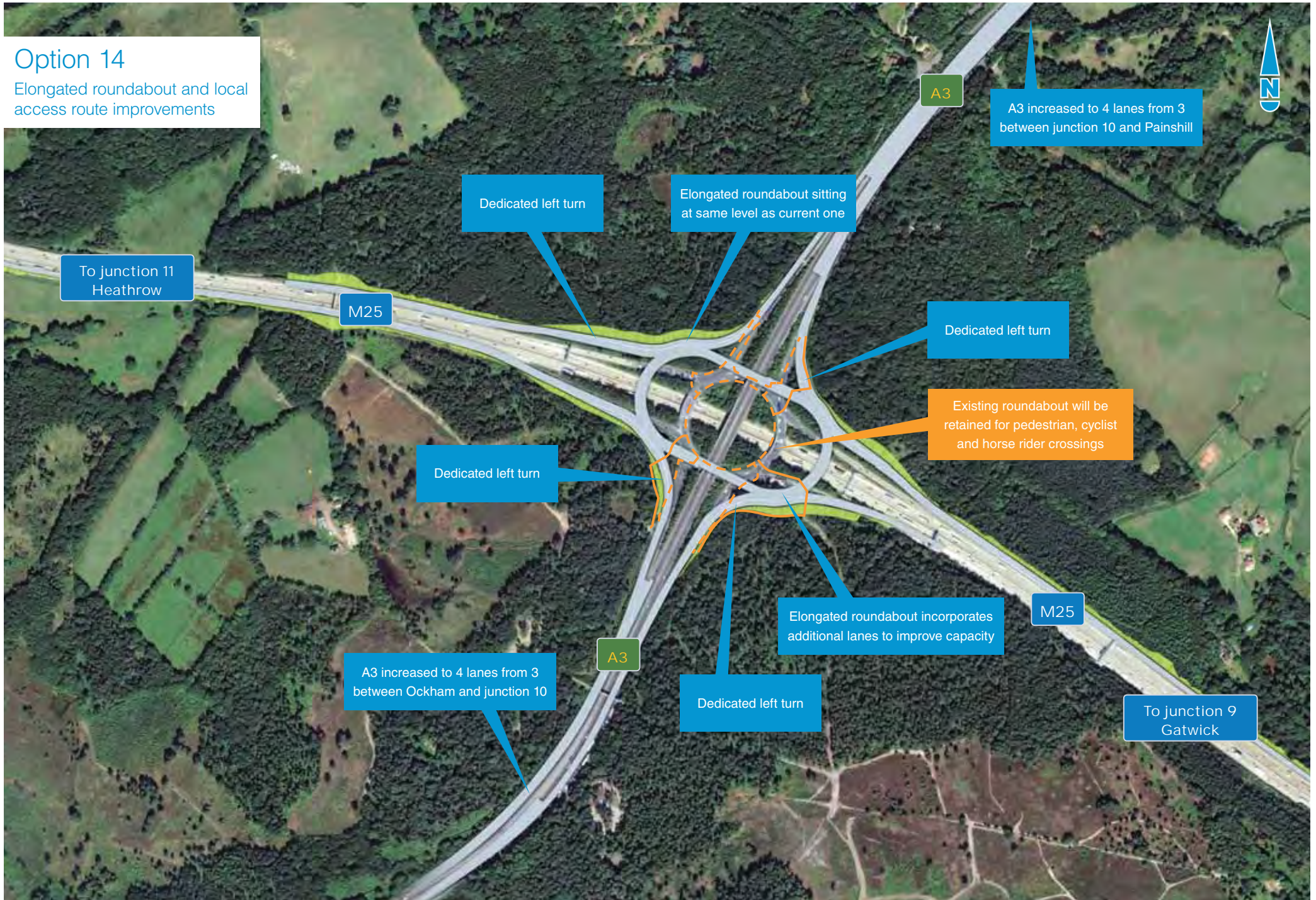
A3

A3 increased to 4 lanes from 3
between Ockham and junction 10

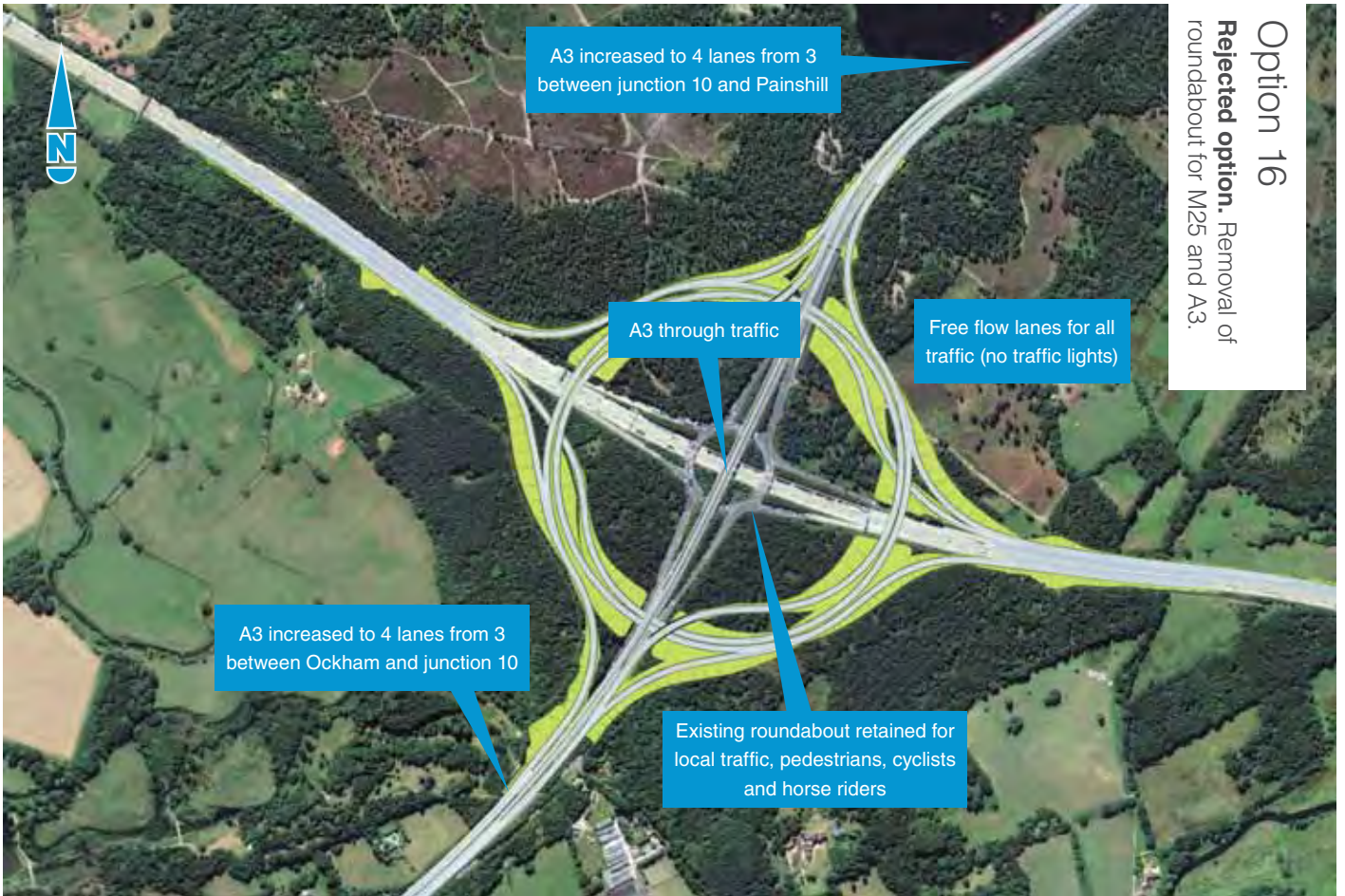
To junction 9
Gatwick

Option 14

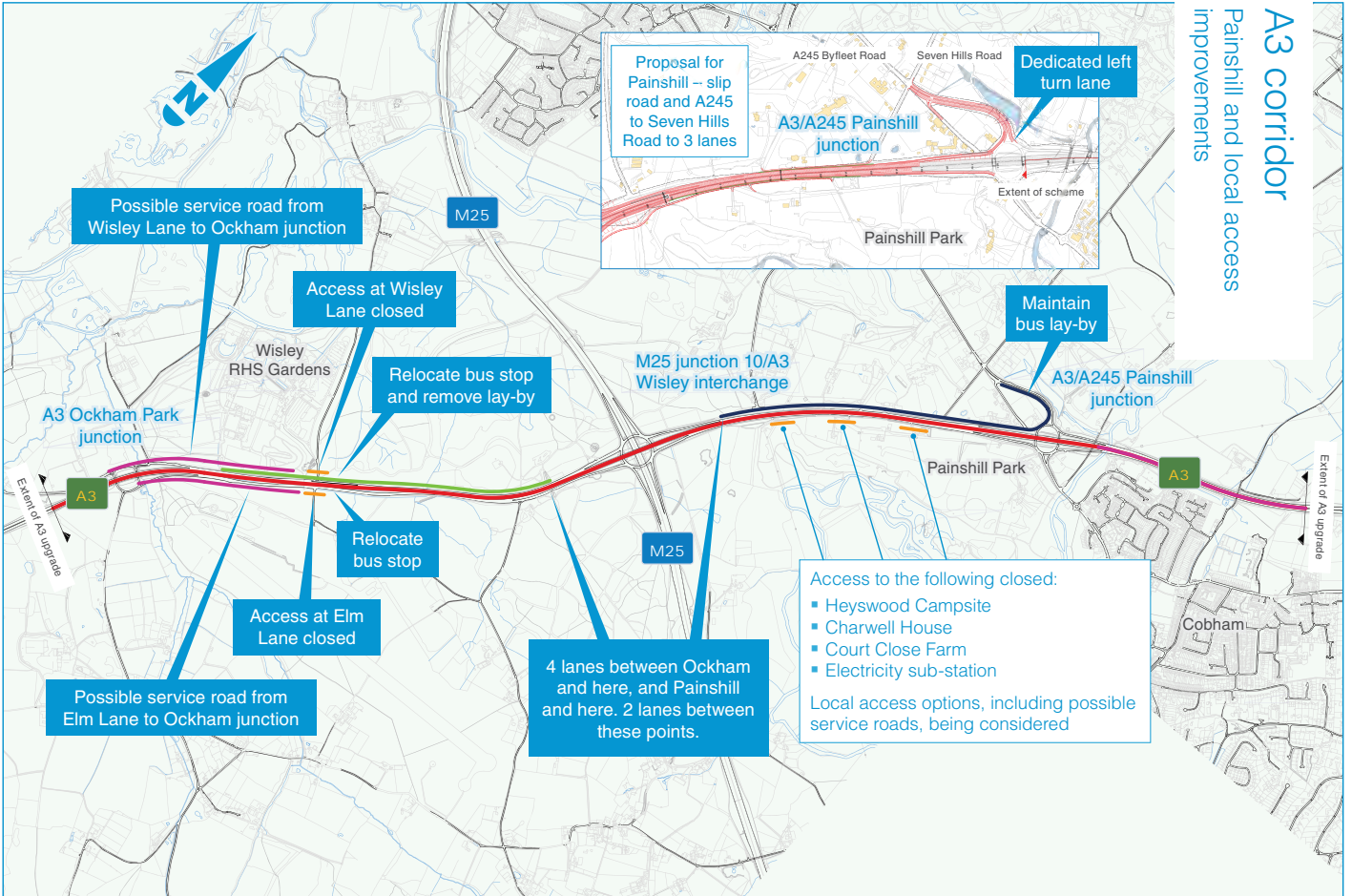
Elongated roundabout and local access route improvements



Option 16
Rejected option. Removal of roundabout for M25 and A3.



A3 corridor
 Painshill and local access improvements



Scheme objectives and other considerations	Option 9 4 level "flyover"	Option 14 Elongated roundabout and local access route improvements	Rejected Option 16 Removal of the roundabout for M25 and A3 traffic
Improving journey times and reliability	<ul style="list-style-type: none"> ▪ Journey time savings of 10 minutes per mile on average in the morning peak ▪ Less congestion would improve journey time reliability ▪ Free flow (where there are no traffic lights) will operate on 2 of the 4 roundabout arms ▪ Creates an additional A3 lane (from 3 to 4) between Ockham and Painshill (the existing bridge will remain 2 lanes in each direction) 	<ul style="list-style-type: none"> ▪ Journey time savings of 7 minutes per mile on average in the morning peak ▪ Less congestion would improve journey time reliability ▪ There would be no completely free flow operation (where there are no traffic lights at all) on any of the roundabout arms ▪ Creates an additional A3 lane (from 3 to 4) between Ockham and Painshill (the existing bridge will remain 2 lanes in each direction) 	<ul style="list-style-type: none"> ▪ Journey time savings of 12 minutes per mile on average in the morning peak ▪ Less congestion would improve journey time reliability ▪ Provides free flow movements for 100% of traffic ▪ On the A3 an additional lane added (from 3 to 4) between Ockham and Painshill (the existing bridge will remain 2 lanes in each direction) ▪ Specific provision would be provided for pedestrians, cyclists and equestrians ▪ Specific provision would be made for local traffic
Supporting walking and cycling and other non-car modes of travel	<ul style="list-style-type: none"> ▪ Provides 4 signalised pedestrian crossings, but traffic from 2 of the busiest turns is removed from the roundabout ▪ Could include further provision for pedestrians, cyclists and equestrians 	<ul style="list-style-type: none"> ▪ Provides 4 pedestrian signalised crossings, but traffic on the roundabout would be increased ▪ Could include further provision for pedestrians, cyclists and equestrians 	<ul style="list-style-type: none"> ▪ A re-designed junction would be required to provide traffic-free movement for pedestrians, cyclists and equestrians
Improving safety	<ul style="list-style-type: none"> ▪ Predicted to save 15 "injury accidents" per year on the A3 between Ockham and Painshill and on the M25 junction 10 roundabout 	<ul style="list-style-type: none"> ▪ Predicted to save 1 "injury accident" per year on the A3 between Ockham and Painshill and on the M25 junction 10 roundabout 	<ul style="list-style-type: none"> ▪ Predicted to save 20 "injury accidents" per year on the A3 between Ockham and Painshill and on the M25 junction 10 roundabout
Minimising environmental impact	<ul style="list-style-type: none"> ▪ Air quality may be adversely impacted but this is limited (due to increased traffic levels but less static traffic) ▪ Air quality could be adversely affected on ecological sites surrounding junction 10 ▪ Increased traffic levels will have an impact on noise ▪ This option encroaches vertically on the visual environment, as it adds another level to the current structure ▪ Around 17 hectares of land would be required ▪ There could be an impact on unique habitats that cannot be restored or moved 	<ul style="list-style-type: none"> ▪ Air quality may be adversely impacted but this is limited (due to increased traffic levels but less static traffic) ▪ Air quality could be adversely affected on ecological sites surrounding junction 10 ▪ Increased traffic levels will have an impact on noise ▪ Around 8 hectares of land would be required ▪ There could be an impact on unique habitats that cannot be restored or moved ▪ There is likely to be a temporary impact from construction vehicles and the site compound in a Site of Special Scientific Interest (SSSI) 	<ul style="list-style-type: none"> ▪ Air quality may be adversely impacted but this is limited (due to increased traffic levels but less static traffic) ▪ Air quality could be adversely affected on ecological sites surrounding junction 10 ▪ Increased traffic levels will have an impact on noise ▪ Around 48 hectares of land would be required ▪ There could be an impact on unique habitats that cannot be restored or moved
Building capacity for future growth	<ul style="list-style-type: none"> ▪ Provides capacity in line with predicted traffic growth up to 2037 	<ul style="list-style-type: none"> ▪ Provides capacity in line with predicted traffic levels, although some arms of the roundabout would exceed capacity before 2037 	<ul style="list-style-type: none"> ▪ This option provides capacity in line with predicted traffic growth up to 2037 and beyond
Construction impact	<ul style="list-style-type: none"> ▪ The existing roundabout would remain open to traffic throughout construction ▪ Speed reductions will be required with some lane space restrictions ▪ Some overnight closures would be required ▪ Most construction would be carried out away from the existing carriage way ▪ The construction compound could be accommodated within the work site itself 	<ul style="list-style-type: none"> ▪ The existing roundabout would remain open to traffic throughout construction ▪ Speed reductions will be required with some lane space restrictions ▪ Some overnight closures would be required ▪ All construction would be carried out adjacent to the existing carriageway ▪ The construction compound would require temporary land take 	<ul style="list-style-type: none"> ▪ The existing roundabout would remain open to traffic throughout construction ▪ Speed reductions will be required with some lane space restrictions ▪ Some overnight closures would be required ▪ All construction would be carried out away from the existing carriageway ▪ The construction compound could be accommodated within the work site itself
Local route access impacts/opportunities	<ul style="list-style-type: none"> ▪ Would improve local access on the A3, with improved safety provision and up-to-date design standards for this section 	<ul style="list-style-type: none"> ▪ Would improve local access on the A3, with improved safety provision and up-to-date design standards for this section 	<ul style="list-style-type: none"> ▪ Would improve local access on the A3, with improved safety provision and up-to-date design standards on this section. The opportunity to U-turn at junction 10 would be lost.
Total costs	£214.7 million	£152.5 million	£339.7 million
Construction duration	24 months	24 months	24 months
Benefit to cost ratio	8.3	7.4	5.2
Value for money	Very high	Very high	Very high

Constraints and issues

The area around M25 junction 10 presents a number of challenges for developing this scheme, notably the sensitive environmental and heritage features.

Keeping disruption to a minimum is essential during the construction of any improvement. As such, we will develop plans to ensure both the M25 and A3 can remain open as much as possible, and access to local attractions is maintained.

Improving access to RHS Garden, Wisley will also be a consideration of this scheme – the current access point at Wisley Lane is acknowledged to be unsatisfactory from both a customer and design perspective.

Another issue to be addressed is illegal heavy goods vehicles parking in several lay-bys along this stretch of the A3 and in some areas north and south of junction 10. We will be reviewing the lay-by and emergency refuge provision on the A3 with a view to upgrading these facilities.

M25 junction 10 to 16 smart motorway scheme

In addition to the M25 junction 10/A3 Wisley interchange improvements, Highways England is due to deliver an upgrade to the M25 between junctions 10 and 16, making it a smart motorway (increasing capacity by the use of variable speed limits and hard shoulder running at busy times).

The 2 project teams are working together to align their activities where possible, and minimise any additional disruption for road users and local residents. The full benefits of the M25 junction 10/A3 Wisley improvement scheme will be realised in conjunction with this smart motorway upgrade.

Environmental considerations

The area around the proposed scheme is very environmentally-sensitive and protected by a number of important national and international designations.

The next stage of the project will consider these in more detail, as well as any necessary mitigation and enhancement measures.

Much of the land around M25 junction 10 and the A3 is designated as a SSSI, which supports a rich community of heathland plants and animals including a large number of rare insects. The land is also designated as a 'special protection area', as it is a habitat for a number of endangered bird species. There are 16 parcels of ancient woodland within a mile of the junction and 4 scheduled monuments.

There are 40 listed buildings, 5 of which are Grade II*, and 2 registered parks and gardens – RHS Wisley and Painshill Park. In addition, there are 2 areas of common land, Ockham and Wisley Commons, which would be affected by a new layout at the junction. Areas of land around the junction are designated as 'access land' and the area is well used by walkers and horse riders.

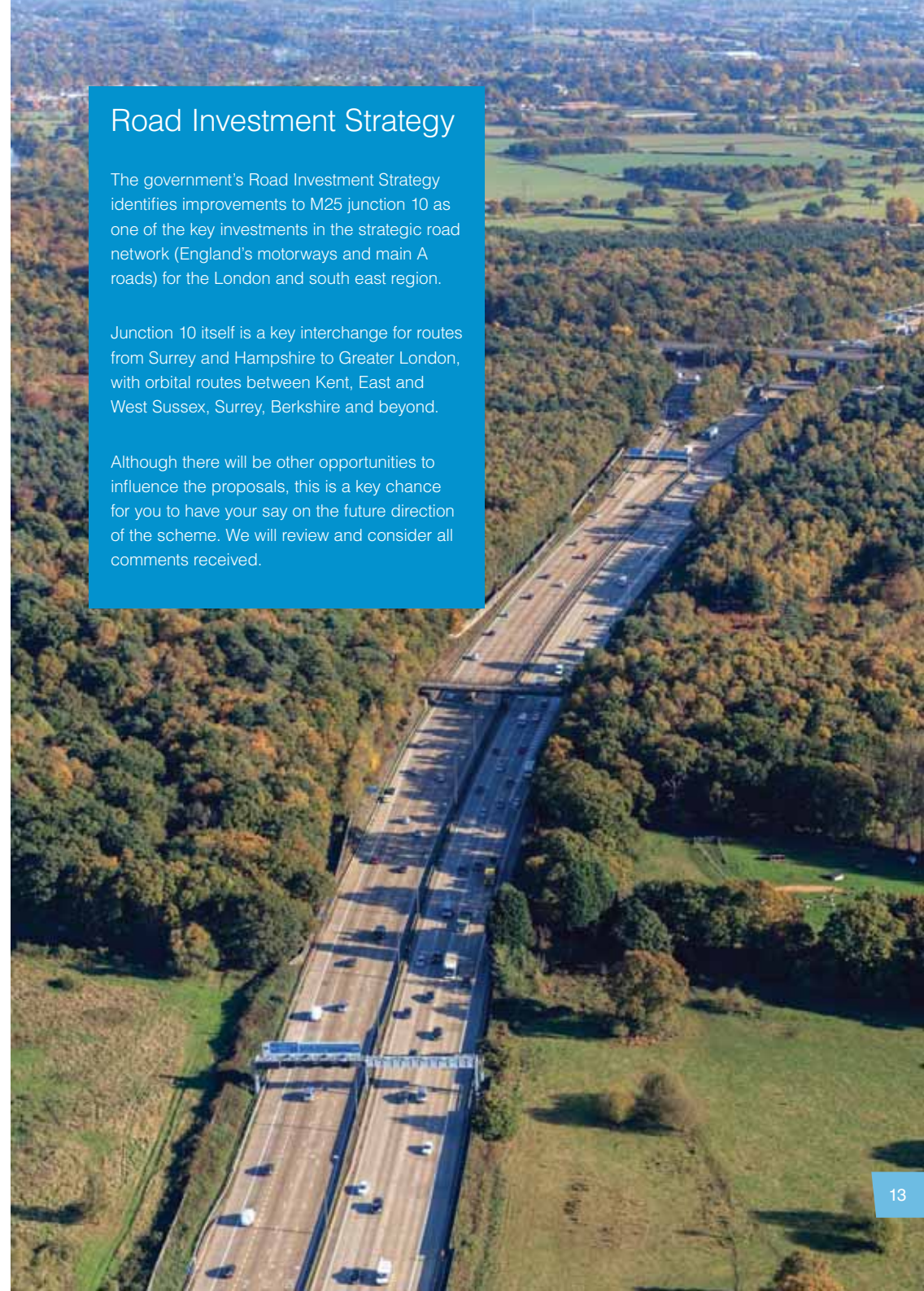
Although there are no large areas of housing in close proximity to the motorway, the M25 is the dominant noise source in the area and there are environmental barriers on either side of the motorway to reduce its impact. A number of 'important areas for noise' are designated on the M25 as well as on the A3 at Painshill, and noise mitigation will be considered. No 'air quality management areas' have been declared by the local authorities for the area immediately around the junction.

Road Investment Strategy

The government's Road Investment Strategy identifies improvements to M25 junction 10 as one of the key investments in the strategic road network (England's motorways and main A roads) for the London and south east region.

Junction 10 itself is a key interchange for routes from Surrey and Hampshire to Greater London, with orbital routes between Kent, East and West Sussex, Surrey, Berkshire and beyond.

Although there will be other opportunities to influence the proposals, this is a key chance for you to have your say on the future direction of the scheme. We will review and consider all comments received.



Details of public exhibitions

Meet staff from Highways England to learn more about the proposed schemes:

Date	Time	Venue
Monday 5 December	3pm – 7.30pm	Ripley Village Hall, High St, Ripley, Woking GU23 6AF
Monday 12 December	3pm – 7.30pm	Ripley Village Hall, High St, Ripley, Woking GU23 6AF
Friday 16 December	1pm – 7.30pm	Cobham Village Hall, Lushington Dr, Cobham KT11 2LU
Saturday 17 December	10am – 3pm	Cobham Village Hall, Lushington Dr, Cobham KT11 2LU
Monday 9 January	3pm – 7pm	Ripley Village Hall, High St, Ripley, Woking GU23 6AF
Friday 3 February	12pm – 8pm	Cobham Hilton, Seven Hills Rd, Cobham KT11 1EW
Saturday 4 February	10am – 3pm	Cobham Hilton, Seven Hills Rd, Cobham KT11 1EW

Alternatively, pick up a brochure and questionnaire from:

Location	Address
Guildford Library	North Street, Guildford, Surrey GU1 4AL
Hersham Library	Molesey Road, Hersham, Surrey KT12 4RF
Cobham Library	The Cedar Centre, Cedar Road, Cobham, Surrey KT11 2AE
Horley Library	Victoria Road, Horley, Surrey RH6 7AG
Woking Library	Gloucester Walk, Woking, Surrey GU21 6EP

How will you use my response?

All views and comments received help us to:

- make sure potential impacts on the community and environment have been fully considered
- ensure the final scheme design is updated with all relevant responses where applicable
- ensure the final environmental statement takes into account impacts and mitigation measures you have told us about
- record how we have considered feedback to develop the scheme further within our consultation report

What happens after the consultation?

Views and comments received during the consultation will be considered and summarised in our public consultation report.

Following a preferred route announcement, we will develop detailed proposals for the scheme. This will include surveys and investigations to allow us to design the proposals in more detail.

Another opportunity to have your say

When the detailed designs are complete there will be another opportunity to have your say and influence their development. We will let you know more about this nearer the time.

Development Consent Order

After this second consultation we will need to apply for a Development Consent Order. The Development Consent Order application will be examined by the independent Planning Inspectorate, who will ask for representations from interested parties. This is another opportunity for you to have your say.

After the examination, the Planning Inspectorate will make a recommendation to the Secretary of State for Transport who makes the final decision on the scheme. We will only be given consent to construct the scheme if the Development Consent Order is granted. Consent will also allow compulsory purchase of any land required.

Scheme milestones

Milestone	Dates
Preferred route announced	Late 2017
Full public consultation on preferred route	Late 2017
Work commences (if planning consent granted)	2020
Work complete and open for traffic	2022

Next steps

We want to hear your views on these options.

Please tell us what you think by:

- completing the questionnaire included with this brochure and returning it to **FREEPOST M25 junction 10/A3 Wisley interchange**
- completing the consultation questionnaire online at **www.highways.gov.uk/m25j10**

If you have questions, you can:

- attend one of our public events (details on page 14), where you can also pick up a questionnaire to fill in
- email **info@highwaysengland.co.uk**
- call us on **0300 123 5000**

We look forward to hearing from you.

If you need help accessing this or any other Highways England information, please call **0300 123 5000** and we will help you.

Contact us

If you have any queries relating to the M25 junction 10/A3 Wisley interchange improvement scheme, please do not hesitate to contact us at **info@highwaysengland.co.uk**

For the latest information and updates, please visit our website **www.highways.gov.uk/m25j10**

If you have any queries relating to Highways England, please call the customer contact centre on **0300 123 5000** or alternatively email **info@highwaysengland.co.uk**

© Crown copyright 2016.

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence: visit **www.nationalarchives.gov.uk/doc/open-government-licence/** write to the **Information Policy Team, The National Archives, Kew, London TW9 4DU**, or email **psi@nationalarchives.gsi.gov.uk**.

This document is also available on our website at **www.gov.uk/highways**

If you have any enquiries about this publication email **info@highwaysengland.co.uk** or call **0300 123 5000***. Please quote the Highways England publications code **PR128/16**

Highways England, Creative S160489

*Calls to 03 numbers cost no more than a national rate call to an 01 or 02 number and must count towards any inclusive minutes in the same way as 01 and 02 calls. These rules apply to calls from any type of line including mobile, BT, other fixed line or payphone. Calls may be recorded or monitored.

Printed on paper from well-managed forests and other controlled sources.

Registered office Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ
Highways England Company Limited registered in England and Wales number 09346363

APPENDIX B



Sharing the best in Gardening

RHS Gardens Wisley
Wisley Lane
Woking
Surrey GU23 6QB

FREEPOST

M25 Junction 10/
A3 Wisley Interchange

6 February 2017

Dear Sirs

M25 JUNCTION 10/A3 WISLEY INTERCHANGE

Further to the meeting of 18 January 2017 at Wisley, we write to provide our initial consultation response to the proposed M25 Junction 10 (J10) and associated A3 Road Investment Strategy (RIS) works.

The proposed works have significant implications, potentially very damaging, for RHS Wisley and so we trust that our consultation response will be fully accounted for in Highways England's consideration of options and further assessment. In this regard, it was disappointing that there was no representation from Highways England at the meeting. We had hoped to be able to air our concerns and thoughts directly to them further to their earlier involvement.

The RHS was founded in 1804 and gained its Royal Charter in 1861. RHS Wisley has been open to the public as a Garden since 1903 and is the Society's earliest and renowned flagship garden, a much loved place, also a grade II* Registered Park and Garden on Historic England's register of gardens. We are the UK's leading garden charity and the garden at Wisley is of international importance, representing our unique expertise for horticulture and horticultural science. The garden is uniquely placed on transport hubs to be accessible, which also ensures that the commercial and charitable viability of the garden through over currently 1.1m visitors a year is maintained. These proposals threaten a unique garden that has taken over 100 years to develop and which is undergoing a major programme of improvement, so is at a critical moment.

As explained at the meeting, we are embarking on £65m improvement and futureproofing investments of our own for the Wisley site and, therefore, it is particularly important that the future highway scheme does not have any negative implications for us. Past experience of highways improvements have had cumulatively negative effects on the garden and the community that supports it as Wisley Village is also owned by the Society.

As you are aware, almost all visitors to RHS Wisley route via the A3 and Wisley Lane, which is a public highway. The Garden accesses are separate and off from Wisley Lane. Wisley Lane is also an essential access to Wisley Village. Ease of access and orientation to the site from the A3 and J10 is absolutely vital to our continued success particularly for events days.

Our Understanding of the Current Position

We understand that Highways England are promoting an improvement of the M25 J10/Wisley Interchange to improve safety and congestion.

With respect to M25 J10, the choices have been narrowed to Option 9 (Flyover Option) and Option 14 (Extended Roundabout). Although the presentation by Atkins discussed the scheme layouts, we have, as yet, not had access to or observed any operational assessments relating to these schemes. Whilst reserving judgement in respect of this information, in principle the RHS are supportive of the options for J10 as both appear to provide improved capacity and future performance. Our preference as to which J10 option relates primarily to the accessibility to the A3 which we need to retain. The A3 components of the proposals are therefore our greatest concern, subject to understanding the full implications of all options.

We note that the A3 is proposed to be widened to four lanes in each direction and that, at present, all options require the existing direct connection of Wisley Lane to the A3 to be stopped up. As reiterated above, Wisley Lane is a public highway and not a direct access to Wisley Garden. However, at present, this existing Left-in/Left-out Wisley Lane junction with the A3 provides RHS Wisley with a reasonable direct connection for northbound traffic to both directions of the M25 (via J10). We are concerned that any options which reduce the accessibility of the Garden will have a detrimental impact on its viability, charitable success, and future growth through the £65m investment already committed.

Given the status of Wisley Lane, any closure of its access to the A3 will require a Stopping up Order, which is an added risk to the scheme proposals. We would be grateful if you could confirm what mechanism you will be using to apply for this Order, the Highways Act or the Town & Country Planning Act?

As indicated at the meeting, the Accident review section of the Technical Appraisal Report (TAR) lacks detailed consideration. You will be aware that our Transport Consultant, Mike Hibbert of TTHC Ltd, has obtained and reviewed the accident data for the area and in this regard has advised that whilst there is a perception that the junction is currently unsafe, data itself doesn't suggest a particular safety issue in respect of the Wisley Lane connection with the A3.

These concerns relating to the A3 in particular mean we are unable to let these pass for further investigation at a more detailed design stage as this could leave us in a position whereby a Preferred Route has been announced. We cannot be fully consulted if many of our concerns won't be addressed until after key decisions regarding the works have been made.

At the meeting you set out the options you are considering for the A3. We understand these to be as follows:

- Option 1 Two way service road to the Northwest connecting to Mill Lane
- Option 1b as option 1 but with a narrower central reservation (to minimise potential RHS land-take)
- Option 2 A one-way route connecting Ockham junction to Wisley Lane and from Wisley Lane to the existing slip road to the J10 roundabout. This option is only available with option 9.
- Option 2a A two-way route connecting Wisley Lane to the existing northbound off-slip road to J10 with no service road linking Wisley Lane to Ockham junction.

- Option 3 This is a bridge or tunnel over the A3, linking the existing Wisley Lane to a new service road on the south-eastern side of the A3 and linking directly onto the Ockham Park roundabout.

We have had regard to each of these outline options in formulating our consultation response. We confirm that none of the options are appealing to us and pose a risk to the future of Wisley. However, in order to provide an explanation for our approach to this, taking account of highway and non-highway matters, we have divided up our response under the following headings.

Access TO the A3 Northbound

At our meeting we asked why a direct connection between Wisley Lane and the A3 could not be retained. We were advised that the proposed arrangement would require a weaving length of 1km. We note that the spacing between Wisley Lane and J10 is an existing characteristic. Nevertheless, TTHC has examined the weaving dimensions to determine what scope there may be for improvement.

TTHC has advised that: *with reference to TD22, the current northbound arrangement represents a Type 4/12 arrangement, comprising a standard Taper merge (Wisley Lane) onto the three lane section of A3 which then has a Lane-drop arrangement for the diverge slip to J10, with the A3 continuing with two lanes. TTHC has measured the 'Lact' and 'd' components of this arrangement which are as follows:*

*Lact = 895m
d = 100m*

Whilst it is acknowledged that Lact is currently less than 1000m, TTHC has noted that the merge arrangement from Wisley Lane onto the A3 comprises a single lane slip road length of 290m (including taper), some of which could be taken to improve the Existing weaving length. It is also noted that it may be possible improve the weaving length through a shortening of the diverge slip to J10.

The RHS's preferred arrangement would be to retain the Wisley Lane connection with the A3 for northbound traffic.

Given this position, we note that J10 Option 14 is likely to provide the most suitable arrangement in respect of weaving length improvement. Therefore, if the preferred scheme for J10 is Option 9 then the northern section of Option 2 (of the A3 works) would be required.

Access FROM the A3 Northbound

With respect to the A3 proposals in the northbound towards the Garden, you will recall our concern regarding such trips having to pass Wisley Lane once (on the left hand side) prior to undertaking a U-turn movement at J10 and travelling back down the A3 to pass Wisley Lane again (on the right hand side) before undertaking another U-turn at the Ockham Roundabout and travelling up the northbound exit from this junction before turning into Wisley Lane.

In practice, having regard to our visitor knowledge (high repeat visits)/Sat-Nav guidance, predominant off-peak travel time, and irrespective of potential signage, we consider visitors from the South generally will be more likely to route through Ripley. This is supported by TTHC's assessment of the journey time difference suggests that the route through Ripley will offer a journey time advantage of between 2 to 5 minutes and a distance saving of over 5km. This will become increasingly important because with growing visitation to the garden, anticipated by 2024 at 1.4 million, additional traffic to the garden must be anticipated.

The most obvious solution to this issue would be to provide south facing slip roads to the Ockham Roundabout. In this respect, we were surprised that your current scope does not extend to include consideration of this as we are aware that a version has been discussed in connection with the proposed Wisley Airfield developments. This would have the benefit of significantly reduced vehicle kilometres as well as reduced traffic implications for J10 and the Ockham Roundabout (noting that U-turners have the greatest impact of all movements at such junctions). It would also avoid unnecessary impacts through Ripley. We note that the A3 in this location was originally the Ripley bypass so it appears to be a retrograde step to re-route A3 back through Ripley.

The RHS's preferred arrangement would be to have a northbound off-slip from the A3 to the Ockham Roundabout.

Access TO the A3 Southbound

We acknowledge that at present, the majority of Garden visitors leaving the Site to head for the A3 southbound will travel up to J10 and then back down the A3. However, as noted above, if south facing slip roads are provided at the Ockham Roundabout, additional vehicle kilometres and operational savings at J10 could be made as departures from the Garden heading towards the A3 Southbound would have a more direct route when leaving the Site.

RHS's preferred arrangement would be to have a southbound on-slip to the A3 from the Ockham Roundabout.

Access FROM the A3 Southbound

With regard to access from the A3 southbound we acknowledge that at present this takes place via a U-turn manoeuvre at the Ockham Roundabout and so, in the absence of operational assessments, theoretically, none of the options make this particular movement any worse.

RHS's preferred arrangement would be to retain the existing U-turn ability at the Ockham roundabout.

All options: land take impact

Any land take from the RHS would be damaging due to the wider impact on the garden's landscape, its plant collections and ultimately the visitor experience. The potential land take would remove the existing boundary planting of trees and shrubs which provides a key visual barrier and sound filter to the A3. One area affected, Battleston Hill, is well known for its historic trees some collected by famous plant hunters and of great heritage and conservation value. This boundary area affected includes many trees planted for the long term which contribute to the garden and surrounding landscape. They are now beginning to have an impact and any loss would equate to 40 or more years of growth. In addition any land take for the RHS is in reality much greater given the need to create a new boundary planting to provide a suitable backdrop to the garden. Acoustic screens would be unacceptable in a grade II listed garden that showcases world class horticulture. This would certainly impact further on a key tree avenue and commemorative trees planted by the Royal family. Such an intrusion would change the look of the landscape, negatively altering the spaces and the flow between them, and compromising the existing garden and masterplan.

To understand the full impact of this we will need to see more detailed proposals of the cutting that will be created.

Summary

WE acknowledge that the M25 junction 10 requires improvement, but the current options threaten the integrity and success of the garden, and its future growth founded on over 100 years of success. The popularity of Wisley is undoubted, so in addition to our own concerns, we advise that the impact locally on tourism, employment and the economy generally is considered by reference to others locally, and we will be taking up our concerns with the MP, Sir Paul Beresford.

To fully respond we require to have further opportunity to comment on the proposals once we have seen the operational assessment work and traffic modelling associated with the proposals. However in principle, the RHS are more supportive of the options for J10 than another as both appear to provide improved capacity and future performance.

With regard to access to and from the south, it is clear that the addition of south facing slips to the Ockham Roundabout would address our current issues with some of the unreasonable manoeuvres required by latest A3 proposals, whilst at the same time removing issues in respect of traffic routing through Ripley and providing operational benefit for J10.

With respect to access to and from the north, our preferred arrangement would be to retain the Wisley Lane connection with the A3 for northbound traffic if possible, albeit noting that this would require some design amendments. J10 Option 14 appears to provide the most suitable arrangement for such access to be retained. If Option 9 is to be preferred for J10, then we would request that the northern section of Option 2 (of the A3 works) be provided.

We expect that your proposals will retain the existing U-turning arrangement at the Ockham roundabout for traffic travelling from the north along the A3 and so we offer no comment on this at this stage.


Finally, we wish to also register concerns for future discussion on the temporary works necessary to carry out these improvements: construction site set-up and spoils management (where our land at Wisley Village was used for the M25 construction); the timing of the work with regard to re-opening of the garden to coincide with our conclusion of our investments, thus affecting the effect of those improvements; the management of traffic to our sites during the works, for similar reasons.

Also, we register the cumulative impact of these proposals, taking into account the potential for development at Wisley Airfield, whether housing (subject to appeal for over 2000 houses and associated traffic movement) or in-vessel composting (consented in relation to the Surrey Waste Strategy with heavy lorry movements), and the impact on the Ockham roundabout. Construction traffic from the airfield could also take place at the same time as these improvements.

We trust that you will find our Consultation Response helpful and we request another meeting (including Highways England) once you have gathered further thoughts on the above, and provided further detail. We therefore look forward to hearing from you.

Kind regards

Yours sincerely



David Alexander
Director of Estates

APPENDIX C

From: lynmoreland@rhs.org.uk
Sent: 11 October 2017 13:20
To: Hugh.coakley@highwaysengland.co.uk
Cc: Richard@RichardMax.co.uk; Jacqueline.Goring@highwaysengland.co.uk; mhibbert@tthc.co.uk
Subject: Letter from Sue Biggs, RHS, with 6 Appendices
Attachments: Sue Biggs, (RHS) letter to Hugh Coakley (HE) 11.10.17.pdf; M16114-A-025A.PDF; M16114-A-026A.PDF; M16114-A-018A.PDF; M16114-A-019A.PDF; M16114-A-020A.PDF; M16114-A-021A.PDF

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Mr Coakley,

Please find attached for your attention, a letter written to you today by RHS Director General, Sue Biggs.

There are 6 Appendices to the letter, which are also attached. These feature Journey Distance Route Plans:

1. 025A/Plan 1 – Assumed HE Scheme
2. 026A/Plan 2 – RHS Preferred Option
3. 018A – To Wisley from A3 South
4. 019A – From Wisley to A3 South
5. 020A – To Wisley from A3 North
6. 021A – From Wisley to A3 North

Paper copies will arrive by post.

With very best wishes,

Lyn

CC: Jim O'Sullivan, Richard Max and Mike Hibbert; with postal copies to Sir Paul Beresford, James Whiteman and Ray Morgan

Lyn Moreland
PA to the Director General and President

lynmoreland@rhs.org.uk
Tel: 020 7821 3039

Royal Horticultural Society
80 Vincent Square
London
SW1P 2PE

Reg charity no. 222879/SC038262

[Inspire someone special with RHS Gift membership.](#) They'll enjoy a year of great days out across the UK and so much more.

Get involved: [Sign up for our e-newsletter](#), [Facebook](#), [Twitter](#), [Instagram](#), [Pinterest](#)

[The Royal Horticultural Society \(RHS\)](#) is the UK's leading gardening charity dedicated to advancing horticulture and promoting good gardening. Anyone with an interest in gardening can enjoy the benefits of RHS Membership and help us to secure a healthy future for gardening. For more information call: 020 3176 5800, or visit www.rhs.org.uk.

The contents of this email and any files transmitted with it are confidential, proprietary and may be legally privileged. They are intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the sender. If you are not the intended recipient you may not use, disclose, distribute, copy, print or rely on this email. The sender is not responsible for any changes made to any part of this email after transmission. Any views or opinions presented are solely those of the author and do not necessarily represent those of the Society. Although this email and any attachments are believed to be free from any virus or other defects which might affect any computer or IT system into which they are received, no responsibility is accepted by the Society or any of its associated companies for any loss or damage arising in any way from the receipt or use thereof.

BY POST AND EMAIL

Hugh Coakley
Project Manager
Regional Investment Programme (South and East)
Highways England
Bridge House
1 Walnut Tree Close
Guildford
Surrey
GU1 4LZ

11 October 2017

Dear Hugh

RIS Scheme - M25 Junction 10 / A3 Improvement

We write to provide you with details of our position in respect of the above RIS Scheme prior to Preferred Route Announcement (PRA). This letter summarises our position following detailed exchanges between us throughout 2017 in respect of various components of the scheme and sets out details of our Preferred Arrangements and the key reasoning which has informed our position.

Assumed Highways England Scheme

For the purpose of this correspondence, we have assumed that the RIS Scheme moving forward to PRA is likely to include the following features:

- i) Option 14 at M25 Junction 10; and
- ii) An 'Eastern' link road connection between Wisley Lane and Ockham Roundabout

These features are as shown on **Plan 1** attached to this letter (Drawing M16114-A-025).

RHS Preferred Arrangements

On the basis of the above, and subject to the agreement of detailed aspects, the components which the RHS seeks to be included in the RIS Scheme (and therefore to be included as part of the PRA scheme) are the:

- a) Retention of the Wisley Lane left turn connection with the A3 northbound carriageway; and
- b) Provision of south facing slips at the Ockham Roundabout.

These components are highlighted in blue on **Plan 2** attached to this letter (Drawing M16114-A-026). This plan shows the RHS Preferred Arrangements.

Background

Although our proposals have been prepared to retain existing levels of accessibility, it is noted that the RIS Scheme Consultation Brochure (issued in December 2016) states that one of the Key Benefits to be the; '*improved access to RHS Garden, Wisley*'.

The HE proposals seek to stop-up the existing (left-in/left-out) Wisley Lane connection with the A3.

However, no replacement features have been included within the RIS Scheme which would provide a suitable alternative for the trips affected by the proposed stopping-up.

This not only affects the RHS Garden, Wisley. It will also have a detrimental effect on those travelling to and from Wisley Village, West Byfleet, Pyrford and Woking and will have consequential effects of increased traffic through the local villages of Ripley and Send in particular.

Scheme Comparison – Travel Distance

In order to show how the RHS Preferred Arrangements would address and improve these issues, it is first necessary to understand the current traffic movements which would be affected by the proposals and how they are being provided for in the HE proposals.

The tables below show the traffic movements divided up by direction. The change in travel distances are shown firstly as a consequence of the HE proposals in the table below and secondly as a consequence of the RHS Preferred Arrangements. Plots are also provided in **Appendix A** to this letter which details each of the distance measurements.

Change in Travel Distance with HE Proposals	
Movement	Change in Travel Distance vs Existing
To Wisley Lane from A3 South	+5.83km
From Wisley Lane to A3 South	+2.62km
To Wisley Lane from A3 North	-0.21km
From Wisley Lane to A3 North	+2.34km
Change in Travel Distance with RHS Proposals	
Movement	Change in Travel Distance vs Existing
To Wisley Lane from A3 South	+0.31km
From Wisley Lane to A3 South	-3.58km
To Wisley Lane from A3 North	-0.21km
From Wisley Lane to A3 North	0km

As can be seen from the red highlighting, with the exception of just one movement (which would be subject to a very small reduction), all existing journeys via Wisley Lane would be several km longer with the HE proposals than they are at present.

With the addition of south facing slips, as proposed in the RHS Preferred Arrangements, the additional travel distance to Wisley Lane from the A3 south could be restricted to just 0.31km as opposed to an additional 5.83km with the HE proposals (a saving of 5.52km).

For the return journey (from Wisley Lane to A3 South), the south facing slips would reduce the travel distance by 3.58km rather than increase the distance by 2.62km with the HE scheme (a saving of 6.20km).

With the addition of south facing slips, as proposed in the RHS Preferred Arrangement, each round trip from/to the South would be 11.72km (over 7 miles) shorter than with the HE proposals.

There is no difference between the assumed HE proposals and the RHS Preferred Arrangements for the route to Wisley Lane to and from the North, with both saving 0.21km (compared to the existing situation) by virtue of the Eastern link road. However, the loss of the direct connection to the northbound carriageway of the A3 in the HE proposal would result in an increase in travel of 2.34km from Wisley Lane to the A3 North when compared with the Existing and RHS Preferred Arrangement.

The round trip from/to the North would be 2.34km (almost 1.5 miles) shorter based on the RHS Preferred Arrangement when compared to the HE proposals.

It should be noted that these travel distances apply to all trips currently using Wisley Lane, which is a public highway as well as the only means of public access to the Garden. At present RHS Wisley receives over 1,200,000 visitors a year. This number is expected to grow to 1,400,000 in the next 5 years. The effect on visitors needing to pass the Garden up to three times (under the RIS Scheme) before entering and when leaving does not 'improve access'.

Vehicle Kilometres Per Annum

In order to put these differences into context, calculations have been undertaken to quantify and compare the annual vehicle km numbers solely in respect of RHS Garden traffic.

RHS Wisley receives some 1,200,000 visitors per annum and over £65m investment is currently underway to increase this to 1,400,000 by 2023.

Data has been extracted from the Motion Transport Assessment (May 2016) which supported the planning applications for the on-site investment schemes. This document provides data in respect of modal split, car occupancy and the trip distribution of visitors on the network¹.

¹ Figures are combined for cars and coaches (approximately 0.94% and 0.05% modal split), with a car occupancy figure of 2.25).

From this data it has been possible to establish the number of vehicle trips made to and from the site and to and from which directions. These trips have then been converted into vehicle km by reference to the distance comparisons tabulated earlier.

Based on the current visitor numbers (2016:1,200,000 visitors), the HE proposals would result in an **additional 1.9 Million vehicle km per annum** over and above the existing access arrangements.

By contrast, the RHS Preferred Arrangements would result in a **reduction of 2.4 Million vehicle km per annum**.

The net difference between the two proposals, and therefore a measure of the benefit of including the south-facing slips and retaining the A3 northbound connection would be a **total saving of 4.3 Million vehicle km per annum with the RHS Preferred Arrangement**.

All of these calculations are based on visitors only and do not include the implications for RHS staff members.

As an environmental charity, and one located in an area known for poor air quality, we are also seriously concerned with the air quality implications of these unnecessary emissions. We appreciate that the RIS Scheme will reduce overall congestion and assist in alleviating some of these issues, but we are concerned that our visitors would be required to undertake this unnecessary extra travel.

Additional Potential Consequences of not including South-Facing Slips

Given that the assumed RIS Scheme (ie without the RHS Preferred Arrangements included) would result in a round trip increase from the south of 11.72km (over 7 miles), it is expected that Wisley Lane bound traffic will transfer off the A3 earlier (via the south-facing slips at Burnt Common) passing through the local villages of Send and Ripley.

This section of the A3 actually forms the 'Ripley Bypass' and so the consequence of not providing a suitable replacement for the stopping-up of Wisley Lane would be to encourage through traffic back through Ripley. This is not a situation that the RHS wish to be held, or perceived to be, responsible for.

With respect to RHS visitors, we are aware that there is a significant strength of feeling regarding the RIS proposals, with over 130,000 people having already signed our petition.

In practice, RHS expect many visitors would avoid travelling to the Garden altogether or reduce the frequency of their visits. In this regard it should be noted that over 80% of RHS members visit more than 5 times per annum. 60% of these visitors have indicated that they would visit less often and 7% of those based to the south of the Garden have indicated that they would not renew their Membership.

We estimate that the cost of these effects to the garden would amount to a £2m per annum loss of charitable income, and thus make our garden unaffordably loss making.

Our recently prepared Economic Impact Analysis concludes that over the next 10 years, the garden, as a result of the investment we are making to improve it, will generate some £1bn to the local economy. If accessibility to the garden is compromised the financial effect on the garden and the wider economy will be grave for the RHS, and may require us not to invest as we plan to.

All of these issues are avoidable and unnecessary, providing full and proper understanding of the issues are addressed during consultation, with options being available to resolve future usage.

Short-comings of the current scope of the RIS Scheme

It is understood that the current scope of the RIS Scheme is limited to a position to the south only as far as the current Ockham Roundabout. The scope was not open to public consultation and so was fixed prior to feedback from stakeholders and interested parties.

It was only at the public consultation stage that the RHS was made aware the HE proposals were seeking to stop-up Wisley Lane. However, no replacement connections have been included within the RIS Scheme options which provide a sensible and suitable alternative for the trips affected by the proposed stopping-up. Owing to the current scope of the RIS study, the HE proposals need to rely on some very significant diversions. This is despite the Consultation Brochure suggesting that one of the Key Benefits will be; *'improved access to RHS Garden, Wisley'*.

RHS recognises that its case for the retention of the Wisley Lane connection to the A3 northbound carriageway needs to be made and that we will need to provide more evidence for the required Departure from Standard once the Stage 3 study work becomes available. This work can continue within the current scope of the project, and we are confident that the technical aspects can be addressed including some surrender of RHS land adjacent to Wisley Lane.

The RHS also understand that HE has no in-principle objection to the south facing slips at Ockham Roundabout but notes that unfortunately these components currently sit outside of the scope of the RIS Scheme.

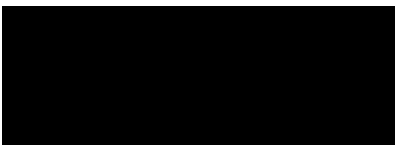
It is the position of the RHS that the scope of the RIS Scheme must be extended to include the provision of these slips.

Conclusion and next steps

We therefore strongly request that our grave concerns with the current scope of the RIS Scheme will be fed back to the Minister when you make your next RIS submission. As you know, we have publicised our case and as a charity are bound to protect our asset and will continue to do so. We continue to feel that the viability of the garden will be seriously affected by the scheme as it stands, and that as a nationally important resource the scheme needs further work before it meets the stated aims of the RIS objectives, and to meet the demands of the garden and its locality.

We look forward to a continued dialogue with you in respect of these matters.

Yours sincerely



Sue Biggs CBE
Director General

Encs Plan 1
Plan 2
Appendix A

cc: Jim O'Sullivan, CEO
Chief Executive
Highways England
National Traffic Operations Centre
3 Ridgeway
Quinton Business Park
Birmingham B32 1AF

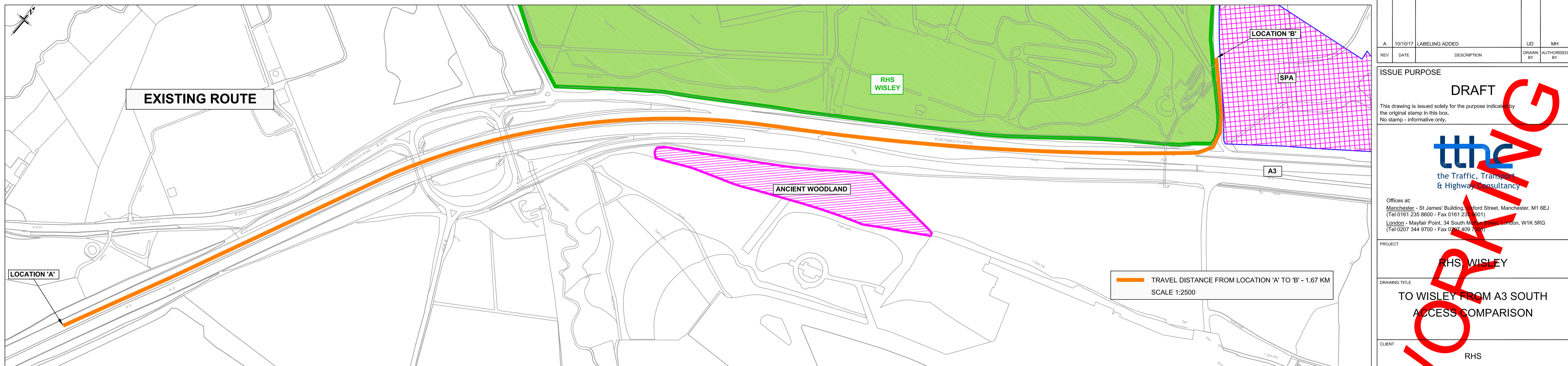
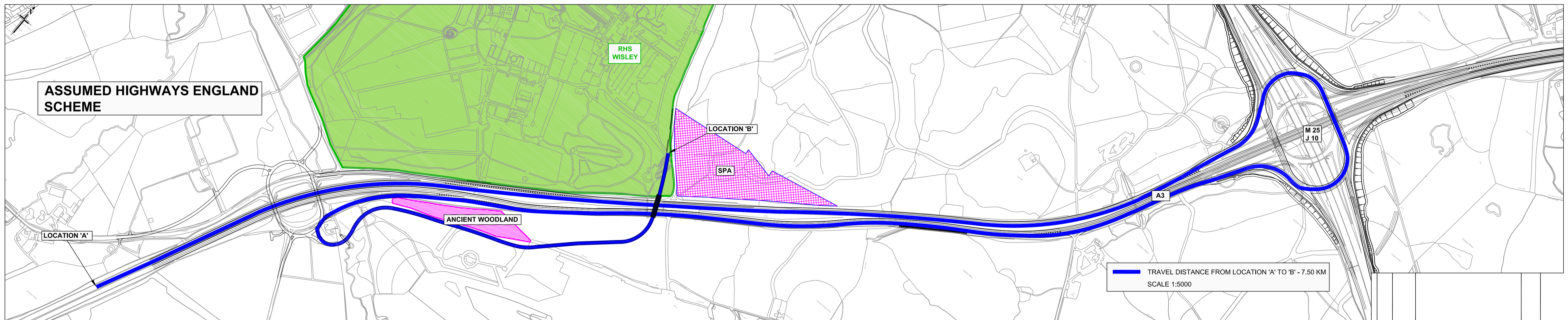
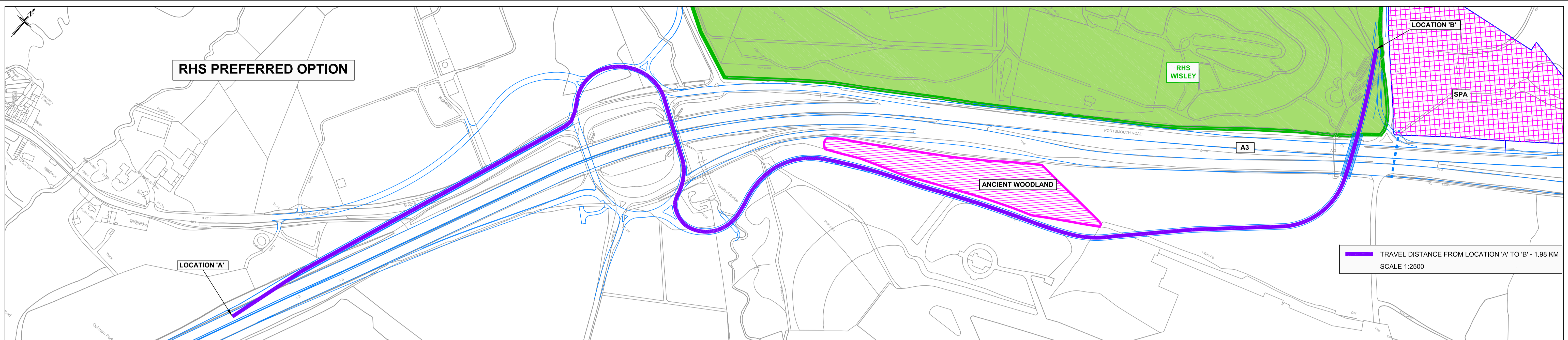
Sir Paul Beresford, MP
House of Commons
London SW1A 0AA

James Whiteman
Managing Director
Guildford Borough Council
Millmead House
Guildford GU2 4BB

Ray Morgan
Chief Executive
Woking Borough Council
Civic Offices
Gloucester Square
Woking GU21 6YL

Richard Max
Richard Max & Co

Mike Hibbert
TTHC



Based upon the ORDNANCE SURVEY maps with the permission of the CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE. CROWN COPYRIGHT RESERVED.

NOTE: REFERENCE POINTS 'A' AND 'B' ARE SAME FOR ALL OPTIONS

REV	DATE	DESCRIPTION	UD	MH
A	10/10/17	LABELING ADDED		

ISSUE PURPOSE
DRAFT
This drawing is issued solely for the purpose indicated by the original stamp in this box.
No stamp - informative only.

the
the Traffic, Transport & Highway Consultancy

Offices at:
Manchester - St James' Building, Oxford Street, Manchester, M1 6EJ
(Tel 0161 235 8600 - Fax 0161 235 8601)
London - Mayfair Point, 34 South Molton Street, London, W1K 5RG
(Tel 0207 344 9700 - Fax 0207 409 7000)

PROJECT
RHS WISLEY

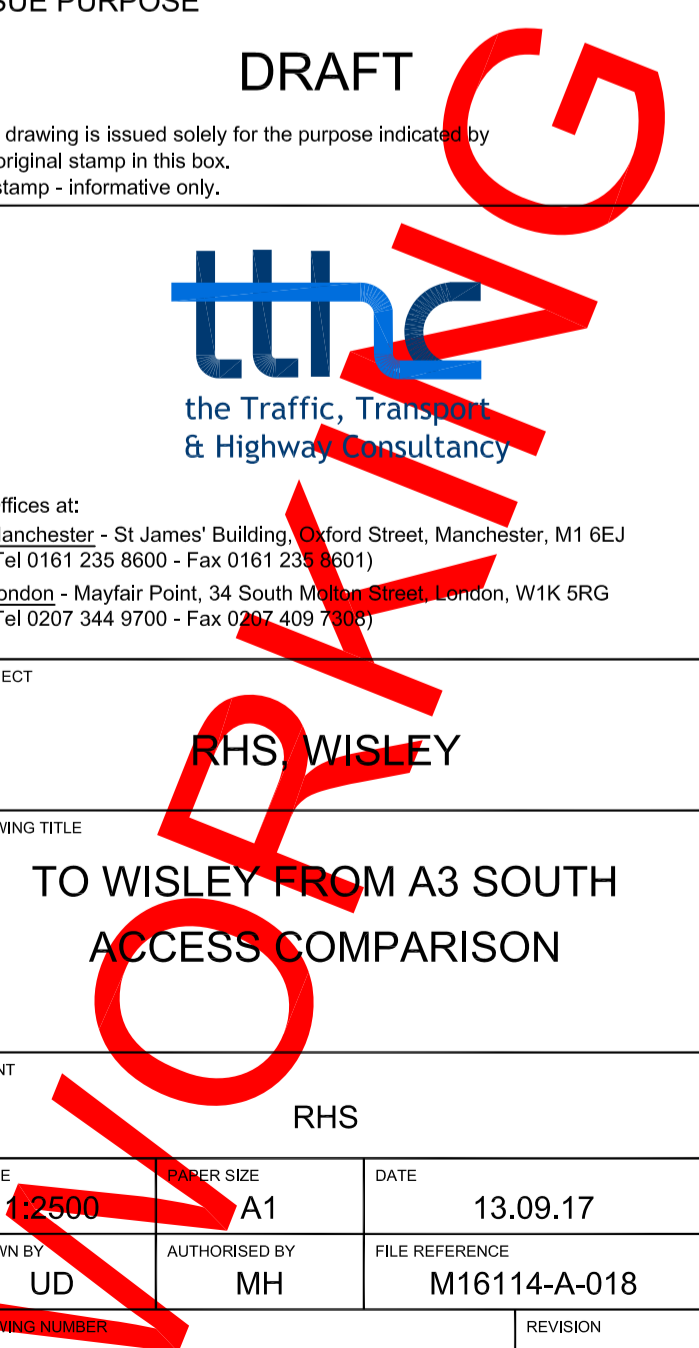
DRAWING TITLE
TO WISLEY FROM A3 SOUTH ACCESS COMPARISON

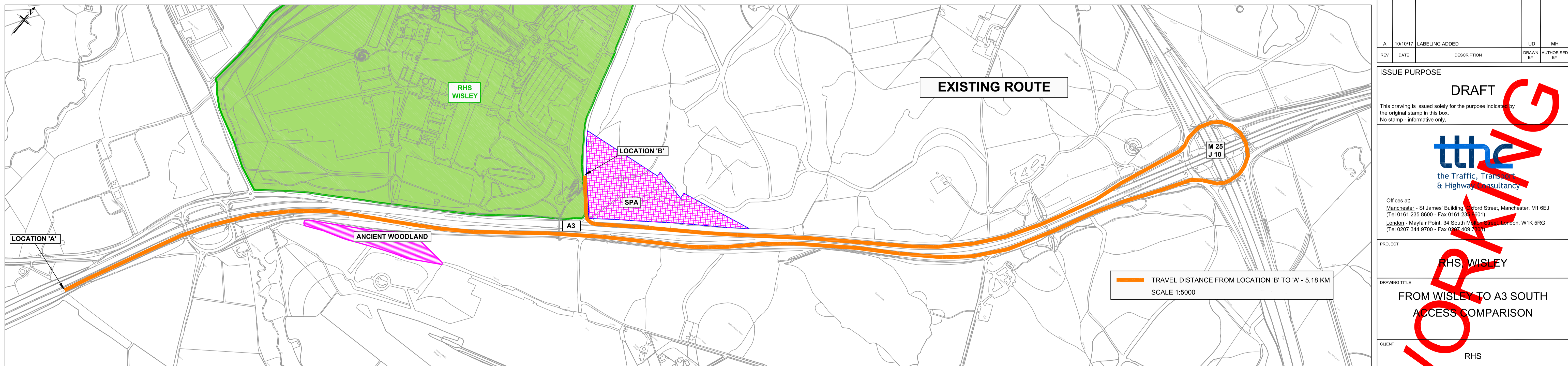
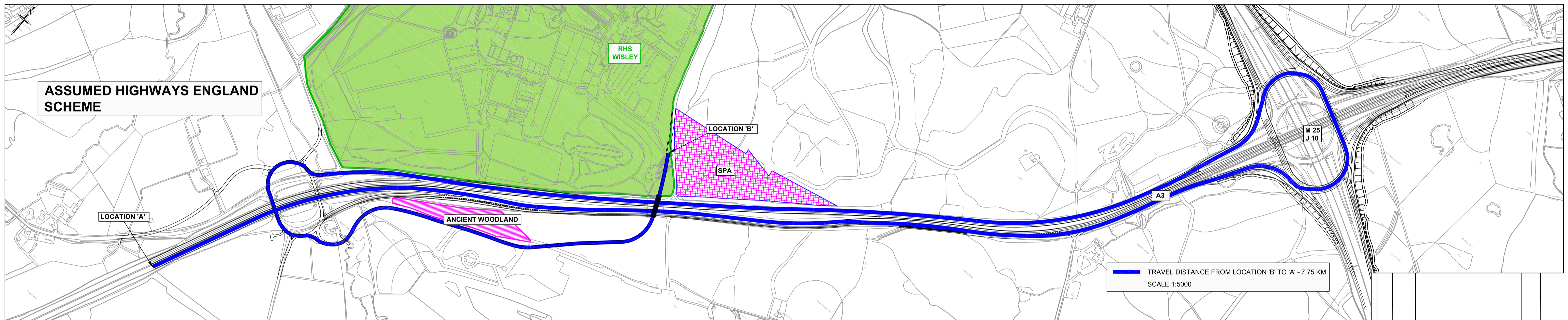
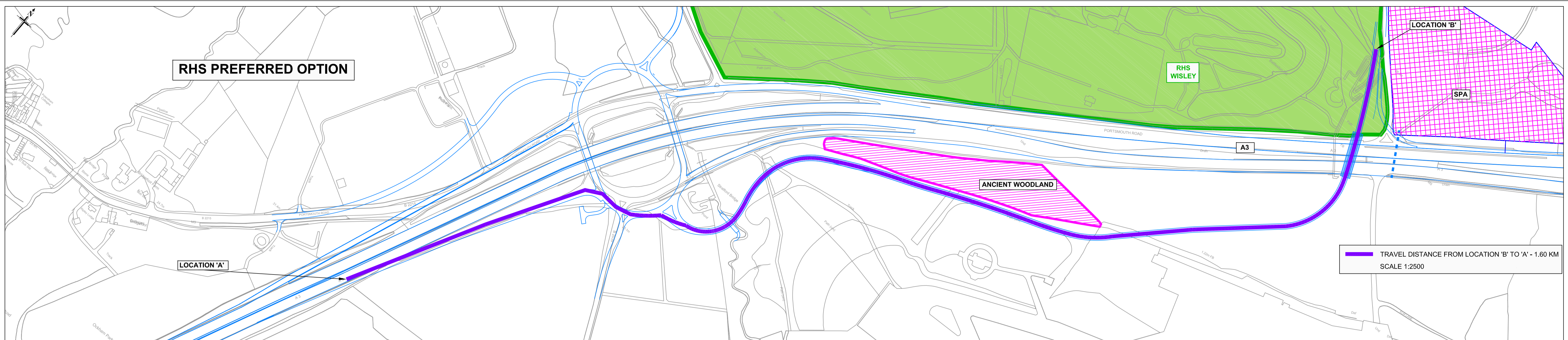
CLIENT
RHS

SCALE: 1:2500
DRAWN BY: UD
AUTHORISED BY: MH

PAPER SIZE: A1
DATE: 13.09.17
FILE REFERENCE: M16114-A-018

REVISION
A





Based upon the ORDNANCE SURVEY maps with the permission of the CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE. CROWN COPYRIGHT RESERVED.

NOTE: REFERENCE POINTS 'A' AND 'B' ARE SAME FOR ALL OPTIONS

REV	DATE	DESCRIPTION	DRAWN BY	AUTHORISED BY
A	10/10/17	LABELLING ADDED	UD	MH

ISSUE PURPOSE
DRAFT
This drawing is issued solely for the purpose indicated by the original stamp in this box. No stamp - informative only.

the
the Traffic, Transport & Highway Consultancy

Offices at:
Manchester - St James' Building, Oxford Street, Manchester, M1 6EJ
(Tel 0161 235 8600 - Fax 0161 235 8601)
London - Mayfair Point, 34 South Molton Street, London, W1K 5RG
(Tel 0207 344 9700 - Fax 0207 409 7200)

PROJECT
RHS WISLEY

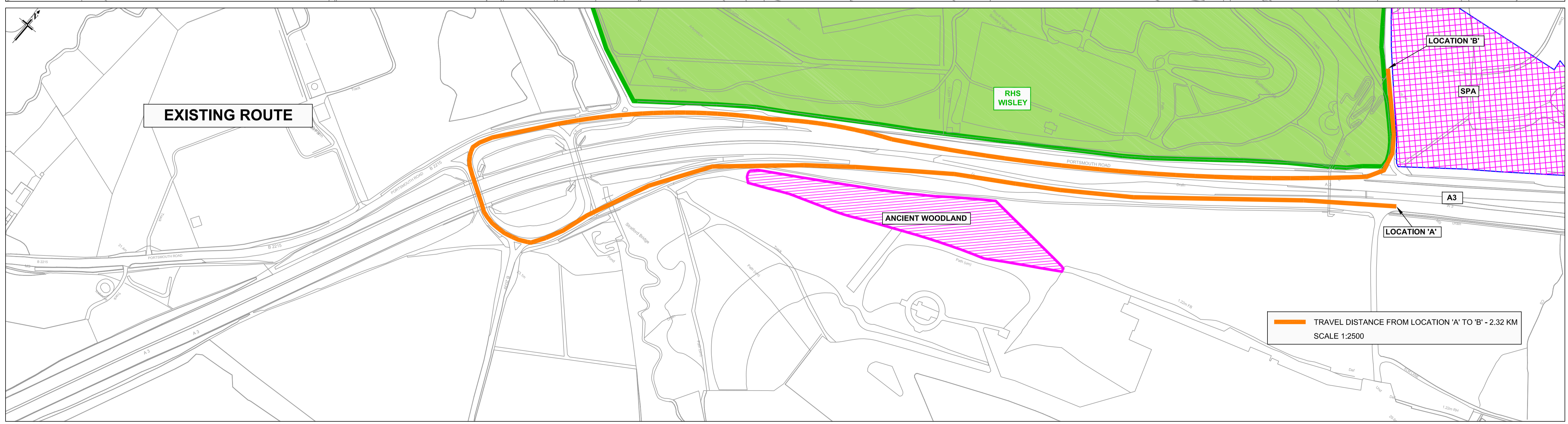
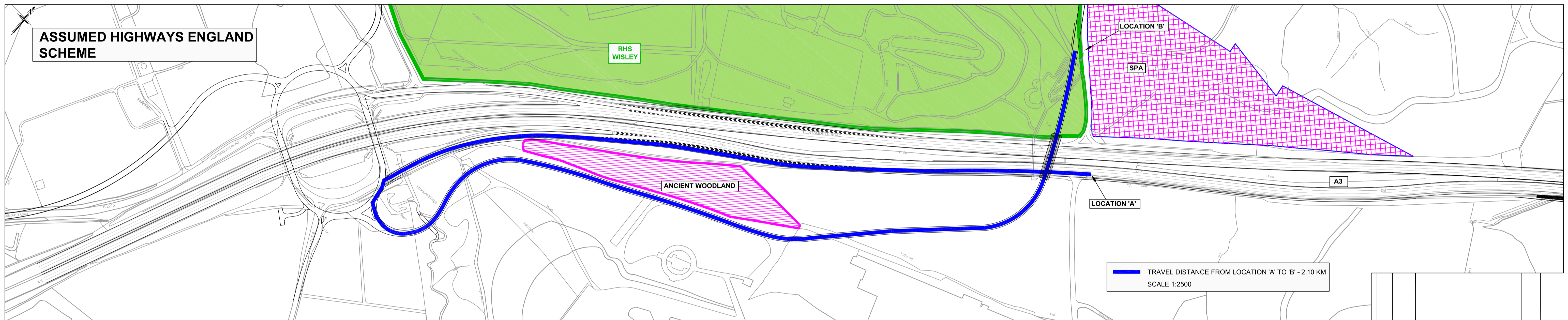
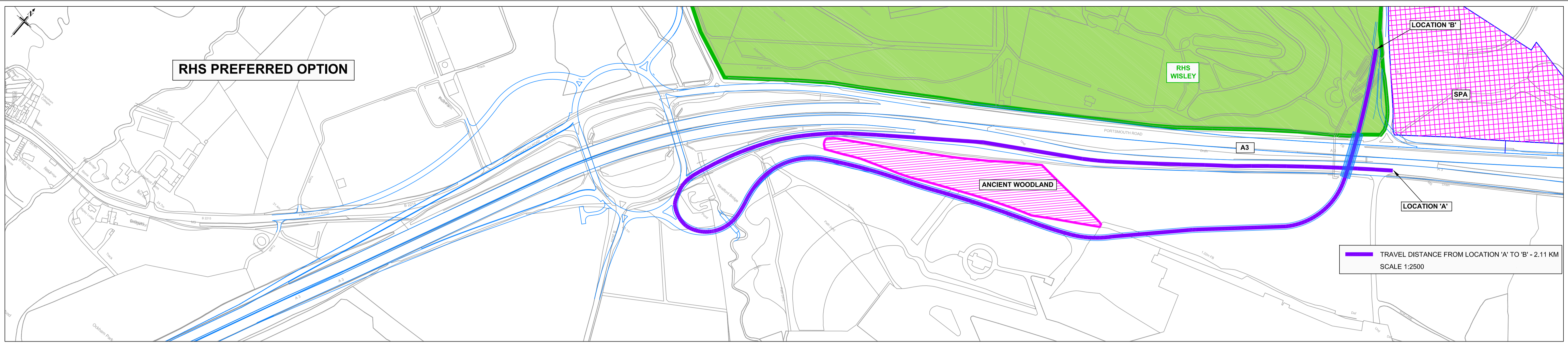
DRAWING TITLE
FROM WISLEY TO A3 SOUTH ACCESS COMPARISON

CLIENT
RHS

SCALE	PAPER SIZE	DATE
1:2500	A1	13.09.17

DRAWN BY	AUTHORISED BY	FILE REFERENCE	REVISION
UD	MH	M16114-A-019	A

M16114-A-019



REV	DATE	DESCRIPTION	UD	MH
A	10/10/17	LABELING ADDED		

ISSUE PURPOSE
DRAFT
 This drawing is issued solely for the purpose indicated by the original stamp in this box.
 No stamp - informative only.

the
 the Traffic, Transport & Highway Consultancy

Offices at:
 Manchester - St James' Building, Oxford Street, Manchester, M1 6EJ
 (Tel 0161 235 8600 - Fax 0161 235 8601)
 London - Mayfair Point, 34 South Molton Street, London, W1K 5RG
 (Tel 0207 344 9700 - Fax 0207 409 7000)

PROJECT
 RHS WISLEY

DRAWING TITLE
 TO WISLEY FROM A3 NORTH
 ACCESS COMPARISON

CLIENT
 RHS

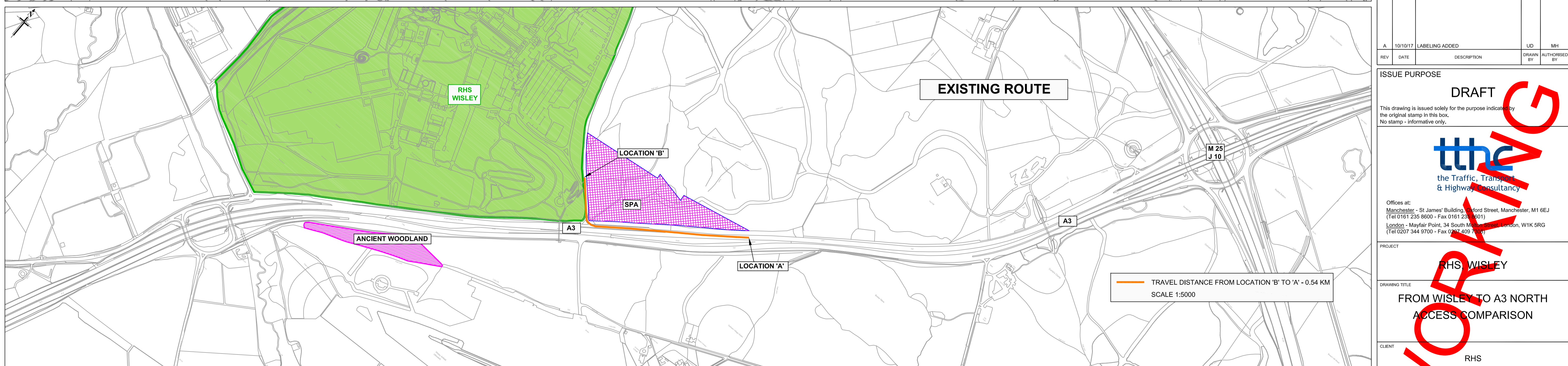
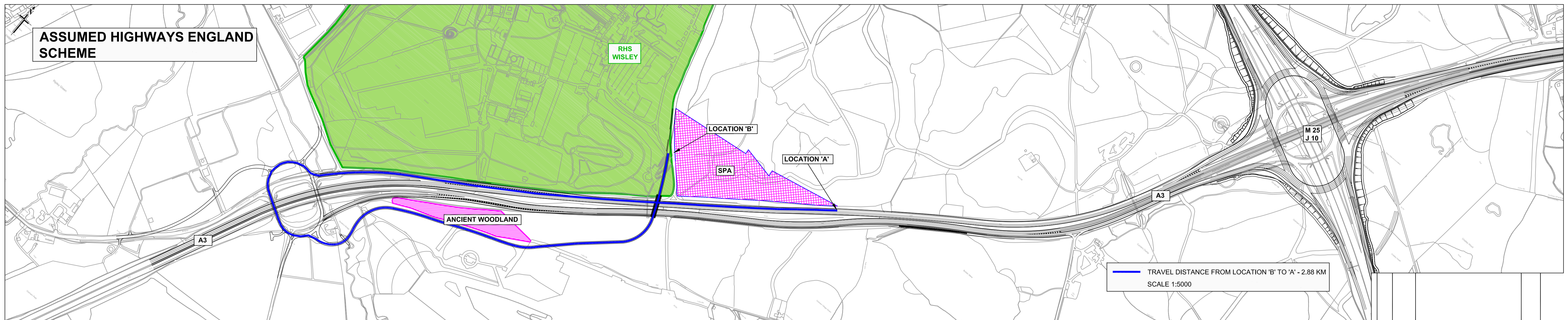
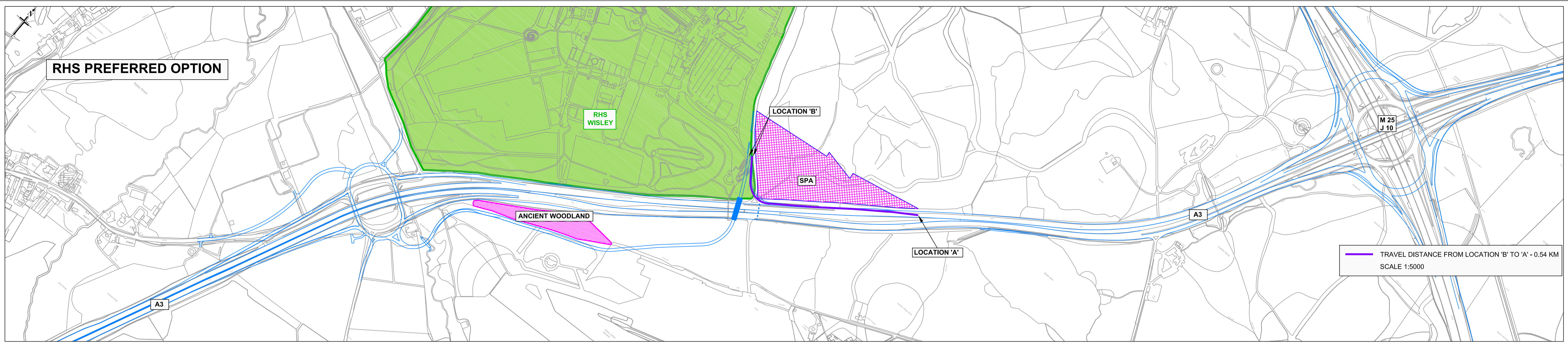
SCALE 1:2500 **PAPER SIZE** A1 **DATE** 13.09.17

DRAWN BY UD **AUTHORISED BY** MH **FILE REFERENCE** M16114-A-020

REVISION
 M16114-A-020 A

Based upon the ORDNANCE SURVEY maps with the permission of the CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE. CROWN COPYRIGHT RESERVED.

NOTE: REFERENCE POINTS 'A' AND 'B' ARE SAME FOR ALL OPTIONS



Based upon the ORDNANCE SURVEY maps with the permission of the CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE. CROWN COPYRIGHT RESERVED.

NOTE: REFERENCE POINTS 'A' AND 'B' ARE SAME FOR ALL OPTIONS

REV	DATE	DESCRIPTION	UD	MH
A	10/10/17	LABELLING ADDED		

ISSUE PURPOSE
DRAFT
 This drawing is issued solely for the purpose indicated by the original stamp in this box.
 No stamp - informative only.

the
 the Traffic, Transport & Highway Consultancy
 Offices at:
 Manchester - St James' Building, Oxford Street, Manchester, M1 6EJ
 (Tel 0161 235 8600 - Fax 0161 235 8601)
 London - Mayfair Point, 34 South Molton Street, London, W1K 5RG
 (Tel 0207 344 9700 - Fax 0207 409 7200)

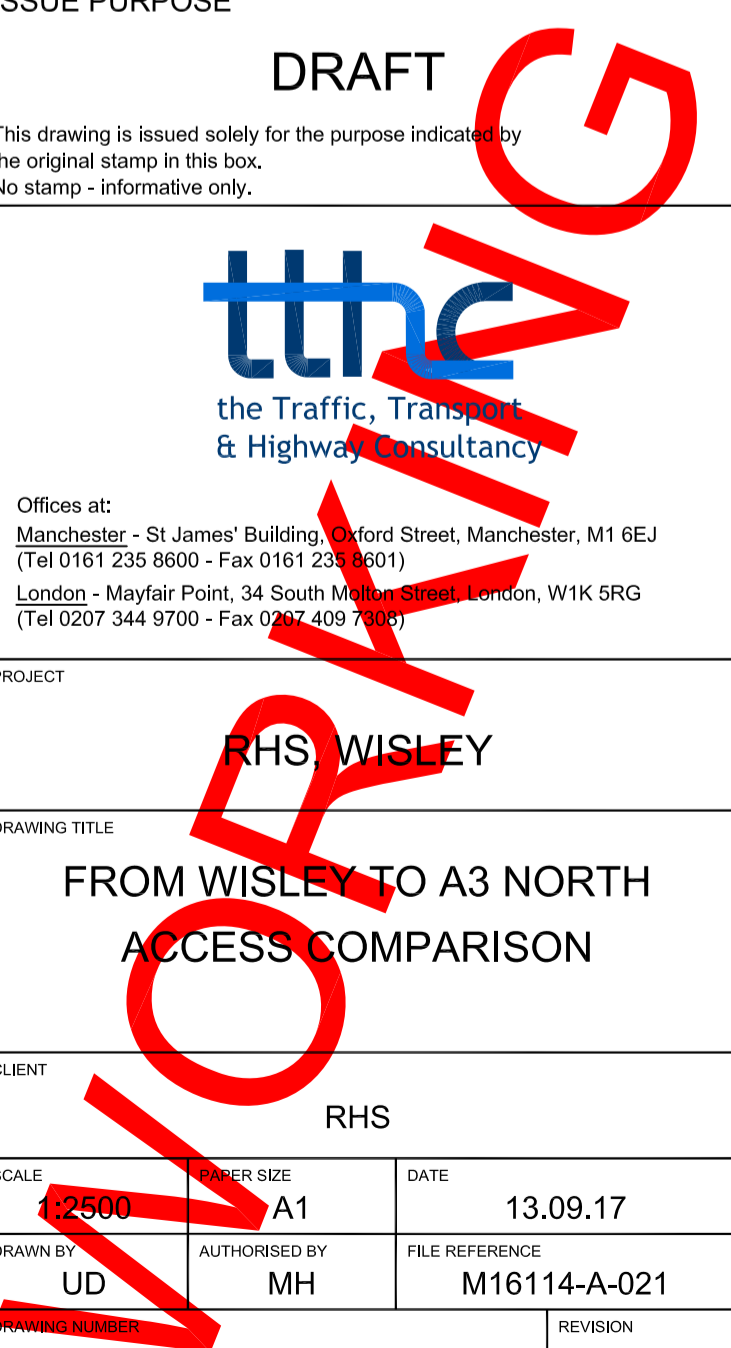
PROJECT
RHS WISLEY

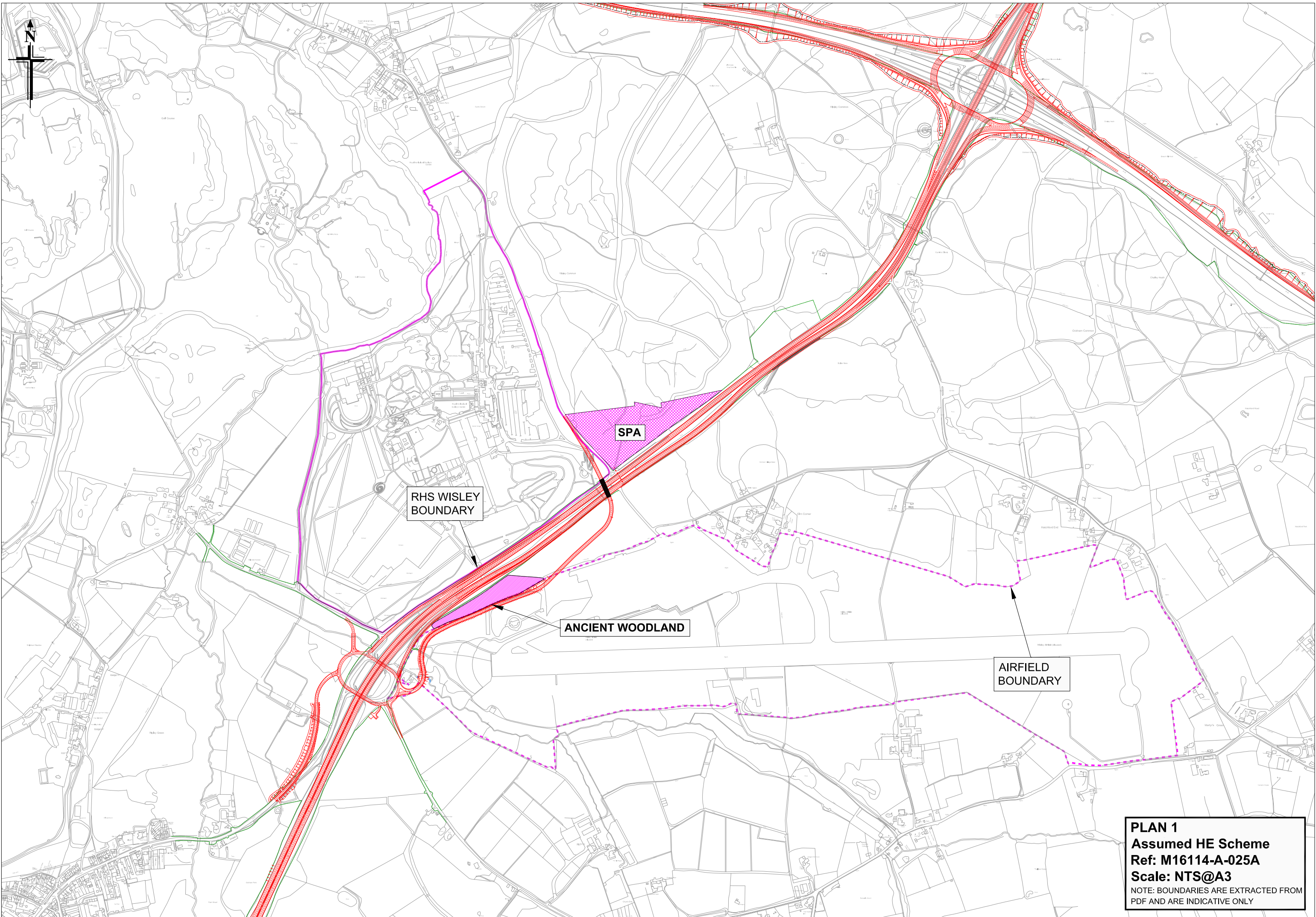
DRAWING TITLE
FROM WISLEY TO A3 NORTH ACCESS COMPARISON

CLIENT
RHS

SCALE: 1:5000 PAPER SIZE: A1 DATE: 13.09.17
 DRAWN BY: UD AUTHORIZED BY: MH FILE REFERENCE: M16114-A-021

REVISION
M16114-A-021 A





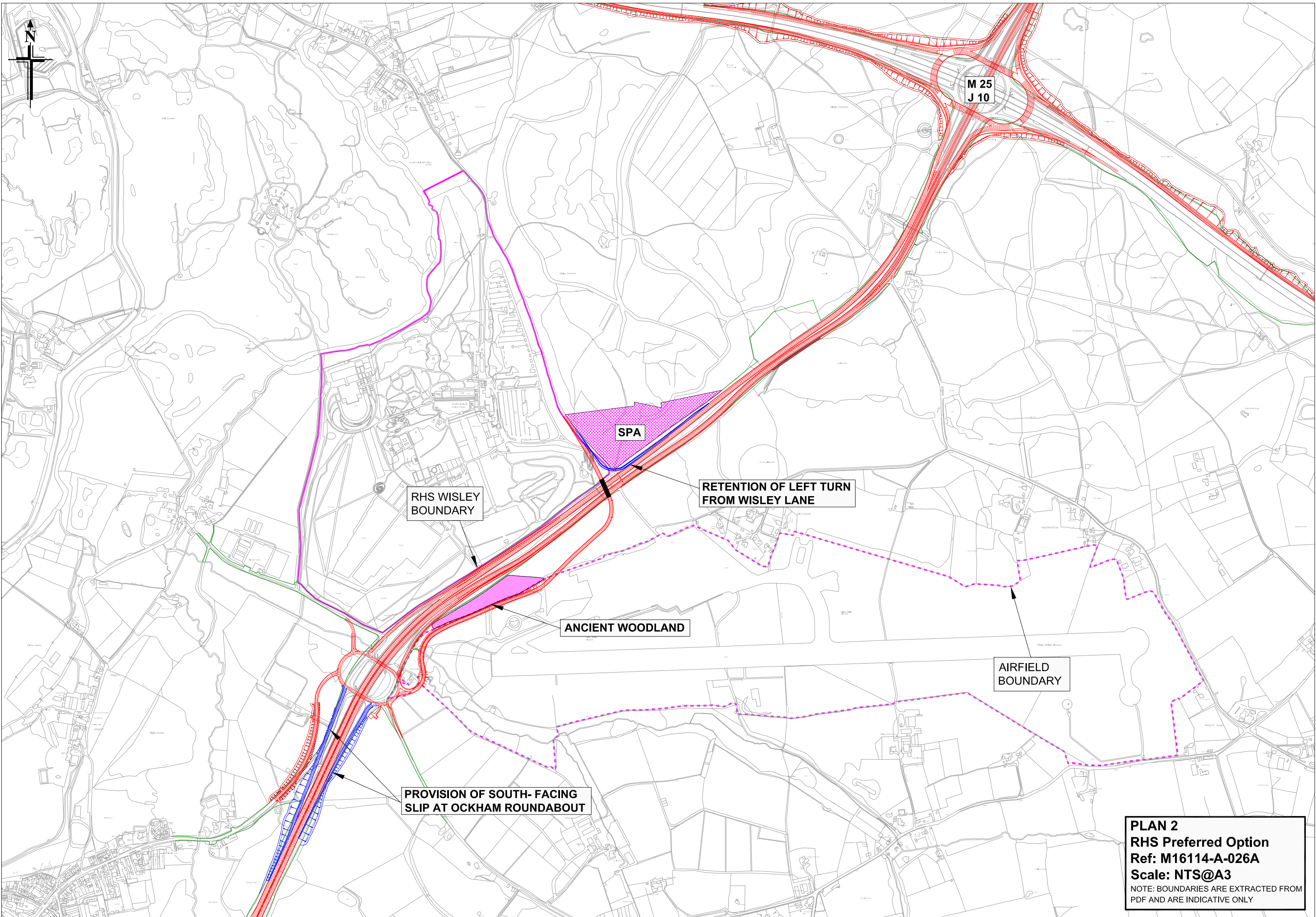
RHS WISLEY
BOUNDARY

SPA

ANCIENT WOODLAND

AIRFIELD
BOUNDARY

PLAN 1
Assumed HE Scheme
Ref: M16114-A-025A
Scale: NTS@A3
NOTE: BOUNDARIES ARE EXTRACTED FROM
PDF AND ARE INDICATIVE ONLY



RHS WISLEY BOUNDARY

SPA

RETENTION OF LEFT TURN FROM WISLEY LANE

ANCIENT WOODLAND

AIRFIELD BOUNDARY

PROVISION OF SOUTH-FACING SLIP AT OCKHAM ROUNDABOUT

M 25
J 10

PLAN 2
RHS Preferred Option
Ref: M16114-A-026A
Scale: NTS@A3
NOTE: BOUNDARIES ARE EXTRACTED FROM PDF AND ARE INDICATIVE ONLY

APPENDIX D

Preferred route announcement
M25 junction 10/A3 Wisley interchange
Improvement scheme



Introduction

This section of the M25 is of nationally-strategic importance, as it provides vital access to and from Heathrow and is a key route from the Kent ports to much of the rest of the country. In addition, the interchange with the A3 at junction 10 provides a link between London and Portsmouth.

This junction has a poor safety record that needs to be addressed. The cost to the economy of ongoing delays here would be considerable if left unchanged.

Background

We held a public consultation between December 2016 and February 2017 to gather feedback on the proposed plans for the M25 junction 10/A3 Wisley interchange improvement scheme. Find out the results, the preferred option and what happens next in this document.

Public consultation

Seven public exhibition events were held at venues both north and south of M25 junction 10, in Ripley and Cobham. These events aimed to capture views about the proposals from the public, local councils, businesses, environmental groups and other organisations with an interest. Information and survey questionnaires were available from Highways England's website, at public exhibitions, and at 6 Surrey libraries.

This scheme will:

- Reduce delays at M25 junction 10
- Smooth traffic flow at M25 junction 10 and the exit and entry roads for the A3 Wisley
- Improve safety at junction 10 and on the M25 and A3
- Address issues at noise important areas where possible
- Support sustainable travel routes
- Support economic growth and ensure the junction can accommodate extra traffic.

Options presented at public consultation

Option 9

A 4-level flyover providing dedicated free-flow slip roads for traffic accessing the M25 from the A3, as well as dedicated free-flow left turn movements at the junction – removing this traffic from the roundabout.

Option 14

An elongated roundabout, which adds more capacity and provides dedicated free-flow left turns for all traffic using the roundabout.

Both options require the A3 to be widened to four lanes between Ockham Junction and junction 10, and junction 10 to Painshill Junction. The current A3 bridge over the junction will remain as two lanes in each direction. Widening of the existing road between Painshill Junction and the Seven Hills Road is also included.

Rejected Option 16

We also sought views on whether Highways England was right to reject Option 16, which replaced the roundabout with free-flow movements in all directions (dedicated lanes with no traffic signals).

Responses to public consultation

Results from the 722 questionnaire responses showed:

- 91% are concerned or very concerned about road safety
- 89% are concerned or very concerned about the ease of making journeys around the junction
- 84% are concerned or very concerned about accommodating extra traffic from future housing and economic development
- 64% of people chose Option 9 (the 4-level flyover) as their preferred route, however there was strong concern made that this option would have a negative impact on the surrounding environment. This included the impact on the Thames Basin Heath Special Protection Area, common land and a Site of Special Scientific Interest

- 29% of people chose Option 14 (the elongated roundabout) as their preferred route. Respondents highlighted the fact that it would have far less environmental impact than Option 9 and there were very few comments made raising concerns about this option.

In addition to the completed questionnaires, 39 stakeholders/organisations (local authorities, parish councils, environmental bodies and landowners) chose to send in detailed responses to present their views. Of these responses, 26 chose not to state a preference between Option 9 or 14 as they felt more detail was required on their impacts, particularly on access for side roads to the A3.

Delivering a scheme that works for everyone

The public consultation feedback showed a higher number of respondents were in support of Option 9, however significant concerns were raised over the potential environmental impact it would cause.

As a result, we revisited the designs for both Options 9 and 14 to make sure that the scheme delivers the best possible outcome, to meet everyone's needs. Further design and environmental assessment work has improved the safety performance and operational benefits of Option 14 as well as identifying environmental mitigation for the scheme.

Preferred route

Option 14 – elongated roundabout

Highways England has selected Option 14 as the preferred solution for the M25 junction 10/A3 Wisley interchange.

This includes the widening of the A3 between Ockham Park Junction and junction 10, and between junction 10 and the Painshill Junction, from 3 to 4 lanes. The A3 bridge over the junction will remain 2 lanes in each direction.

Preferred options for side road accesses for properties and businesses who currently have direct access onto the A3, between Ockham and Painshill have also been selected. These options provide new access arrangements via bridges and dedicated side roads which improve safety as well as providing access for vehicles, pedestrians, cyclists and horse riders.

Why Option 14?

Acting upon the feedback from the consultation and ongoing engagement with a range of stakeholders, design changes have enabled the elongated roundabout to improve safety by removing the need for traffic lights on the left turn slip roads, (as had been included in the designs shown at the non-statutory public consultation).

We have the opportunity to provide improved crossing points for pedestrians, cyclists and horse riders on dedicated bridges, separated from the traffic, minimising the risk of collisions. The detail of these will be presented at the Statutory consultation in 2018.

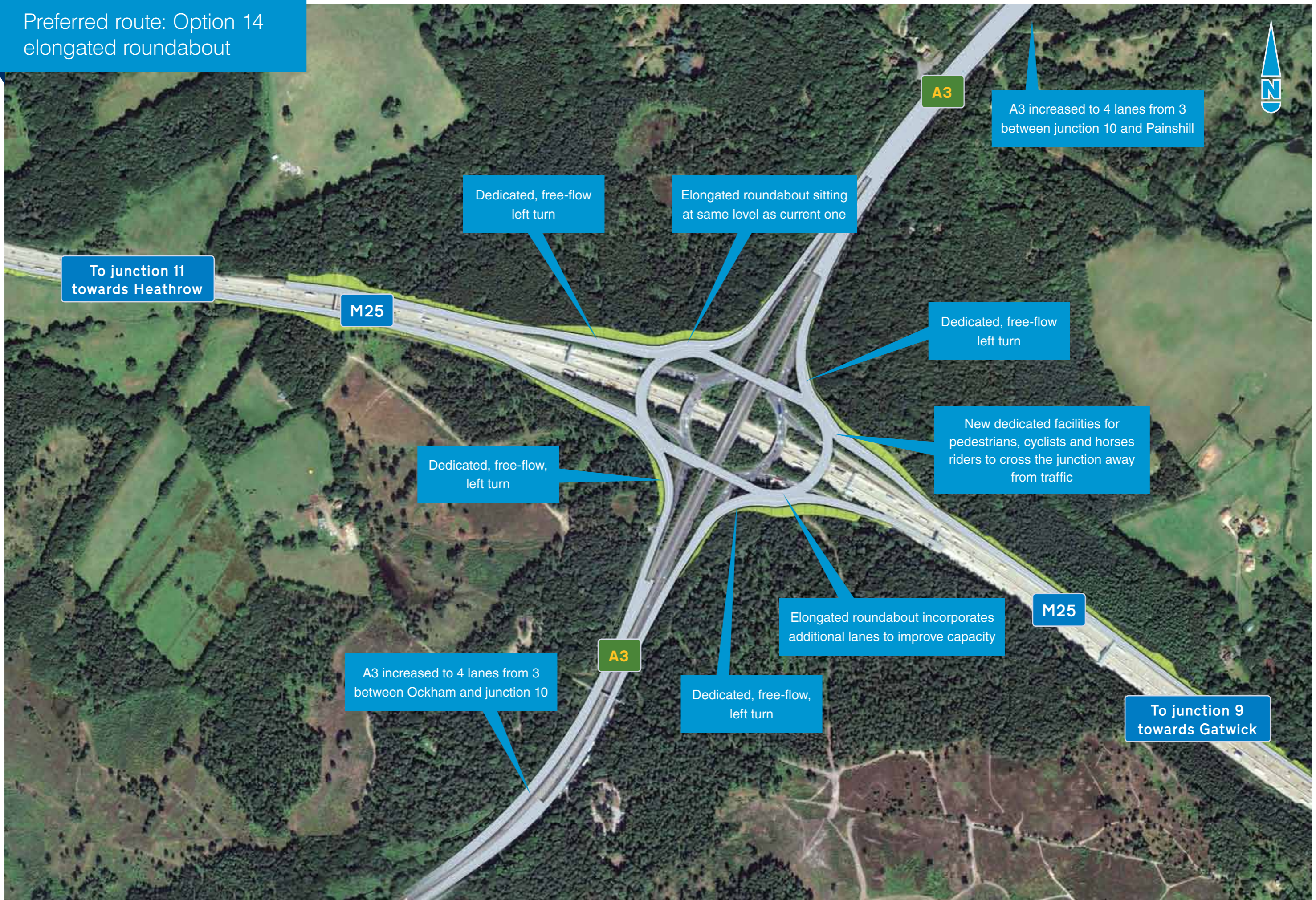
Minimising the environmental impact of the elongated roundabout has been a critical factor in choosing the preferred option for M25 junction 10. The area is of significant environmental value and includes scheduled monuments, access land for walkers and horse riders and land that supports rare bird species. Highways England therefore believes the improved Option 14 and its supporting environmental mitigation provides the best solution in terms of meeting safety, traffic and environmental needs.

“We believe Option 14 offers the best solution to improve safety, reduce congestion and accommodate growth whilst at the same time ensuring the impact on the very sensitive surrounding environment is fully mitigated.”

Chris Welby-Everard

Regional Delivery Director, Regional Investment Programme

Preferred route: Option 14
elongated roundabout



Overall plan showing side road options



Map 1 (page 9)

Wisley Lane access

Map 2 (page 9)

Elm Lane and Pond Farm/
Birchmere campsite

Map 3 (page 10)

Connections to the
A3 Northbound (M25 junction 10
to Painshill) and A3 Southbound
(Painshill to M25 junction 10)

Map 4 (page 10)

Painshill Junction/
Seven Hills Road

M25

A3

Side road options

Highways England has undertaken extensive engagement with stakeholders and landowners about the access arrangements on and off the A3, between Ockham Junction and Painshill Junction.

A key factor in our decision-making has been the safety of all road users, in particular ensuring there is no conflict between vehicles directly entering and exiting what will be a 4-lane, high speed section of the A3.

The land surrounding M25 junction 10 and the A3 presents a number of challenges for developing the scheme, notably the sensitive environmental and heritage features including:

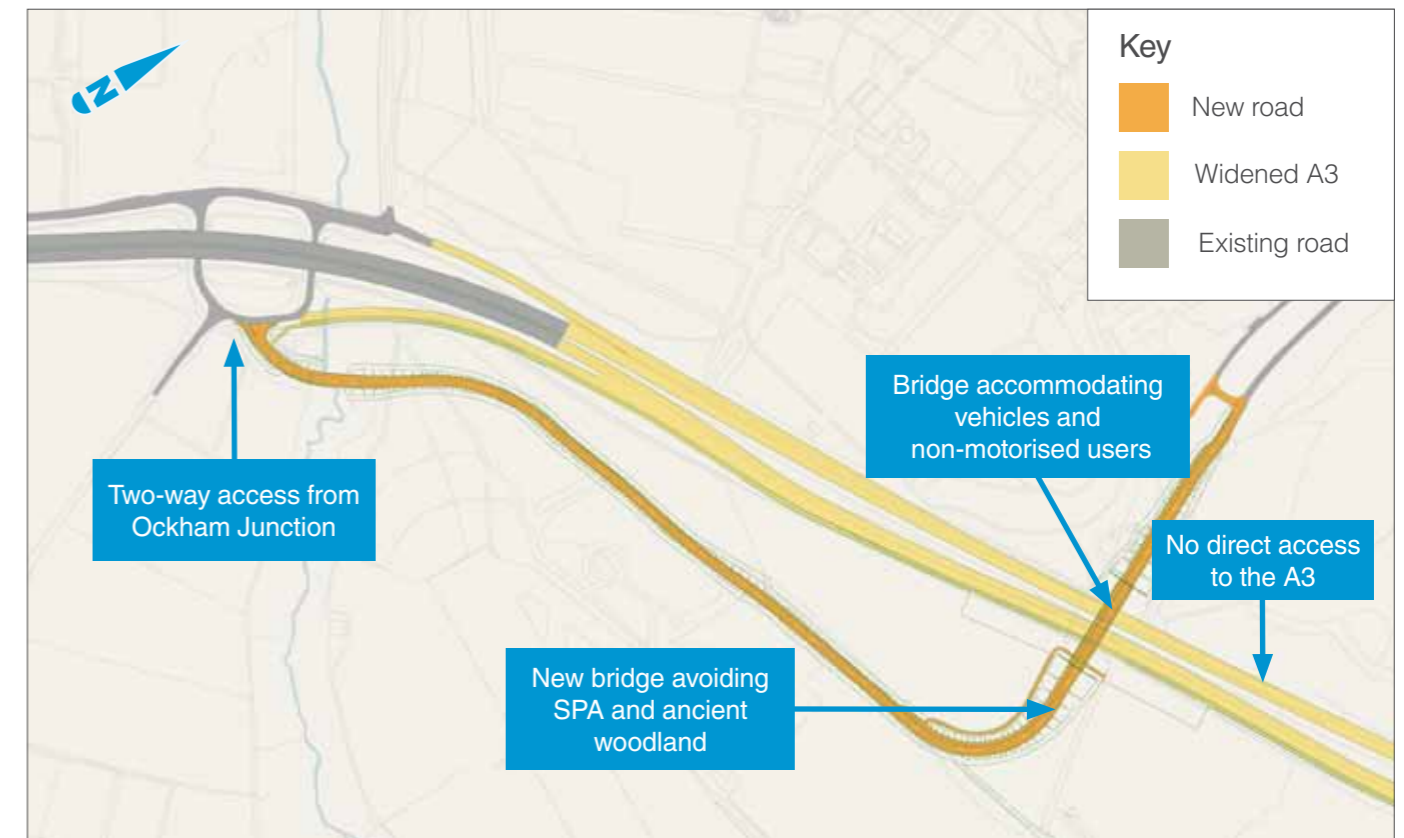
- Site of Special Scientific Interest (SSSI)
- Special Protection Area (SPA)
- Ancient woodland
- Scheduled monuments
- Listed building and registered park and gardens
- Common land and access land
- Green belt.

These constraints make the development of side road access arrangements challenging, but we believe that the preferred options offer the best solution for all users.

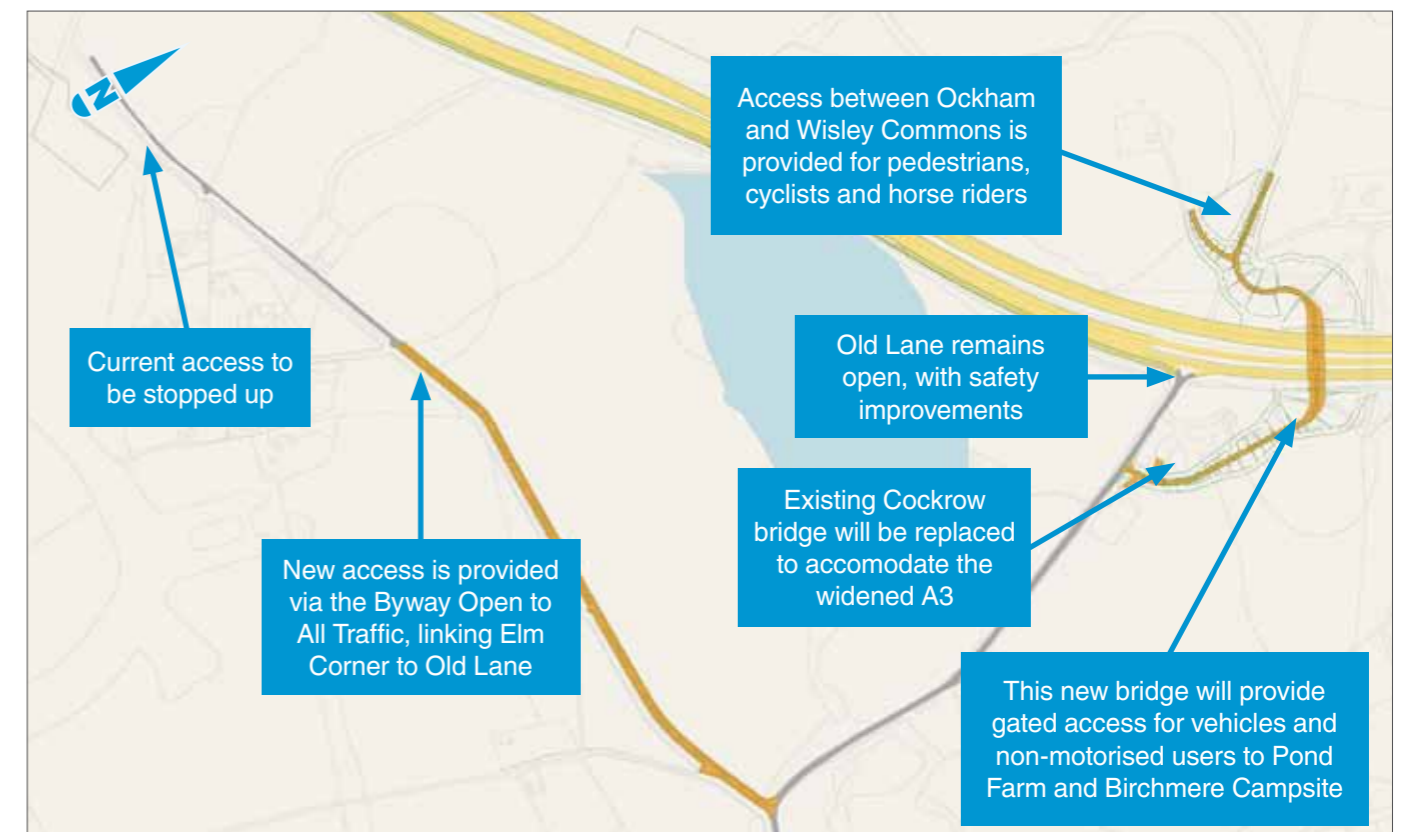
Side road preferred routes

Option name	Description
Wisley Lane access (Map 1)	Access to Wisley Lane will be via a two-way bridge accommodating both vehicles and non-motorised users. There will no longer be direct access on to, or off the A3 from Wisley Lane and this new bridge will replace the existing footbridge.
Elm Lane (Map 2)	Direct access to Elm Lane from the A3 will be stopped up. Instead residents will use the new road to access Old Lane and the A3 Southbound.
Old Lane (Map 2)	Old Lane will be kept open, with direct access onto the A3 southbound via the slip road. There will be safety improvements to the Old Lane junction, including better sightlines and improved slip roads.
Pond Farm/Birchmere Campsite (Map 2)	Access via a new bridge connecting the Ockham Common side of the A3 to Pond Farm and the Scout campsite (replacing the existing Cockrow bridge). It also links the Wisley and Ockham Commons for pedestrians, cyclists and horse riders.
A3 Northbound (M25 junction 10 to Painshill) (Map 3)	A new road will provide access to all properties along the northbound side of the A3 to A245/Seven Hills Road.
A3 Southbound (Painshill to M25 junction 10) (Map 3)	For properties on the A3 southbound whose direct access will be stopped up, a two-way bridge over the A3 close to its slip roads to the M25 junction 10 interchange will be provided. This will accommodate both vehicles and non-motorised users. The bridge links to the new northbound service road.
Painshill Junction/ Seven Hills Road (Map 4)	The A245 will be widened, adding an extra lane between the A3 Painshill Junction and Seven Hills Road.

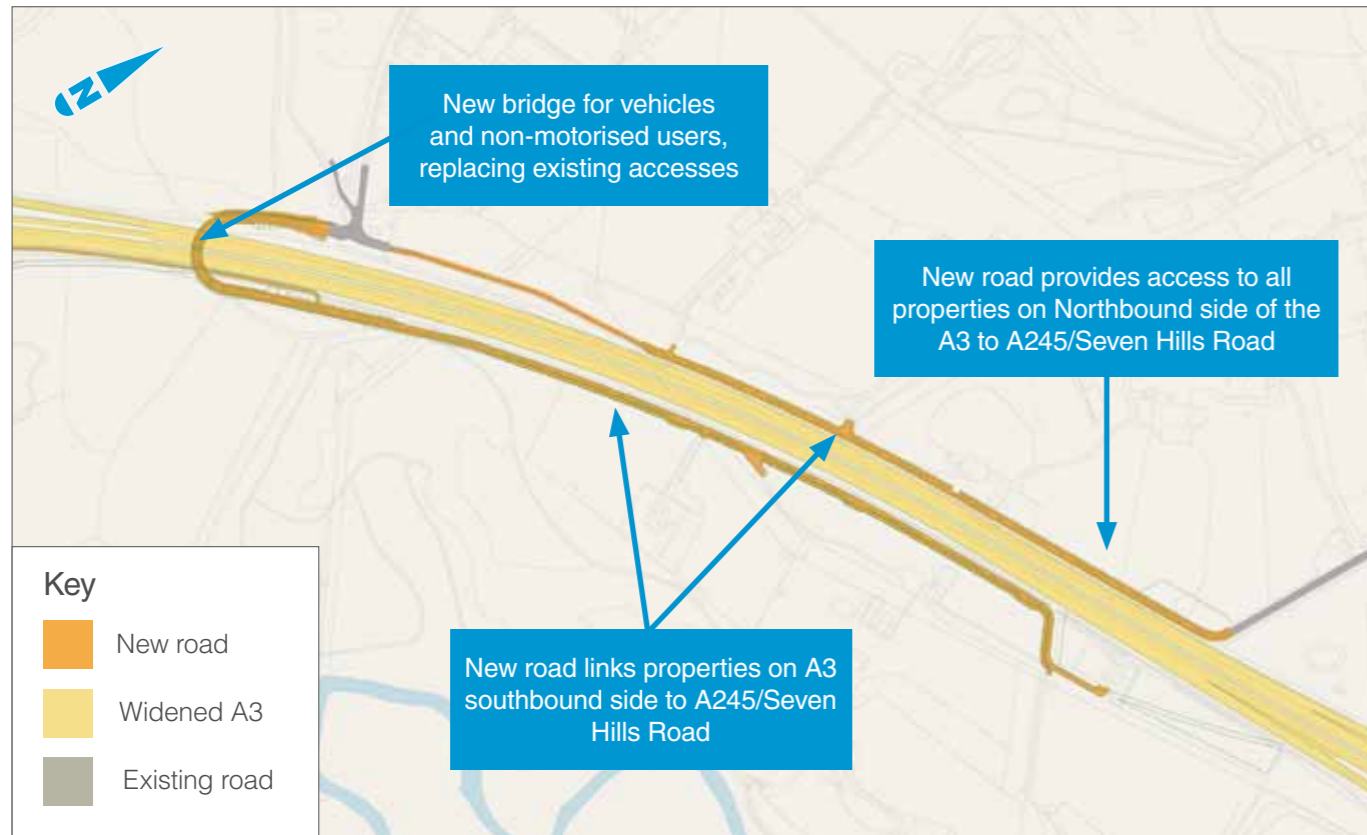
Map 1: Wisley Lane access



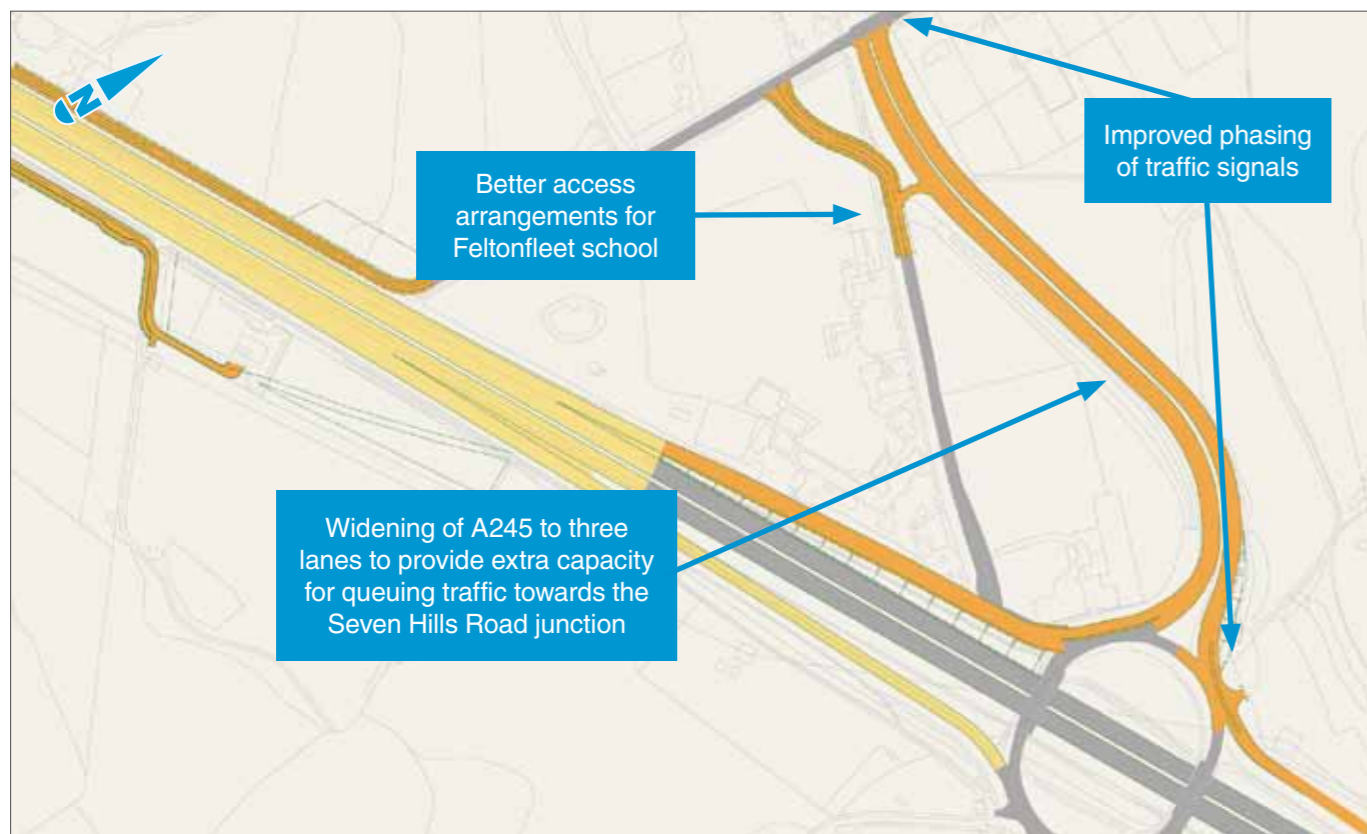
Map 2: Elm Lane and Pond Farm/Birchmere campsite



Map 3: Connections to the A3 Northbound (M25 junction 10 to Painshill) and A3 Southbound (Painshill to M25 junction 10)



Map 4: Painshill Junction/Seven Hills Road



Smart motorway integration

Highways England is taking the opportunity to accommodate the M25 junction 10 – junction 16 smart motorway programme in this scheme's development and construction.

What happens next?

Highways England would like to ensure that the most appropriate solutions for side road access are developed with landowners, residents and key stakeholders. As such we will be working to develop these further over the coming months and presenting these during the statutory public consultation in winter 2017/18.

After the statutory public consultation, we will need to apply for a Development Consent Order. The Development Consent Order application will be examined by the Planning Inspectorate, who will ask for representations from interested parties. This will be a further opportunity for you to have your say.

After the examination, the Planning Inspectorate will make a recommendation to the Secretary of State for Transport who makes the final decision on the scheme. We will only be given consent to construct the scheme if the Development Consent Order is granted. Consent will also allow compulsory purchase of any land required.

More information

The public consultation report is available at:

www.highways.gov.uk/m25j10

If you would like to be kept up to date with progress of the scheme, you can sign up for updates.

Contact us

If you have any queries please contact our customer contact centre on:

0300 123 5000* (24 hours)

or email:

info@highwaysengland.co.uk

*Calls to 03 numbers cost no more than a national rate call to an 01 or 02 number and must count towards any inclusive minutes in the same way as 01 and 02 calls. These rules apply to calls from any type of line including mobile, BT, other fixed line or payphone. Calls may be recorded or monitored.

Next steps	When?
Statutory public consultation	Early 2018
Development Consent Order submission	2018
Development Consent Order decision	2019
Begin construction	2020/2021

If you need help accessing this or any other Highways England information, please call **0300 123 5000** and we will help you.

© Crown copyright 2017.

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence:

visit www.nationalarchives.gov.uk/doc/open-government-licence/

write to the **Information Policy Team, The National Archives, Kew, London TW9 4DU**, or email psi@nationalarchives.gsi.gov.uk.

This document is also available on our website at www.gov.uk/highways

If you have any enquiries about this publication email info@highwaysengland.co.uk or call **0300 123 5000***. Please quote the Highways England publications code **PR55/17**

Highways England, Creative S170296

*Calls to 03 numbers cost no more than a national rate call to an 01 or 02 number and must count towards any inclusive minutes in the same way as 01 and 02 calls. These rules apply to calls from any type of line including mobile, BT, other fixed line or payphone. Calls may be recorded or monitored.

Printed on paper from well-managed forests and other controlled sources.

Registered office Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ

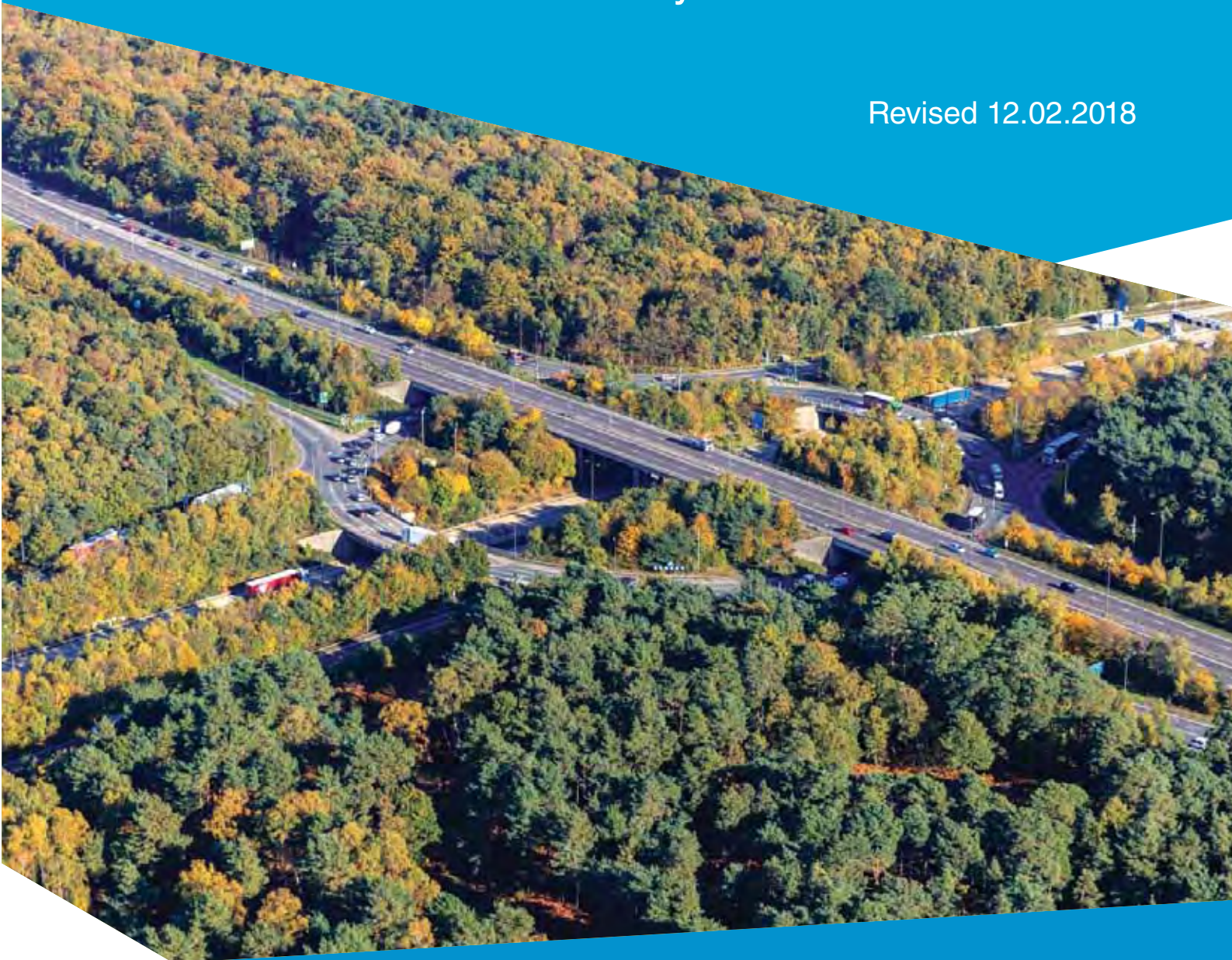
Highways England Company Limited registered in England and Wales number 09346363

APPENDIX E

M25 junction 10/A3 Wisley interchange improvement scheme

Statutory consultation brochure

Revised 12.02.2018



12 February to 26 March 2018

About us

Highways England is responsible for the operation, maintenance and improvement of England's motorways and major A roads, known as the Strategic Road Network (SRN).

In 2014 the Government announced its Road Investment Strategy, which set aside £15bn of funds for over 100 major schemes to enhance, renew and improve the SRN. Within this, M25 junction 10/A3 Wisley interchange was identified as one of the key investments for the London and south east region.

Revised version 12.02.18

This revised version of the brochure has the following changes:

- Updated Scheme Plan (pages 4 and 5)
- Date changed from 2016 to 2018 (page 11)
- Change title to map on pages 14 to 15 to 'Key Plan for maps 1 to 4'
- Updated maps, pages 16 to 23

Introduction

The M25 junction 10/A3 Wisley interchange is on a section of the motorway network that is of national and strategic importance. The M25 is a critical route between the Channel ports and much of the mainland UK, as well as providing a key access route for Heathrow Airport. The A3, which intersects with the M25 at junction 10, is a regionally important route and it provides access to the major employment areas at Guildford, Brooklands and Kingston-upon-Thames.

The M25 junction 10/A3 Wisley interchange has been identified for improvements as it experiences heavy congestion on a daily basis. This junction also has a poor safety record that needs to be addressed. Highways England accident data shows M25 junction 10 was found to have the highest number of casualties at any junction on the SRN, and more than double the average number of casualties at M25 junctions.

In peak hours, traffic on the A3 regularly queues back beyond Ockham Park junction and Painshill junction which delays users accessing the M25 as well as continuing along the A3. This causes queues and prevents access from Ockham Park junction (A3) to the M25 junction 10 and on to Painshill junction (A3) in both directions. A similar problem is experienced by traffic entering and exiting the M25 junction 10/A3 Wisley interchange.

This situation is likely to deteriorate given traffic forecasts associated with population and economic growth in the south east. If no action is taken there would be a significant impact on traffic flow, road safety, the environment and customer satisfaction as well as its ability to keep traffic moving when things go wrong. Ultimately it will reduce the ability of the junction to perform its role in supporting local and regional aspirations for development and growth, as well as affecting the quality of life for the many commuters who depend on this part of the network.

The scheme objectives and its environmental context

We have assessed the transport and safety issues at M25 junction 10, as well as the environmental context, to inform our scheme objectives.

The solutions must also be informed by the environmental context of the land surrounding M25 junction 10 and on either side of the A3, which is environmentally sensitive. It encompasses heathland and woodland that is designated as part of the Thames Basin Heaths Special Protection Area (SPA), which is of European importance for nature conservation. It is also designated as the Ockham and Wisley Commons Site of Special Scientific Interest (SSSI), a nationally important nature conservation designation.

There are parcels of irreplaceable ancient woodland alongside the A3 as well as nationally-important registered historic parks and gardens at Painshill Park and RHS Garden Wisley. There are scheduled monuments and historic listed buildings in close proximity to the interchange. The common land surrounding the junction is a valued outdoor recreational resource and the area is entirely within the green belt.

The area immediately surrounding the junction is sparsely populated however there are properties adjacent to the A3 and the communities of Cobham, Byfleet, Ripley and Ockham. We recognise that these are affected to varying degrees by traffic using local roads to access the A3 and M25, making them potentially sensitive to changes in flows along those routes.

In summary the key scheme objectives are to:

- Improve journey time reliability and reduce delay
- Improve safety and reduce both collision frequency and severity
- Improve crossing facilities for pedestrians, cyclists and horse riders and incorporate safe, convenient, accessible and attractive routes
- Minimise impacts on the surrounding local road network
- Support projected population and economic growth in the area.

The environmental design objectives in summary are to:

- Avoid, reduce, mitigate and/or compensate for any significant adverse effects or substantial harm through good design
- Improve the quality of life for local residents by mitigating any significant noise effects and supporting targets on air quality
- Seek good design, balancing functionality with achieving positive environmental outcomes.

The scheme's objectives are set out in full in our Preliminary Environmental Information Report, which has been published as part of our consultation materials.

The proposed scheme

Between December 2016 and February 2017, we consulted on two main options for improving the interchange. The first (referred to as Option 9) was for a flyover structure, the second (referred to as Option 14) was an elongated roundabout. The need to widen the A3 between Painshill and Ockham was also confirmed, which for safety reasons would necessitate the closure of some local side road junctions and private accesses that currently connect directly with the A3 mainline carriageway.

We considered all the feedback given. Although there was strong support for Option 9, there were a number of significant concerns about its environmental impact. Recognising these concerns, we have now developed a design solution (based on Option 14) that meets the scheme transport and safety objectives, but with significantly less environmental impact than Option 9.

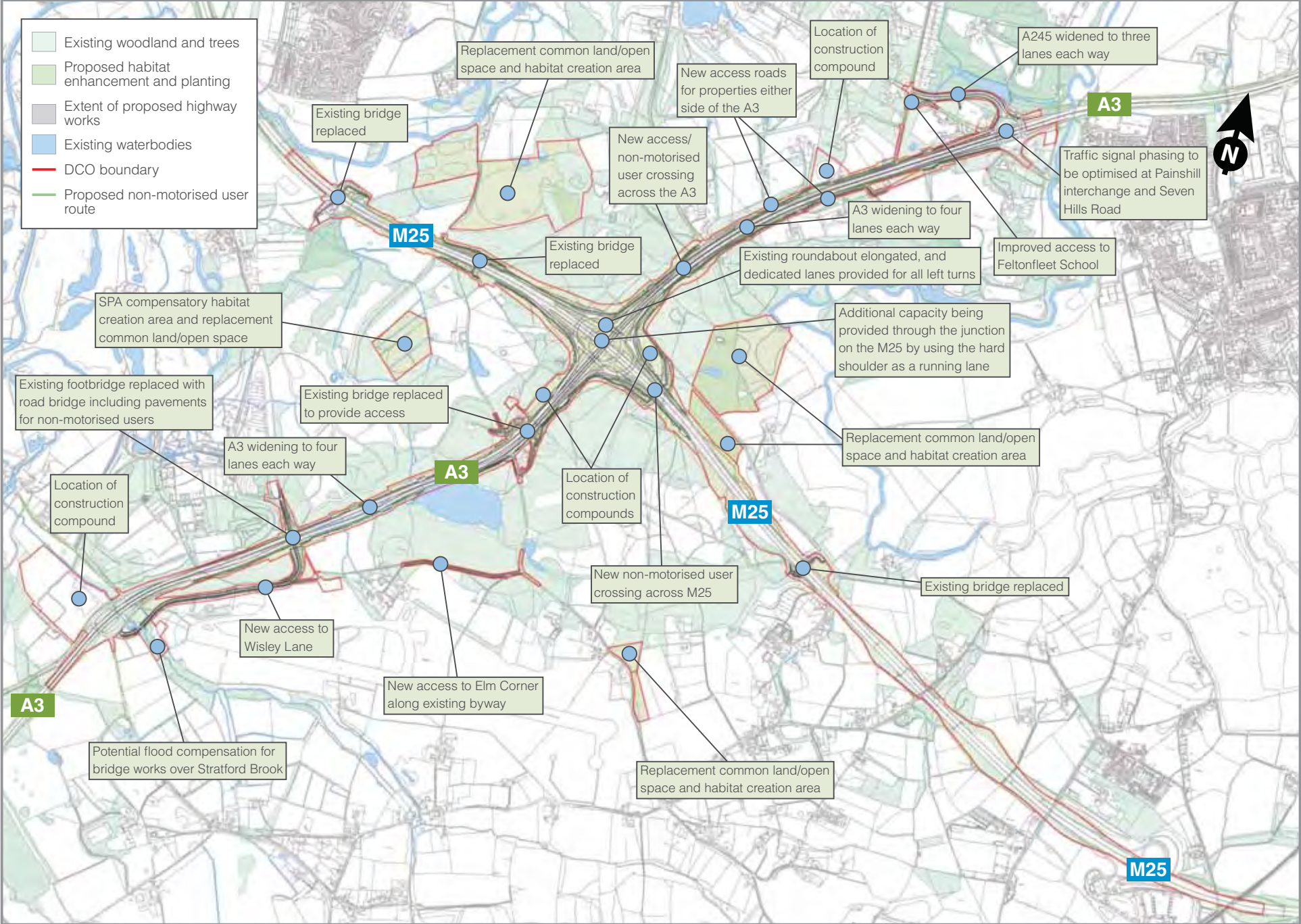
A preferred route announcement was made on 29 November 2017. This included proposals for replacement side road and access arrangements, which were necessary to address safety concerns and were developed following discussions with affected stakeholders and residents.

The proposed scheme includes the following measures:

- An elongated roundabout at M25 junction 10 to provide more capacity
- Construction of four new dedicated free-flowing slip roads, to enable all left-turning traffic approaching junction 10 to interchange without having to pass through traffic lights
- Widening of the A3 from three to four lanes either side of junction 10, between the Painshill junction to the north and the Ockham junction to the south, to increase capacity and meet the latest design and safety standards
- Widening of the A245 Byfleet Road to the west of the A3 Painshill junction, to provide three lanes in each direction and improve the capacity of the road to accommodate traffic joining and leaving the A3
- Improved routes for pedestrians, cyclists and horse riders.

In October 2017 the Government announced the results of its review of the Roads Investment Strategy (RIS) to ensure key corridors of the network can be delivered in a way to minimise disruption and keep road users moving. As a result of this, Highways England will now incorporate works to increase the number of lanes running through M25 junction 10, by utilising the hard shoulder (this scheme is known as the M25 junction 10 to junction 16 Smart Motorway Project). Incorporating these works within the proposed scheme will help us to reduce any disruption to road users and local communities during construction.

Scheme plan



Scheme benefits

Below is a summary of the scheme objectives and the benefits it will deliver.

Objective	Benefits/impacts delivered
Improving journey times and reliability	<ul style="list-style-type: none"> The new M25 junction 10 roundabout and widening of the A3 between Ockham and Painshill will add capacity to the road network and improve reliability. The scheme will generate an average saving of over two minutes for vehicles using the M25 junction 10 roundabout in the morning peak from opening in 2037. Some journeys will save up to five minutes. Less delay on the A3 in both directions in the morning peak with a reduction of up to three minutes in the northbound direction from opening.
Improved local road network	<ul style="list-style-type: none"> Less traffic on the local road network in the AM peak. However, traffic through Ripley is forecast to increase as a result of background growth and this scheme adds a further 4% more traffic through the Newark Lane junction in the AM peak in 2037. The addition of north facing slips at Burnt Common as proposed in Guildford Borough Council's Draft Local Plan would reduce traffic through the Newark Lane junction by 11% the AM peak in 2037. (Please note this is not a Highways England scheme) Extra capacity on the A3 will accommodate an extra 5% of traffic through the Painshill interchange and journeys will also be quicker, with a reduction in delays of almost one minute in the AM peak as a result of the scheme.
Improved safety	<ul style="list-style-type: none"> Our scheme brings the M25 junction 10 roundabout and the section of the A3 up to modern design standards. Residents and businesses who currently have direct access to the A3 will be provided with safer side road accesses meaning they will no longer directly merge with a high-speed 4-lane road. <p>The scheme is predicted to reduce the number of personal injury accidents by an average of 14 per year within the scheme boundary including:</p> <ul style="list-style-type: none"> 5 fewer per year at M25 junction 10 4 fewer per year at the Painshill Interchange & Seven Hills Road junction 3 fewer per year on the A3 between Painshill and Ockham <p>The scheme will result in an overall reduction in the number of accidents which lead to fatal or serious injury on this section of the road network.</p>

Supporting economic growth	<ul style="list-style-type: none"> The capacity improvements at the M25 junction 10 roundabout will allow for all additional traffic demand associated with the housing and employment growth predicted as a result of local planning policy (up to 2037) to be accommodated.
----------------------------	--

Side roads and local access arrangements

Highways England has undertaken extensive engagement with stakeholders and landowners about the access arrangements on and off the A3 between the Painshill and Ockham junctions.

The safety of all road users is our highest priority. For this scheme, we wish to ensure that there is no conflict between vehicles directly entering and exiting what will become a 4-lane, high speed section of the A3. Allowing these direct accesses to continue would be unsafe and we are therefore proposing to provide alternative arrangements as summarised in the table below.

Option name	Description
Wisley Lane (Map 1)	Access to Wisley Lane will be via a two-way bridge accommodating both vehicles and non-motorised users. There will no longer be direct access on to, or off the A3 from Wisley Lane and this new bridge will replace the existing footbridge.
Elm Lane (Map 2)	Direct access to Elm Lane from the A3 will be stopped up. Instead residents will use the new road to access Old Lane and the A3 southbound.
Old Lane (Map 2)	Old Lane will be kept open, with direct access onto the A3 southbound via the slip road. There will be safety improvements to the Old Lane junction, including better sightlines and improved slip roads.
Pond Farm/Birchmere Campsite (Map 2)	Access via a new bridge connecting the Ockham Common side of the A3 to Pond Farm and the Scout campsite (replacing the existing Cockrow bridge). It also links the Wisley and Ockham Commons for pedestrians, cyclists and horse riders.
A3 northbound (M25 junction 10 to Painshill) (Map 3)	A new road will provide access to all properties along the northbound side of the A3 to A245/Seven Hills Road.
A3 southbound (Painshill to M25 junction 10) (Map 3)	For properties on the A3 southbound whose direct access will be stopped up, a two-way bridge over the A3 close to its slip roads to the M25 junction 10 interchange will be provided. This will accommodate both vehicles and non-motorised users. The bridge links to the new northbound service road.
Painshill Junction/ Seven Hills Road (Map 4)	The A245 will be widened, adding an extra lane between the A3 Painshill Junction and Seven Hills Road. Feltonfleet school will have a safer access via Seven Hills Road south

Environmental considerations

The M25 junction 10/A3 Wisley interchange scheme is located within the green belt and surrounded by heath and woodland with residential properties nearby, and as such presents a significant number of environmental constraints and challenges.

Large areas around the junction are designated as part of the Thames Basin Heaths Special Protection Area, so are of international importance with the highest level of protection from development. Much of the area around the junction is also designated as a Site of Special Scientific Interest, a Site of Nature Conservation Interest and local nature reserve. Common and access land which the public can use freely surrounds the junction and numerous historic features are present including Scheduled Monuments, listed buildings and two Registered Park and Gardens.

However, the current road layout is poor if you wish to walk, cycle or horse ride either around the junction or the land that surrounds it. Noise

is an important issue with the M25 and A3 both generating high levels of noise which disturbs local people and affects enjoyment of the common land. Air pollution is also a problem, affecting the ecological sites at the junction and people in the local area.

This is a complex and challenging environment in which to develop a road scheme, however the ongoing engagement with land owners and stakeholders has been critical in helping shape our designs and reduce its impacts wherever possible.

As part of the scheme development and consultation process, we have published the Preliminary Environmental Information Report (PEIR). The PEIR provides consultees with the information compiled by Highways England to date about the predicted environmental impacts of the scheme and the proposed mitigation measures, to inform this statutory consultation.

The full PEIR document is available in both hard copy at consultation events and deposit points, as well as online and we are seeking your views on it as part of the consultation questionnaire.

The key issues are as follows:

Issue	Effect	Mitigation/compensation
Land take	Approximately 26 hectares of land are permanently required for the scheme, including some designated for its environmental value and for public access.	Option 14 was selected after consideration of the concerns raised about environmental impacts, including land take, at the first stage of consultation. Whilst the land take is smaller than for Option 9, permanent land take from designated and access land must be compensated for and the scheme includes areas to replace and compensate for that taken. This has been discussed with both land owners and those who manage land as well as national and local stakeholder organisations.
	Approximately 33 hectares of temporary land take is required during the construction of the scheme	The land taken temporarily will be restored and returned to its original landowners after construction has been completed.
Special Protection Area / SSSI and biodiversity	Loss of habitat for rare species.	The design has sought to avoid or reduce the effect on these areas of land where possible. The potential mitigations for impacts on biodiversity include replacement land which can provide suitable habitat in place of that lost and enhancements to existing habitats. A further Habitats Regulation Assessment is to be undertaken.

Ancient woodland and landscape	Small sections of ancient woodland may be lost as well as larger areas of existing trees. Increases in the visual impact of the M25 and A3 are likely.	The design seeks to minimise the loss of ancient woodland and provides areas of replacement land where woodland planting and management can be provided to compensate for losses. New tree and shrub planting will take place within the new highway boundary to replace lost trees and provide screening.
Scheduled monuments, listed buildings and other heritage assets	Effects on the setting of historic features and potential impact on buried archaeology.	The design avoids heritage assets where possible and minimises land take where unavoidable. The design will provide sensitive mitigation for receptors which may include, where appropriate, archaeological investigations, screen planting and environmental barriers.
Common land - access for pedestrians, cyclists and horse riders	Loss of common and access land as well as amenity effects and alterations to footpaths and bridleways.	The scheme will provide replacement land to compensate for the loss of common or access land. The design will realign affected rights of way and provide routes to better link up new and existing areas of public access. This will include the construction of new or replacement bridges.
Air quality and noise	Changes to levels of air and noise pollution, some of which may be worse than existing. Seek to reduce any negative impact on air quality and noise in the vicinity of the scheme.	Highways England will introduce low noise surfacing on new sections of road. The scheme will replace noise barriers along the M25 and provide new barriers where assessments indicate these are necessary. Analysis of air quality effects and implementation of measures to mitigate pollutant levels in the surrounding environment will be undertaken.



Purpose of this consultation

It is a key requirement of the DCO process that Highways England consults with the public and other bodies before submitting our application. It is therefore an important opportunity to have your say before decisions are finalised. Our consultation has been undertaken in accordance with the Statement of Community Consultation, published separately, as well as the statutory requirements of the Planning Act 2008.

This consultation is the first stage in the statutory DCO process for the general public to provide feedback. As part of this consultation, we have published a Preliminary Environmental Information Report (PEIR) alongside this summary brochure. The PEIR sets out further information about the proposed scheme, the alternatives that have been considered and the scheme's potential environmental effects. We have also published a questionnaire so that you may provide your comments.

A standalone scheme plan is available in addition to this brochure.

We welcome feedback on any aspect of our proposals, including:

- The need for improvements at this interchange
- The design, nature and extent of our proposals and whether we have omitted to address any matters that people consider important
- Whether there are any design modifications that people would like us to consider to address problems or the scheme's potential effects on people, the local environment, land and property
- Our environmental mitigation measures
- Any of our preliminary environmental information and assessment findings contained in the Preliminary Environmental Information Report

Our consultation will run for six weeks, from 12 February until 26 March 2018. **All responses must be received by 23.45 on 26 March 2018.**

What is a Development Consent Order?

The proposed scheme constitutes a Nationally Significant Infrastructure Project, which means that permission for its construction has to be authorised by a Development Consent Order (DCO) made by the relevant Secretary of State (in this case, the Secretary of State for Transport). A DCO can incorporate a range of consents that normally have to be obtained separately, such as environmental permits. The DCO for the M25 junction 10/A3 Wisley improvement scheme will also need to include powers for the compulsory acquisition of land, as the works will require land beyond the current highway boundary. Applications for a DCO are made to the Planning Inspectorate, the body appointed by the Government to examine the merits of proposals and to make recommendations to the Secretary of State on whether consent should be granted.

Find out more

Public exhibitions

We are holding consultation events at a number of venues in the vicinity of the proposed scheme. Please do come along to one of these if you want to find out more or talk to members of the project team. The events are as follows:

Dates	Venues
Friday 16th February 14:00 – 19:30 Saturday 17th February 10:00 – 17:00	East Horsley Village Hall , Kingston Avenue, East Horsley, KT24 6QT
Friday 23rd February 12:00 – 19:30 Saturday 24th February 10:00 – 17:00	Cobham Hilton , Seven Hills Road, Cobham, KT11 1EW
Friday 2nd March 14:00 – 19:30 Saturday 3rd March 10:00 – 17:00	Cobham Village Hall , Lushington Drive, Cobham, KT11 2LU
Friday 9th March 15:30 – 20:00 Saturday 10th March 10:00 – 17:00	Ripley Village Hall , High Street, GU23 6AF
Friday 16th March 08:00 – 20:00 Friday 23rd March 08:00 – 20:00	Cobham Services , M25

Consultation materials public inspection locations

Consultation materials, including the PEIR will also be available to view from 12 February until 26 March 2018 at the following locations:

- Guildford Borough Council, Millmead House, Millmead, Guildford, Surrey. GU2 4BB
- Elmbridge Borough Council, Civic Centre, High Street, Esher, Surrey. KT10 9SD
- Surrey County Council, County Hall, Penrhyn Road, Kingston upon Thames, Surrey. KT1 2DW
- Cobham Library, The Cedar Centre, Cedar Road, Cobham, Surrey. KT11 2AE
- Horsley Library, Parade Court, Ockham Road South, East Horsley, Surrey. KT24 6QR
- Walton Library, 54 The Heart, Walton on Thames, Surrey. KT12 1GH
- Byfleet Community Library, High Road, Byfleet, Surrey. KT14 7QN
- West Byfleet Library, The Corner, West Byfleet, Surrey. KT14 6NY
- Addlestone Library, Runnymede Civic Centre, Station Road, Addlestone, Surrey. KT15 2AF
- Woking Library, Gloucester Walk, Woking, Surrey. GU21 6EP.

Please check opening times at locations for access.

Online

Copies of this brochure together with our other consultation materials and supporting documents will also be available online during the consultation period on the project website at www.highways.gov.uk/M25j10. We are seeking views on:

- Any information contained in this brochure
- Preliminary Environmental Information Report (PEIR)
- Scheme plan.

We have also published on the project website copies of relevant documents published earlier in the project. Whilst we are not actively seeking feedback on these documents and nor do they form part of our consultation materials, they may be of interest to people as further background.

How to request copies of consultation materials

Copies of our consultation materials may also be provided on request to Highways England – please check our "Get in touch" section for our contact details.

CD copies of our consultation materials can be provided free of charge. Paper copies of this scheme consultation brochure and feedback form and the Statement of Community Consultation will be supplied free of charge. For paper copies of the PEIR, a reasonable charge to cover printing, postage and VAT (at 20% will be charged), up to a maximum of £200. Please contact Highways England regarding payment methods using the contact details in our "Get in touch" section.

We want to hear your views

Your views are important to us. You can provide feedback to us in a number of ways:

- Completing the online questionnaire at www.highways.gov.uk/m25j10
- Completing a paper copy of the questionnaire and either returning it to FREEPOST M25 junction 10/A3 Wisley interchange or handing it to a member of the project team at any of our consultation events listed above. Copies of the questionnaire will be available at the document inspection locations listed above and will be available at all of the public exhibition events.

Alternatively, any other comments can be made in writing and emailed to info@highwaysengland.co.uk or sent to the FREEPOST address above, quoting the reference: M25 junction 10/A3 Wisley interchange improvement.

All comments and responses must be received no later than Monday 26 March 2018 at 23:45.

We look forward to hearing your views, but due to the high volume of responses anticipated we may not be able to reply to everyone individually.

All responses will be analysed by the project team. Your details will only be used in connection with the M25 junction 10/A3 Wisley interchange consultation process and will not be passed to any third parties. As part of our DCO application we will be required to submit a report setting out how we have had regard to all of the comments made. Therefore, in providing any comment, it should be borne in mind that the substance of it may be communicated to others as part of the Consultation Report.

Next steps

Once the consultation period has ended on 26 March 2018 we will consider all of the feedback given before finalising our proposals. We then expect to submit an application for a DCO to the Planning Inspectorate by the end of this year.

Any further small-scale or localised changes to the scheme may require targeted consultation and engagement.

After the application has been submitted, the Planning Inspectorate have 28 days in which to decide whether it is of a satisfactory standard and whether it has been prepared in accordance with the relevant statutory requirements to enable it to be accepted for examination. If accepted, the application will be publicised and anyone will be able to register to submit their views to the Planning Inspectorate. An Examination will then be held, typically within six months, during which time those people who have registered will be invited to submit their detailed views in writing. Some public hearings are also likely to be held, during which the Inspectors will ask questions.

A final decision on a DCO application is normally made within 12 months of acceptance of the application by the Planning Inspectorate, which could mean a decision being made on the proposed scheme by the end of 2019. If consent is granted, we anticipate that the scheme will take approximately two years to build.

For further information about the DCO process, the role of the Planning Inspectorate and how to get involved in the examination stage please visit the Planning Inspectorate's website <http://infrastructure.planninginspectorate.gov.uk> or calling them on **0303 4445000**. A video explaining the DCO process is also available online at <https://infrastructure.planninginspectorate.gov.uk/application-process/the-process/>

Get in touch

If you need any further information about our proposed scheme, or about this consultation or how to request copies of any of the consultation materials, please get in touch.

Telephone us: 0300 123 5000

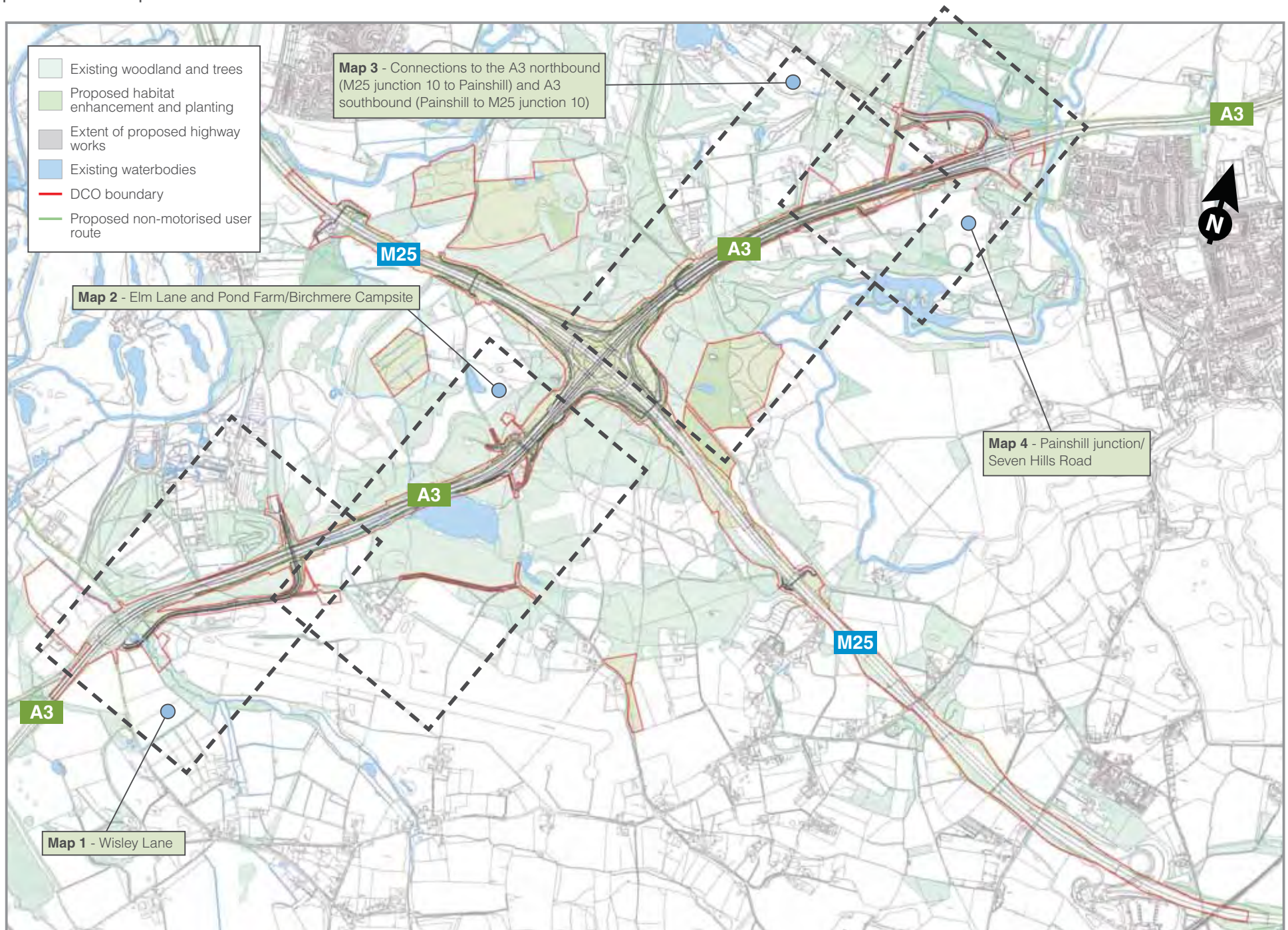
Email us: info@highwaysengland.co.uk

Write to us: Mr Brian Gash, Senior Project Manager, Highways England, Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ

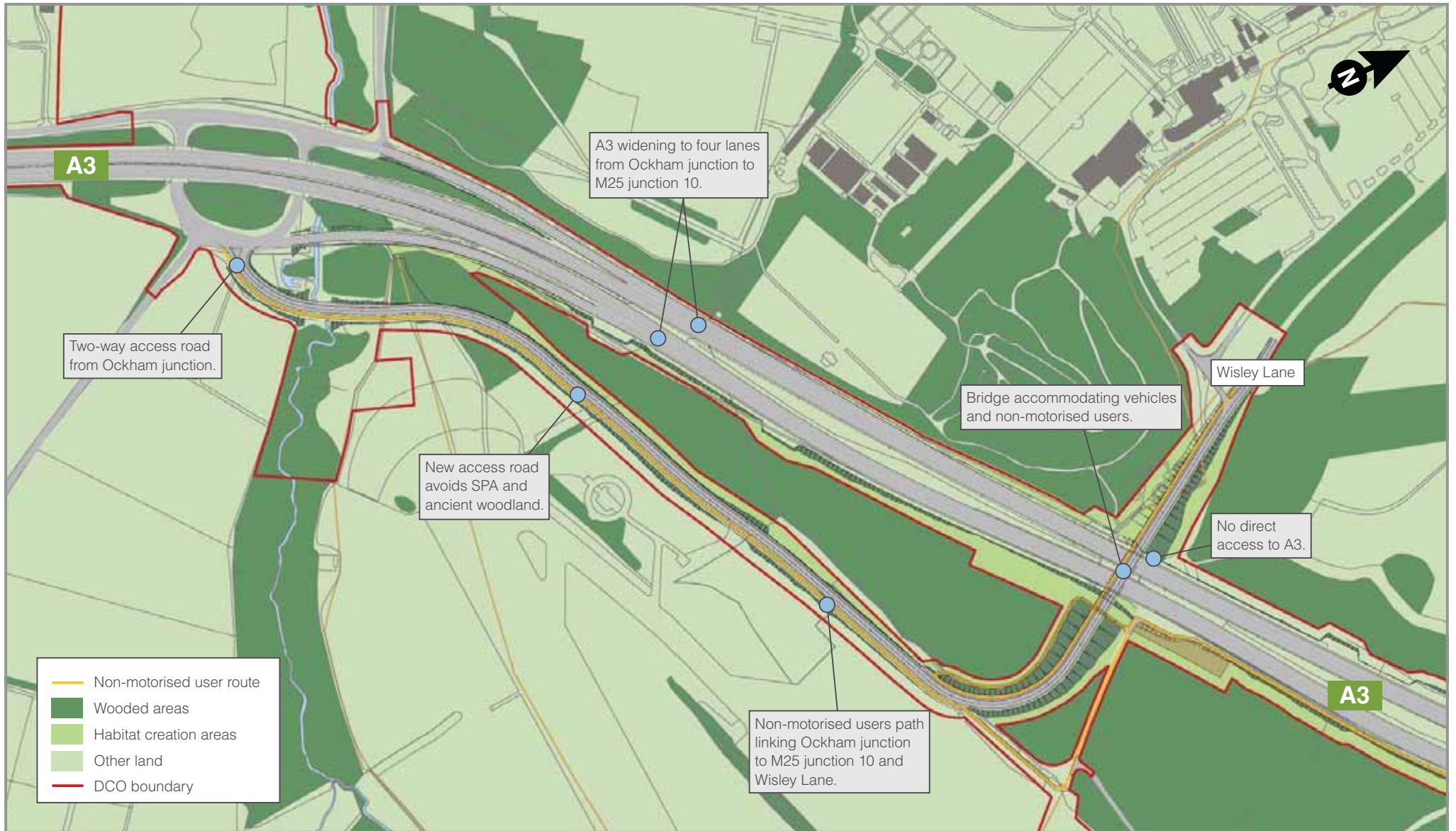


Painshill junction

Key plan for maps 1 to 4



Map 1 - Wisley Lane



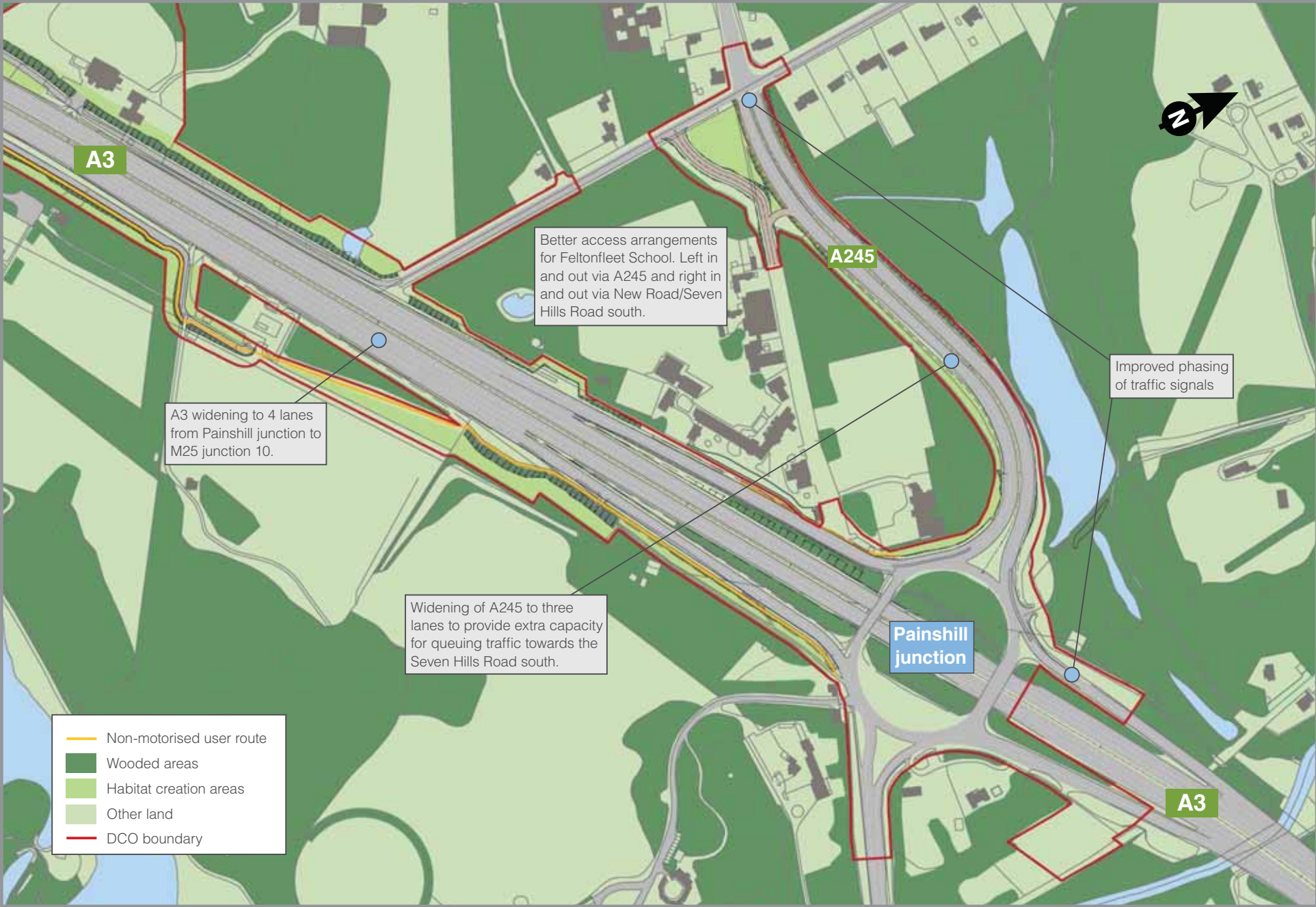
Map 2 - Elm Lane and Pond Farm/Birchmere Campsite



Map 3 - Connections to the A3 northbound (M25 junction 10 to Painshill) and A3 southbound (Painshill to M25 junction 10)



Map 4 - Painshill junction/Seven Hills Road



If you need help accessing this or any other Highways England information, please call **0300 123 5000** and we will help you.

© Crown copyright and database rights 2018 OS 100030649.

You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of this data to third parties in any form.

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence: visit www.nationalarchives.gov.uk/doc/open-government-licence/ write to the **Information Policy Team, The National Archives, Kew, London TW9 4DU**, or email psi@nationalarchives.gsi.gov.uk.

This document is also available on our website at www.gov.uk/highways

If you have any enquiries about this publication email info@highwaysengland.co.uk or call **0300 123 5000***. Please quote the Highways England publications code **PR177/17**.

Highways England Creative GFD18_0011

*Calls to 03 numbers cost no more than a national rate call to an 01 or 02 number and must count towards any inclusive minutes in the same way as 01 and 02 calls. These rules apply to calls from any type of line including mobile, BT, other fixed line or payphone. Calls may be recorded or monitored.

Printed on paper from well-managed forests and other controlled sources.

Registered office Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ
Highways England Company Limited registered in England and Wales number 09346363

Appendix F











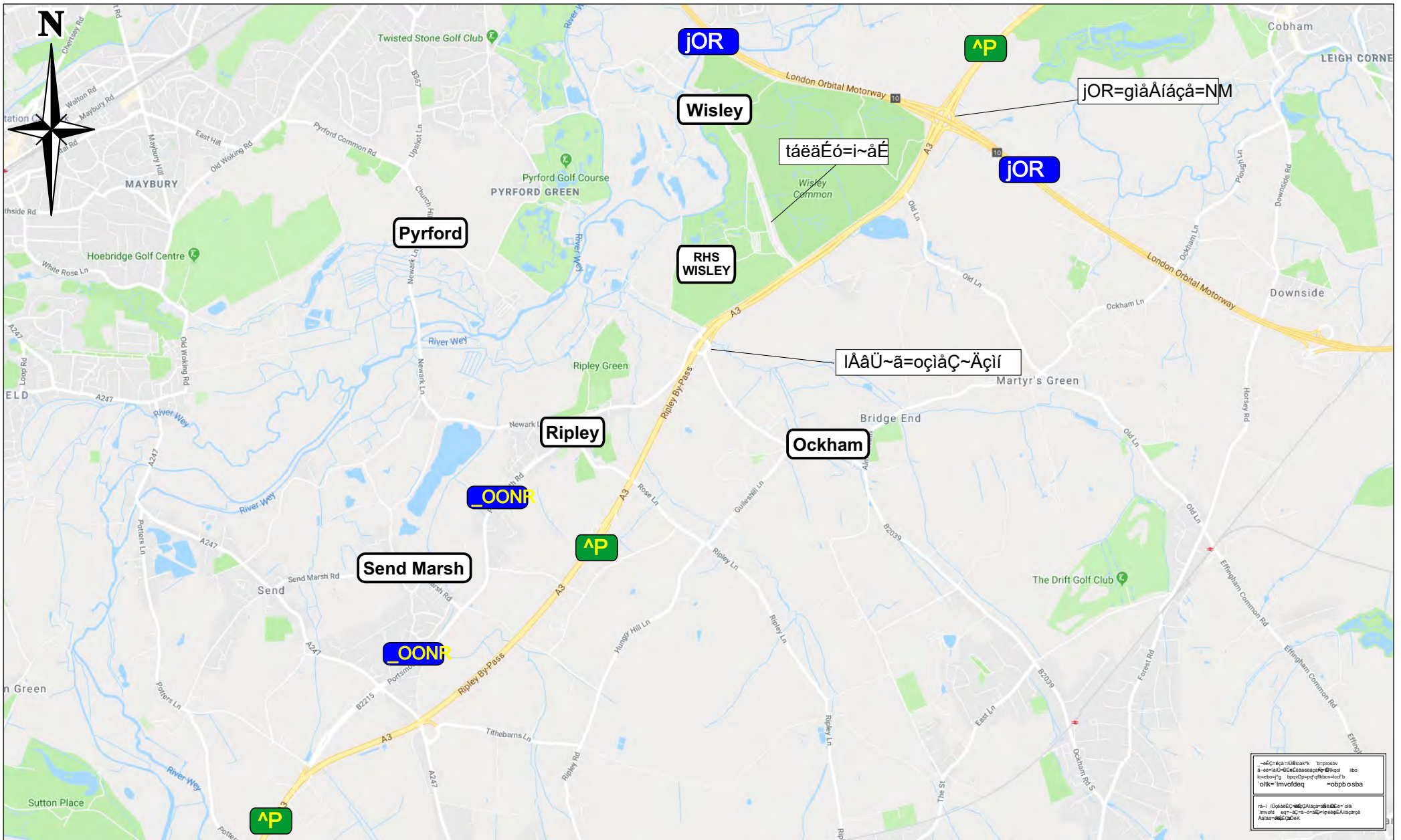








APPENDIX G



aē~iāāÓ=kç	jNSNNQJ`JMNO
a~iÉ	OOKMPKOMNU
aē~iā_ó	tep

oÉi	K
oÉi=a~iÉ	K
^iüçēāēÉÇ	je

pA~āÉ	kqp
-------	-----

jOR=grk`qflk=NML^P=tfpibv

il`^i =efdēt ^v=kbqtlōh=mi^k

APPENDIX G

APPENDIX H

Existing A3 Access Provisions (from Guildford)



Existing A3 Access Provisions (to Guildford)



Existing A3 Access Provisions (from London)



Existing A3 Access Provisions (to London)



APPENDIX I

Highways England PRA A3 Access Provisions (from Guildford)

TO WISLEY FROM A3 SOUTH



Highways England PRA A3 Access Provisions (to Guildford)

FROM WISLEY TO A3 SOUTH



Highways England PRA A3 Access Provisions (from London)

TO WISLEY FROM A3 NORTH/M25

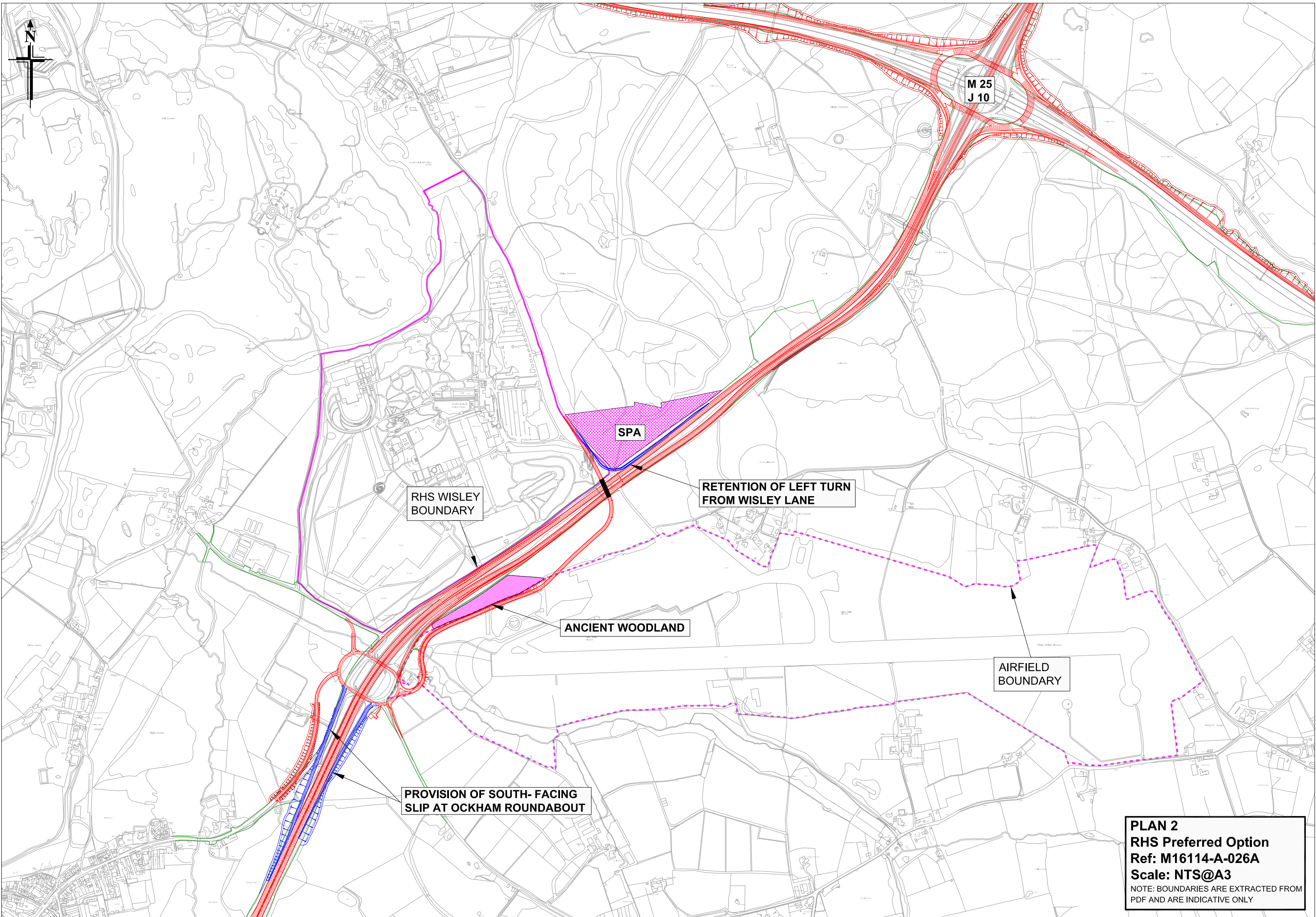


Highways England PRA A3 Access Provisions (to London)

FROM WISLEY TO A3 NORTH/M25



APPENDIX J



RHS WISLEY BOUNDARY

SPA

RETENTION OF LEFT TURN FROM WISLEY LANE

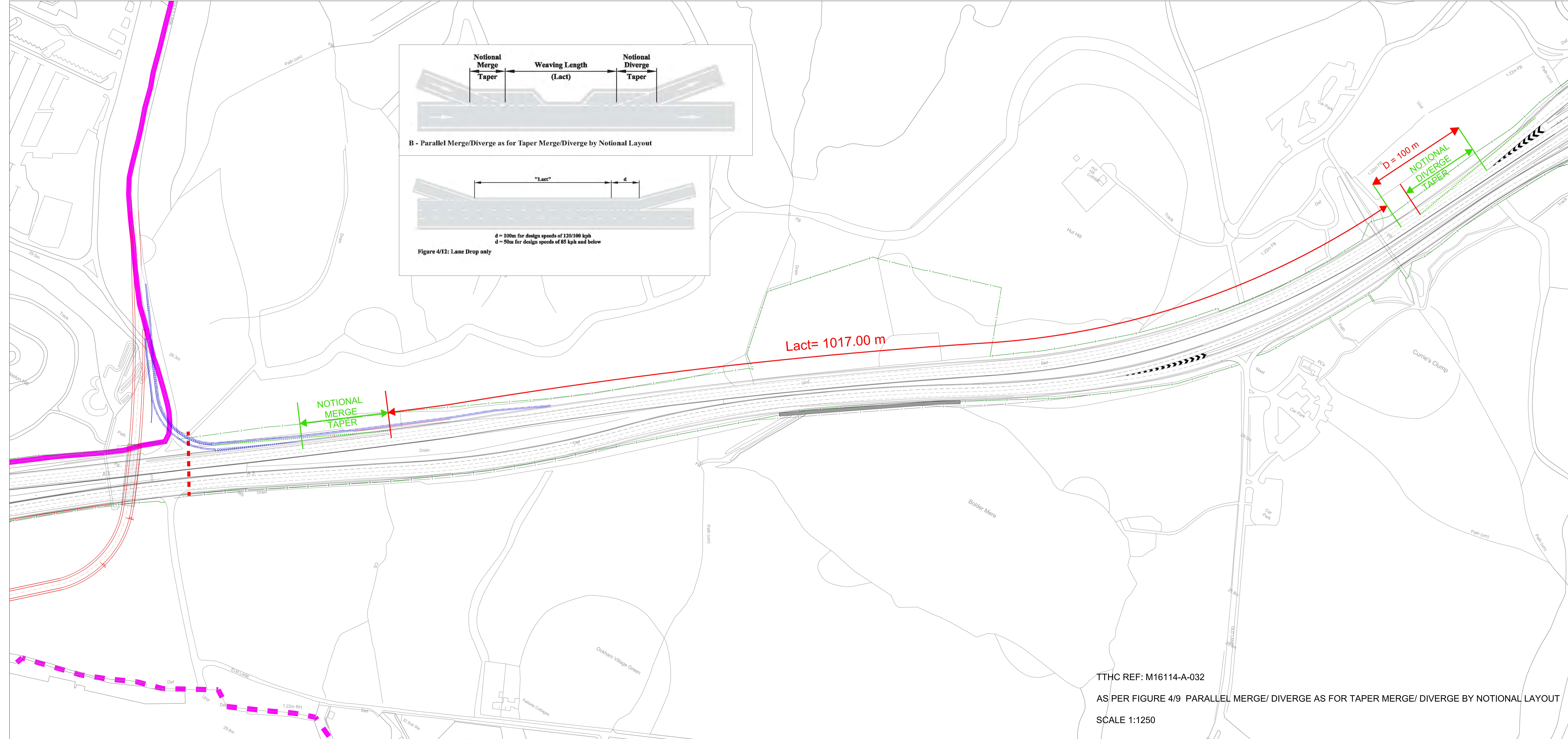
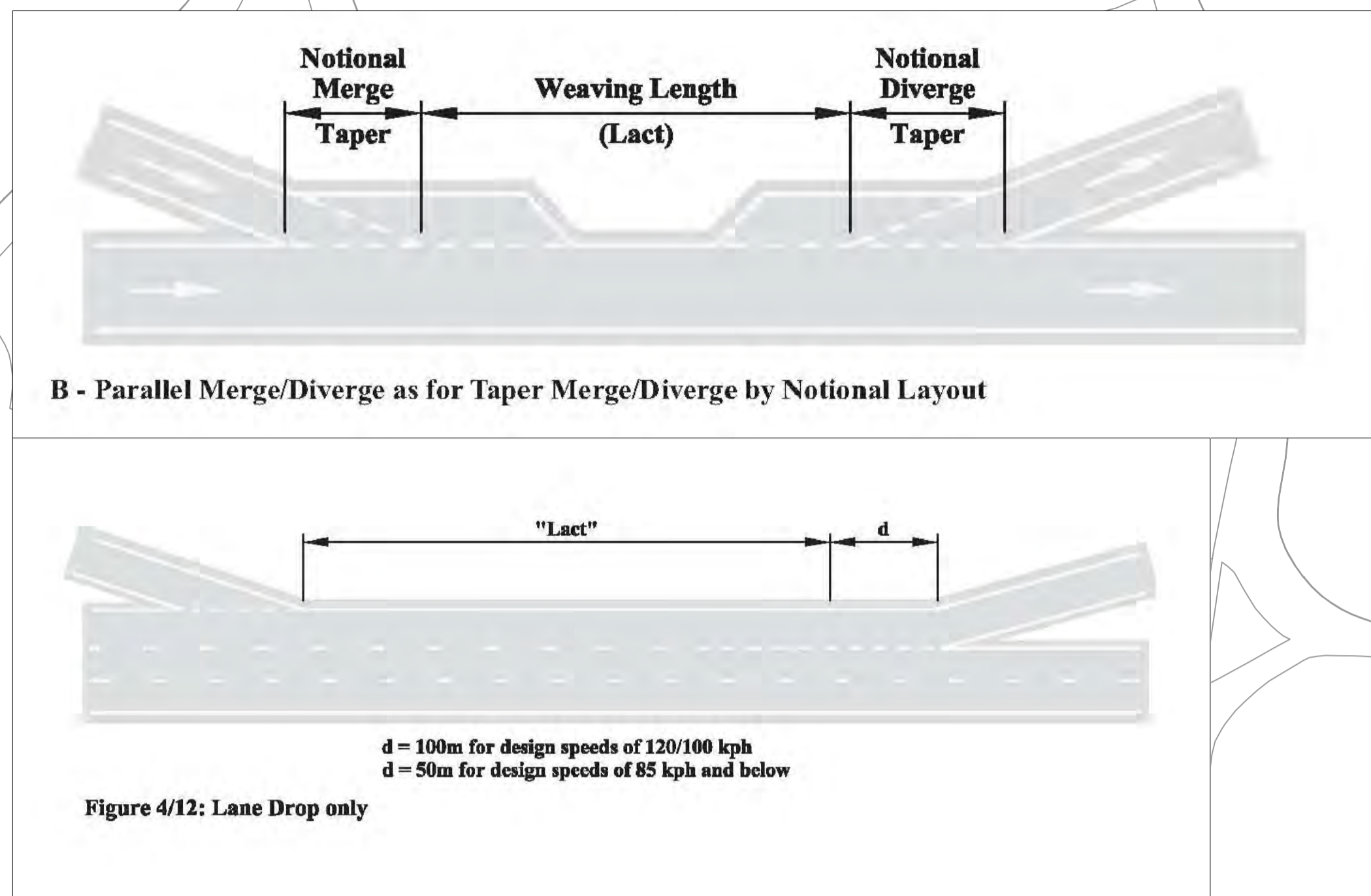
ANCIENT WOODLAND

AIRFIELD BOUNDARY

PROVISION OF SOUTH-FACING SLIP AT OCKHAM ROUNDABOUT

M 25
J 10

PLAN 2
RHS Preferred Option
Ref: M16114-A-026A
Scale: NTS@A3
NOTE: BOUNDARIES ARE EXTRACTED FROM PDF AND ARE INDICATIVE ONLY



TTHC REF: M16114-A-032

AS PER FIGURE 4/9 PARALLEL MERGE/ DIVERGE AS FOR TAPER MERGE/ DIVERGE BY NOTIONAL LAYOUT

SCALE 1:1250

APPENDIX K

A556 Knutsford to Bowdon – Approximate Timeline

Pre April 2003 – Options for upgrading A556 explored - M6 junction 20 expansion, A556 (M).

April 2003 - Both M6 Junction 20 expansion and A556 (M) proposals rejected.

Route Management Strategy conducted by Highways Agency, including public consultation (March 2004 to June 2004).

February 2005 – Route Management Strategy completed, which recommended a scheme that primarily improved the existing A556 route.

February 2005 to March 2007 – Study to develop options for an improved A556 scheme, based on the RMS recommendations.

March 2007 to July 2007 – Public Consultation, with two options, on initial preferred route.

December 2008 - Preferred Route Announcement.

January 2009 – Scheme to widen M6 junctions 11a-19 scrapped as part of a £5 billion cost saving exercise that replaced proposals for 220 miles of motorway widening with 'hard shoulder running'.

(See:

<http://webarchive.nationalarchives.gov.uk/20091115004352/http://www.highways.gov.uk/roads/projects/25534.aspx>

<https://www.theguardian.com/politics/2009/jan/18/motorways-geoff-hoon>)

This scrapped scheme covered an approximately 600m stretch of the existing A556 from the M6 junction 19 roundabout up to the extent of the A556 scheme. At this point, this 600m stretch of the existing A556 would not have been adapted to meet the demands of increased traffic from the new A556.

January 2009 to August 2009 – Options for this 600m stretch identified and studies undertaken to compare options.

September 2009 to December 2009 – Supplementary Public Consultation with two new proposals that incorporated this 600m stretch to M6 Junction 19.

March 2010 – Amended Preferred Route Announcement

26th October 2010 – Department for Transport publishes 'Investment in Highways Schemes' (See PDF linked here: <http://webarchive.nationalarchives.gov.uk/20120217082810/http://www.dft.gov.uk/publications/investment-in-highways-transport-schemes>)

This details all road schemes as part of the 2010 Spending Review. A556 Knutsford – Bowdon listed as one of 14 forthcoming schemes to which a total of £1.4 billion was allocated. Scheme cost estimate between £163.2 million (minimum) and £204.2 million (maximum), with a most likely estimate of £174.8 million.

November 2011 – Listed in government's National Infrastructure Plan 2011

April 2013 – DCO submitted.

September 2013 / October 2013 – Environmental Statement Addendum produced and submitted as part of the ongoing DCO application.

December 2013 to January 2014 – Additional consultation

28 August 2014 – Development consent granted.

November 2014 – Construction begins on site.

1st December 2014 – A556 listed as part of RIS1. See pages 32-33 of: <https://www.gov.uk/government/publications/road-investment-strategy-overview>

March 2017 – Works completed.

M6 Junction 10

A joint venture between Highways England and Walsall Council to improve Junction 10 of the M6 that was announced alongside the Road Investment Strategy announcement.

All documents referenced below can be viewed here:

<https://go.walsall.gov.uk/planningm6j10> (copy and paste link)

The application was submitted on 25/08/2017 and defines the red site line boundary (see 'Existing Site Plan 25-08-2017', listed in Plans and Drawings).

The application was updated on 18/12/2017 and included changes to the red line site boundary.

From section 2.3.1 of the 'Environmental Statement Addendum 18-12-2017' (see Part 1, listed in Supporting Documents):

The design that was submitted for planning consent in August 2017 was based upon lidar data and scanned surveys; the topographic survey information which is now available provides more detailed information. This new information informed a review into the design of the proposed retaining walls.

From section 2.3.2:

The review has resulted in design changes to the three areas of the Scheme.

From section 2.3.3:

As the red line plan has been updated with minor alterations, figures in the previous ES submission which have now been superseded have now been replaced with updated figures.

The new red line site boundary can be seen on an updated version of the Existing Site Plan (see 'Existing Site Plan 18-12-2017'). Figure 1.5 of the Environmental Statement Addendum shows the extent of both the original and the new red line site boundary (see page 12 of Part 2).

A47/A11 Thickthorn Junction Improvement Scheme

Scheme Background

The A47/A11 Thickthorn junction is situated to the south west of Norwich centre, close to the village of Cringleford. This junction improvement scheme is one of six smaller schemes that collectively make up the 'A47 corridor improvement' programme, which aims to improve accessibility in the region and reduce congestion on the A47 between Peterborough and Great Yarmouth.

A number of potential improvement options were identified but ultimately only one option was presented at the non-statutory public consultation for comment (see 'Consultation Brochure' <https://highwaysengland.citizenspace.com/he/a47-a11-thickthorn-junction-improvement/>, listed under Related at the bottom of the page).

Concerns were raised about the new underpass structure and the Cantley Lane Link road that would reconnect Cantley Lane and Cantley Lane South; it was felt that this would lead to rat-running and additional traffic through Cringleford. There was overall support for the proposed option as a whole and so it was announced as the preferred route. The concerns regarding the Cantley Lane link were acknowledged in this announcement (see 'Preferred Route Announcement' <https://highwaysengland.citizenspace.com/he/a47-a11-thickthorn-junction-improvement/>), which also stated that options would be developed and put forward to the public in the coming months.

Two potential options for Cantley Lane were developed (see 'Potential solutions for Cantley Lane South' <https://highwaysengland.citizenspace.com/he/a47-a11-thickthorn-junction-improvement/>) and will be discussed during the statutory consultation period.

DCO Boundary

A recently published Environmental Impact Assessment (EIA) Scoping Report outlines the DCO boundary for the scheme (see Appendix A, page 200 [https://infrastructure.planninginspectorate.gov.uk/projects/eastern/a47a11-thickthorn-
junction/?ipcsection=docs](https://infrastructure.planninginspectorate.gov.uk/projects/eastern/a47a11-thickthorn-junction/?ipcsection=docs)).

The proposed DCO boundary includes the land that would be required for both of the proposed options for the Cantley Lane link. Given that the land required for these routes is away from the main junction improvements, it is not unreasonable to presume that the DCO boundary would not extend to include these areas if the original Cantley Lane link proposals had been more widely accepted at the non-statutory public consultation.

There is (currently) no record of an original DCO boundary and it is possible that this is the first publication of the DCO boundary. However, this DCO boundary has been set to accommodate all of the options currently being discussed and developed; the actual land take will most likely be lower once an option for the Cantley Lane link has been chosen. This is acknowledged in section 2.3.9 of the EIA Scoping report (page 19), which states that:

It is important to note that the current proposed draft DCO boundary may be subject to change, but currently captures what is thought to be a reasonable worst-case land take.

APPENDIX L

RHS Alternative A3 Access Provisions (from Guildford)

TO WISLEY FROM A3 SOUTH

RHS Alternative



RHS Alternative A3 Access Provisions (to Guildford)

FROM WISLEY TO A3 SOUTH

RHS Alternative



RHS Alternative A3 Access Provisions (from London)

TO WISLEY FROM A3 NORTH/M25

RHS Alternative



RHS Alternative A3 Access Provisions (to London)

FROM WISLEY TO A3 NORTH/M25

RHS Alternative



APPENDIX M

Appendix M

Calculation and Distribution of Trips

		Value
A	Visitors per year	1200000
B	Visitors per Year to/from A3	1008000
C	Modal Split - Car	0.94
	Modal Split - Coach	0.05
	Car passengers	947520
	Coach passengers	50400
D	Total Cars (Car Occupancy 2.25)	421120
	Total Coaches (Occupancy 30)	1680
Directional Flows		%
E	Entry North	0.63
	Entry South	0.37
	Exit North	0.63
	Exit South	0.37
	63% Entry North Car	265306
	37% Entry South Car	155814
	63% Exit North Car	265306
	37% Exit South Car	155814
	63% Entry North Coach	1058
	37% Entry South Coach	622
	63% Exit North Coach	1058
	37% Exit South Coach	622
Total Trips		
	Total Enter/Exit North (each way)	266364
	Total Enter/Exit South (each way)	156436

DATA SOURCES	
A	Motion TA (Final) - Appendix E
B	Motion TA (Final) - Figure 7.1
C	Motion TA (Final) - Paragraph 3.49
D	Motion TA (Final) - Paragraph 3.50
E	Motion TA (Final) - Figure 7.1



Appendix M

Summary of Distances Travelled per Trip by Scheme

Scenario	A - Existing	B - HE Scheme	C - RHS Scheme	D
	Existing (KM)	HE Accepted Distance Travelled per Car (WITHOUT Slips or Left Turn) (KM)	HE Accepted Distance Travelled per Car (WITH SLIPS and LEFT TURN) (KM)	Difference (C - A) (KM)
To Wisley Lane from A3 North	2.3	2.1	2.1	-0.2
To Wisley Lane from A3 South	1.7	7.5	2.0	0.3
From Wisley Lane to A3 North	0.5	2.9	0.5	0.0
From Wisley Lane to A3 South	5.2	7.8	1.6	-3.6

Summary Table of Total Distances Travelled per Annum by RHS Visitors

Scenario	A	B	(B - A)	C	(C - A)	(B-A)-(C-A)
Traffic Flow	Existing Distance Travelled (KM)	WITHOUT Slips or Left Turn Distance Travelled (KM)	Difference Between Proposals (KM)	WITH Slips and Left Turn Distance Travelled (KM)	Difference Between Proposals (KM)	Total Difference Between HE and RHS Scheme Proposals (KM)
To Wisley Lane from A3 North	617,964	562,028	- 55,936	55,936	- 673,901	617,964
To Wisley Lane from A3 South	261,248	1,173,270	912,022	48,495	- 212,753	1,124,775
From Wisley Lane to A3 North	143,837	767,128	623,292	-	- 143,837	767,128
From Wisley Lane to A3 South	810,338	1,220,201	409,862	560,041	- 1,370,379	1,780,242
ALL MOVEMENTS	1,833,388	3,722,627	1,889,240	567,482	- 2,400,870	4,290,109
ALL MOVEMENTS (Miles)	1,139,214	2,313,133	1,173,919	352,617	- 1,491,831	2,665,750

Appendix M

Emissions Calculations

DEFRA FACTORS 2018		Diesel kg CO2	Petrol kg CO2	Diesel kg N2O	Petrol kg N2O
Average car	km	0.177	0.185	0.002	0.0005
	miles	0.285	0.297	0.003	0.001

HE Scheme						
% Fuel Type Split	CO2			N2O		
39.60%	Diesel	260,926	KG	Diesel	2,742	KG
59.20%	Petrol	407,372	KG	Petrol	1,036	KG
	Total	668,298	KG	Total	3,778	KG
	Total	668	Tonnes	Total	3.78	Tonnes

RHS Scheme						
% Fuel Type Split	CO2			N2O		
39.60%	Diesel	- 39,776	KG	Diesel	- 418	KG
59.20%	Petrol	- 62,100	KG	Petrol	- 158	KG
	Total	- 101,876	KG	Total	- 576	KG
	Total	- 102	Tonnes	Total	- 0.58	Tonnes

Difference (Tonnes CO2)	
HE	668
RHS	-102
NET	-770

Difference (Tonnes N2O)	
HE	3.78
RHS	-0.58
NET	-4.35

Taken from (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/635632/Conversion_factors_2017_-_Condensed_set_for_most_users_v02-00.xls)

Taken from (<https://www.gov.uk/government/statistical-data-sets/veh02-licensed-cars#table-veh0203>)

APPENDIX B

Atkins Technical Notes (March 2019 and September 2019)

Technical Note

Project:	M25 Junction 10 / A3 Wisley Interchange		
Subject:	RHS Gardens Wisley Impact Note		
Author:	Beth Warren		
Date:	21/03/2019	Project No.:	5158141
Distribution:	Jonathan Wade	Representing:	Highways England

Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 1.0	Issue	BW	DW	GB	GB	21/03/19

This technical note has been written in a response to a consultation comment from RHS Gardens Wisley. The note details the predicted impacts that the M25 junction 10 scheme will have on safety, journey distances and journey times to and from the gardens.

1. Safety

Many of the collisions which have contributed to the area around M25 junction 10's poor safety ranking are on the northbound A3 approach to M25 J10.

Between 01/01/2010 and 30/04/2017, 32 collisions have occurred on the A3 northbound carriageway in the vicinity of the Wisley Lane junction (Figure 1). These collisions have involved 86 vehicles and resulted in 51 casualties. Of the 32 accidents, 28 were classified as slight, and 4 as serious. There were no fatal accidents in the area in this period.

Accident analysis for the scheme assessment was conducted in the DfT's COBA-LT software and shows that overall the M25 junction 10 intervention will reduce the number of collisions by approximately 650 over the 60 year appraisal period.

A sensitivity test was conducted using the same software which included the retention of the direct access of Wisley Lane onto the A3. The test showed that there would be an extra two collisions per year than in the core scenario.

2. Journey distance

Table 1 details the changes in journey distance that trips will experience travelling to and from RHS Gardens Wisley due to the scheme proposals. For road safety reason, the M25 junction 10 scheme proposes to close the existing left-in, left-out Wisley Lane junction to the A3. The proposed alternative route will be via a continuation of Wisley Lane across the A3 via an overbridge and into a new arm on the Ockham Interchange roundabout.

Trips accessing Wisley Lane from the north (junction 10) will be required to travel an extra 100m approximately, whilst trips from the south will be required to travel an extra 5.3km if approaching via the A3, whilst those travelling via Ripley will see no change in travel distance.

For trips leaving RHS Wisley to the south, that currently have to u-turn via junction 10, journey distance will reduce by 3.7km if travelling via Ripley. For trips travelling south via the A3, or trips travelling north, an extra 2.5km of travel is required. When applied to the predicted demand the weighted average change in journey distance is 2.18km (if all trips to the and from the south route via junction 10 in the *with scheme* scenario).

Table 1 – Wisley Lane journey distance changes

Direction	Destination/Origin	Distance change (km)
To RHS	Junction 10	0.1
	A3 South (via A3)	5.3
	A3 South (via Ripley)	0.0
From RHS	Junction 10	2.5
	A3 South (via A3)	2.5
	A3 South (via Ripley)	-3.7

3. Journey times and demand

Predicted journey times for trips to and from RHS Gardens Wisley for the 2022 opening year for the *no scheme* and *with scheme* scenarios have been taken from the M25 J10 strategic SATURN model and are shown in Table 2.

Journey times to RHS Gardens Wisley

All journeys to RHS Gardens Wisley from the north (the A3 and M25) will have journey times reduced. Whilst the overall distances will not change, the scheme will reduce congestion around junction 10 and hence journey time savings will be greatest in the AM and PM peaks.

Journey times from the south to RHS Gardens Wisley are expected to increase by up to 6 minutes as a result of the scheme. The closure of the Wisley Lane access means that trips from the A3 south (approximately one third of the total demand in the interpeak) are required to travel via the Ockham Interchange, either via the u-turn at junction 10. Journey times from the south would not increase by so much time if routing via Ripley.

Journey times from RHS Gardens Wisley

The model predicts, that for trips from RHS Gardens Wisley to the A3 south via junction 10, journey times will increase by up to 1 minute. The time taken to travel the additional distance will be partially mitigated by the reduction in delay at junction 10 itself. Alternatively, vehicles traveling to the same point on the A3 may travel via Ripley as the new link into the Ockham Interchange will make that route approximately 1 to 2 minutes quicker than travelling via junction 10 in the *with scheme* scenario i.e. broadly comparable to their current journey times.

Trips travelling to Ripley itself, or other locations served by Portsmouth Road and Newark Lane will also benefit from the scheme with the need to u-turn at junction 10 removed.

Journeys to destinations north of RHS Gardens Wisley will be impacted by increases up to 2.5 minutes.

Table 2 – Journey time change summary: 2022 (minutes)

Direction	Destination/ origin	2022 AM peak hour			2022 Inter peak hour			2022 PM peak hour		
		NS	WS	change	NS	WS	change	NS	WS	change
To RHS	A3 N of J10	4	4	0	4	3	0	4	4	0
	M25 CW	8	5	-4	5	4	-1	7	4	-3
	M25 ACW	7	5	-2	5	5	-1	6	5	-1
	A3 South via J10	5	12	6	5	11	6	5	11	6
	A3 South via Ripley	9	11	2	8	10	1	9	10	1
From RHS	A3 north of M25 J10	3	5	2	2	4	2	2	4	2
	M25 CW	3	4	1	2	4	2	2	4	2
	M25 ACW	4	6	2	3	5	2	3	5	2
	A3 South via J10	12	13	0	10	11	2	11	12	1
	A3 South via Ripley	17	11	-6	14	10	-4	15	11	-4

Overview

Table 3 provides the trip volumes for each movement in the three average peak hours in 2022. A weighted average journey time change was calculated based on the relative volumes of each movement. In the AM peak the weighted average journey time increase was 1 minute per vehicle, and a 1.5 minute increase in the interpeak and the PM peak. These small increases in average journey times as a fraction of the whole journey and will come with improved safety for accessing and egressing Wisley Lane.

Table 3 – Demand flow summary: 2022 (PCUs*)

From	To	2022 AM peak hour	2022 Inter peak hour	2022 PM peak hour
		NS	NS	NS
From RHS	A3 north of M25 J10	53	88	92
	M25 CW	30	49	52
	M25 ACW	16	26	27
	A3 South	32	53	56
To RHS	A3 N of J10	48	81	49
	M25 CW	21	19	9
	M25 ACW	26	46	27
	A3 South	47	83	48

*PCU (passenger car units) – a reference unit to standardise vehicles based on length. 1 PCU = the standard length of a single car.

Technical Note

Project:	M25 junction 10/A3 Wisley interchange improvement scheme		
Subject:	RHS Garden Wisley - Response to preferred route consultation		
Author:	Atkins		
Date:	24/09/2019	Project No.:	5190926
Distribution:	HE, BDBP, RHS	Representing:	Highways England

Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 1.	Final	PK/RM/LH/DO	LH	SK	GB	24/09/19

Client signoff

Client	Highways England
Project	M25 junction 10/A3 Wisley interchange improvement scheme
Project No.	5190926
Client signature / date	

1. Introduction

- 1.1.1. Highways England acknowledges that RHS has been supportive of the principle of improving J10 but have noted that the proposals for the A3 were of greatest concern. This technical note replies to those concerns raised by the Royal Horticultural Society (RHS) in their response, dated 26 March 2018, to the preferred route announcement for the M25 junction 10/A3 Wisley interchange improvement scheme (herein referred to as the Scheme). It specifically addresses the issues and queries set out in the report prepared by Traffic, Transport & Highway Consultancy (TTHC) on behalf of RHS that was enclosed with RHS's response.
- 1.1.2. Highways England (HE) has been engaged in regular dialogue with RHS regarding the Scheme and have previously provided responses to many of RHS's concerns and issues during meetings and as summarised in the Consultation Report. This technical note therefore elaborates on previous responses given by HE by providing further information and detail where appropriate.
- 1.1.3. The specific RHS concerns and issues in TTHC's report that are addressed in this technical note are as follows:
1. Removal (stopping up) of Wisley Lane junction with A3 - The response includes a schematic showing technical details for the current layout, Scheme, and the RHS alternative layout. It also includes a Safety Risk Assessment (SRA) undertaken as part of the design process.
 2. Implications for Wisley Lane trips - The response addresses the queries raised about the implications of the Preferred Route.
 3. Ockham roundabout south facing slips- The response addresses the queries raised about the south facing slip roads at Ockham Park junction.
 4. Travel distance and air quality - The response addresses the queries raised about Air Quality and the impacts on Ripley if traffic opted to take that route.
 5. Signage and ease of use- The response addresses the queries regarding the signage of the proposed route.
 6. Bus service implications- The response addresses the queries regarding the bus stops, with a plan showing the locations.
 7. Other access improvements - The response explains the wider non-motorised user access proposals.

2. Removal (Stopping Up) of Wisley Lane junction with A3

- 2.1.1. **This section discusses issues in relation to the PRA Scheme removing current junction provisions by stopping-up the existing connection as discussed in paragraphs 3.1 to 3.8 of the technical note.**
- 2.1.2. The option proposed by RHS/TTHC includes retention of the existing left-out direct access onto the A3 carriageway. TD42/95 of the Design Manual for Roads and Bridges (DMRB) states that major/minor priority junctions should not be provided on (D3AP) roads. By implication a major/minor priority junction on a dual 4-lane all-purpose (D4AP) road (which is what the A3 adjacent to Wisley Lane will become with the Scheme) would therefore be even less acceptable, even though TD42/95 does not explicitly refer to D4AP roads with reference to major/minor priority junctions. Additionally, a desktop study undertaken has not found an example of a similar layout elsewhere on the road network.
- 2.1.3. The TTHC report paragraph 4.10 states that the RHS/TTHC proposal is for a TD 22/06 "Type B parallel merge" layout, however this is not the correct design standard to be used in this instance because Wisley Lane is at grade with the A3, with no connector/slip road. See below.

1. INTRODUCTION

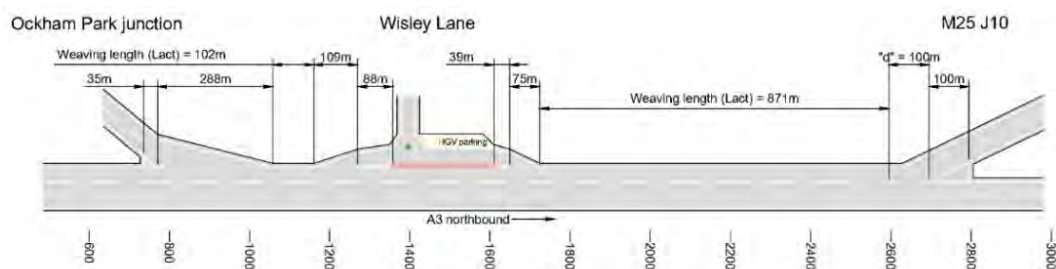
General

1.1 This standard sets out the layout and size requirements for new and improved grade separated junctions and interchanges on rural and urban trunk roads and motorways. It sets out requirements for the provision of weaving sections for traffic between junctions. It gives guidance on access to and egress from service areas.

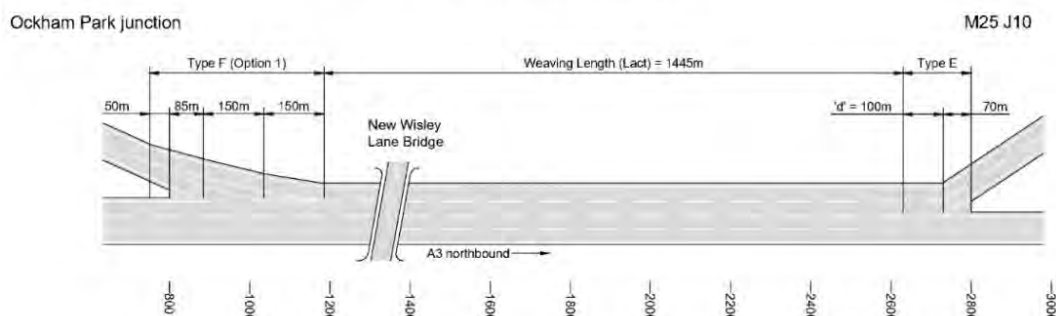
- viii. Revised requirements for determining hourly traffic flows for design.
- ix. Use of absolute maximum gradient on motorway connector roads of 6% is permitted.
- x. Introduction of three types of loops.
- xi. Clarification of the requirements for sight distance for diverge and merge slip roads.

- 2.1.4. The merge and diverge layouts shown in TD 22/06 are for use with grade separated junctions. They normally include a length of ramped connector/slip road prior to the merge, which would enable vehicles to match the speed of the mainline traffic. The sharp left-hand bend leading from Wisley Lane to the proposed merge will likely see vehicles slow down and therefore impede their ability to match the speed of the mainline.
- 2.1.5. The correct design standard during the scheme development was TD 42/95 and it should be used for at-grade major/minor priority junctions, but paragraph 2.26 of this standard is clear, major/minor priority junctions “*should never be provided on D3AP roads*” therefore it is implied that the RHS/TTHC proposal would not be compliant with DMRB design standards because the mainline is a dual 4-lane all-purpose (D4AP) road, for which there is no standard.
- 2.1.6. We would advise that the DMRB design standard TD 42/95 for major/minor priority junctions was superseded in August 2019 by the design standard CD123, Geometric design of at-grade priority and signal-controlled junctions. Paragraph 2.1 of CD123 states “*Priority junctions shall not be used on motorways or all-purpose dual three lane carriageways*” which further confirms the RHS/TTHC alternative layout would not meet DMRB design standards because the mainline is a dual 4-lane all-purpose (D4AP) road, for which there is no standard.
- 2.1.7. The notional merge taper shown on the plan “*TTHC Ref: M16114-A-032*” and contained in Appendix J of the TTHC report is 85m, compared to the minimum design standard length of 150m (TD 22/06, table 4/3) and would not, therefore, be compliant with DMRB standards.
- 2.1.8. If the notional merge taper was increased to 150m to be DMRB compliant, then the weaving length between Wisley Lane and junction 10 would reduce to 953m, which would not be compliant with DMRB design standards. TD 22/06 paragraph 4.36 states “*The desirable minimum weaving length must be one kilometre.*”
- 2.1.9. We would also advise that the DMRB design standard TD 22/06 for the layout of grade separated junctions was superseded in August 2019 by the design standard CD122, Geometric design of grade separated junctions. Paragraph 4.1 of CD122 states that the weaving length “for all-purpose roads, the minimum length between a full grade separated junction and an at-grade junction, service area and lay-by shall be; 1 km for rural roads.” This further confirms the RHS/TTHC alternative layout would not meet DMRB design standards.
- 2.1.10. The schematics shown below in Figure 1 demonstrate that the Scheme is fully compliant with DMRB design standards and why the existing and RHS/TTHC alternative layout would not meet DMRB standards. A drawing illustrating the geometry issues associated with the RHS/TTHC alternative proposal is included in Appendix A.

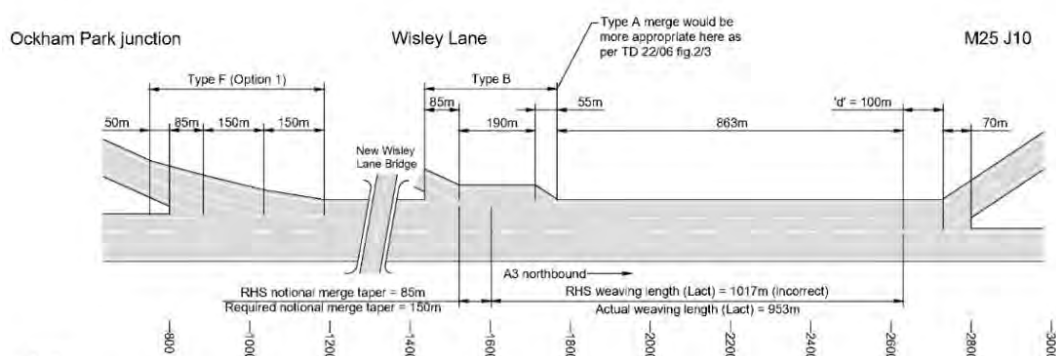
Figure 1 – Northbound A3 Ockham Park junction to M25 junction 10, Schematic Layouts



Ockham to M25 J10 - existing layout



Preferred Route Announcement Layout



Notes:

1. All dimensions and chainages in metres.
2. Merge layouts refer to TD 22/06, Figure 2/4
3. Diverge layouts refer to TD 22/06, Figure 2/6

RHS Wisley alternative proposal

2.1.11. Consequently, it is not a safe arrangement, particularly considering that the Scheme includes widening the A3 northbound to four lanes. This means that traffic exiting Wisley Lane heading northbound on the A3 would have to cross two lanes of diverging traffic bound for the M25, with the nearside being free-flow at junction 10. Collision data for the period 1st December 2013 to 30th November 2018 (5-years) has been obtained (See Appendix E). This shows a total of 20 personal injury collisions (PICs) at the following locations:

- 4 slight injury collisions on the slip road, resulting in 5 casualties;
- 8 slight and 1 serious injury collisions at the merge point, resulting in 12 casualties;
- 7 slight injury collisions in the weaving zone (within c.150m downstream of Wisley Lane), resulting in 15 casualties
- Unreported incidents are excluded from this analysis and near misses are also not measured.

2.1.12. There have been no fatal injury collisions at this location.

- 2.1.13. Merging traffic from Wisely Lane is likely to be a contributory factor in the high accident rate along this section of the A3. The RHS/TTHC alternative proposal would be likely to exacerbate the risk of accidents on this section of the A3, especially shunts and lane change collisions, as drivers' attention must be shared between the adjacent and upstream mainline traffic that they are trying to merge with, and what is in front of them. It would not, therefore, meet one of the key scheme objectives: to improve safety and reduce both collision frequency and severity.
- 2.1.14. To evaluate the safety of the RHS/TTHC alternative proposal and compare it with that for the Scheme, a safety risk assessment (SRA)¹ has been undertaken in accordance with DMRB - GG104: Requirements for Safety Risk Assessment². The SRA has used recently obtained collision data to inform the existing risk scores and a plot of collisions is attached at Appendix E.
- 2.1.15. The road safety hazards and risks associated with the RHS/TTHC alternative layout, compared to those for the proposed Scheme design, are provided in Appendix E.
- 2.1.16. The results of the SRA for the RHS/TTHC alternative scheme identify two medium scoring hazards relating to sub-standard merge taper length (off-peak) and insufficient weaving length (off-peak). GG104 requires that where medium scoring hazards are identified, additional control measures are required to reduce the risk rating to a level which is equivalent to a test of "reasonably required" for the population concerned.
- 2.1.17. The results of the SRA for the proposed Scheme do not identify any medium or high scoring hazards, all are assessed as low risk. Both of the hazards identified as medium risk in the RHS/TTHC alternative are reduced to low risk by the proposed Scheme.
- 2.1.18. The cumulative risk score for the RHS/TTHC alternative scheme is 43, compared to a total of 27 for the Scheme. This indicates that there is a significantly higher risk of accidents with the RHS/TTHC alternative scheme compared to the Scheme.
- 2.1.19. The RHS/TTHC alternative scheme has been subject to review by HE's Chief Engineer and the findings shared at a meeting with RHS on 3rd October 2017. A statement made by the Roads Minister in the House of Commons on 26th October 2017 confirmed that direct access would not be permitted on safety grounds. Furthermore, the alternative scheme proposal also relies on the construction of south facing slip roads at Ockham junction, which the Roads Minister stated during the same response that the slip roads are not within the scheme requirements or budget. The RHS/TTHC proposal was considered in detail, however the Scheme is the safest option and is therefore the preferred option for HE.

¹ M25 J10/A3 Wisley Interchange, Safety Risk Assessment HE551522-ATK-GEN-A3_L1-RA-CS-000001

² GG104:Requirements for Safety Risk Assessment (formerly GD04 and IAN191/16)

3. Implications for Wisley Lane Trips

- 3.1.1.** This section discusses issues in relation to the change in journey routes which would result as a consequence of the Wisley Lane stopping up and the replacement Link Road provisions as discussed in paragraphs 3.9 to 3.28 of the technical note.
- 3.1.2.** The existing access arrangement for Wisley Lane to and from the A3 does not meet current DMRB design standards, as the weaving lengths for the entry and exit to and from the existing lorry layby are sub-standard, given the proximity of the Ockham Park junction on-slip merge and M25 J10 off-slip diverge. Collision data from 1st December 2013 to 30th November 2018 shows 15 collisions were recorded between the end of the Wisley Lane / A3 merge and the start of the signed M25 diverge lane (approximately 300m apart), which represents a collision rate that is three times the normal rate for this type of road. The proposed changes to the A3 included in the Scheme, especially the increase from one to two dedicated northbound diverging lanes for M25 bound traffic, means that retaining the existing access arrangements for Wisley Lane would exacerbate the departures from DMRB design standards and give rise to serious road safety concerns. Consequently, the existing arrangement cannot be retained with the proposed scheme and necessitates the provision of the Wisley Lane diversion over the A3 connecting Wisley Lane to the Ockham Park junction.
- 3.1.3.** Various alternative designs were considered during the option development of the Scheme, including the following:
- Link roads adjacent to the A3 northbound carriageway between Ockham Park junction and Wisley Lane
 - A link road between Wisley Lane and Junction 10
 - Retention of the direct access onto the A3.
- 3.1.4.** However, all these options were rejected due to their impacts on the RHS Wisley Gardens, environmental impacts on the SPA and road safety issues.
- 3.1.5.** The Scheme alters access to Wisley Lane and RHS Garden Wisley to and from the A3. It replaces the current left in/left out junction with a new link road connecting Wisley Lane to the Ockham Park junction via a new bridge over the A3. The Scheme access to RHS Garden Wisley will be an improvement. It will be safer as the new Wisley Lane two-way bridge over the A3 links to Ockham Park junction and traffic will be able to join the A3 northbound along a slip road that will provide adequate space for traffic to safely merge with A3 traffic. Furthermore, driver stress will also be lessened by the Scheme through reductions in frustration, fear of accidents, route uncertainty, reduced congestion, improved safety and better signage (see Section 6). The Scheme, therefore, represents an improvement over the current access arrangement.
- 3.1.6.** The predicted changes in travel times and distances to/from Wisley Lane due to the Scheme (derived from the HE approved strategic traffic model) are presented in Table 1. Time–distance graphs taken from the strategic model for different route options for the morning peak and interpeak periods are presented in Appendix D.
- 3.1.7.** Journey times from A3 north and M25 to Wisley Lane are forecast to decrease with the Scheme (weighted average is a 1.5 minute decrease), due to the reduced congestion at M25 junction 10. This accounts for the majority of visitors to the gardens. There is also only a marginal change in distances for Wisley Lane traffic compared to the current situation from the north as the routes are similar, i.e. from the M25 to Ockham Park junction and then back to Wisley Lane.
- 3.1.8.** Journey times from Wisley Lane to the A3 north and M25 are forecast to increase slightly (by no more than two minutes) with the Scheme. This can be attributed to the longer distance via the new overbridge access via Ockham Park junction rather than the left out on to the A3 as is presently the

case. The change in travel time, however, is not as significant as might be expected due to the reduced congestion at M25 junction 10 as a result of the Scheme.

- 3.1.9. With the Scheme, trips from the A3 south to Wisley Lane are required to route via Ripley or U-turn at M25 junction 10. The route via M25 junction 10 is longer than the route through Ripley by approximately 5.6km, but the journey times during the morning and evening peak hours are forecast to be almost identical, and during the interpeak, journey times are forecast to be quicker via junction 10 than via Ripley, by approximately 2 minutes. This shows that traffic from the A3 south to Wisley Lane would find it quicker to travel via junction 10 than through Ripley and it would be expected that Sat Navs routing on fastest time would send vehicles this way.
- 3.1.10. Trips from Wisley Lane to the A3 south would either make a U-turn at M25 junction 10 as they do presently or travel through Ripley. Given that the Wisley Lane diversion will place traffic at the Ockham Park junction, it is unlikely that most of this traffic would head north on the A3 to U-turn at junction 10 before continuing south on the A3. It is, therefore, likely that most of this traffic will travel through Ripley.
- 3.1.11. Automatic Number Plate Recognition (ANPR) surveys were undertaken on 16th May 2017 for the time periods of 0600-1000 and 1500-1900. This established that approximately 25% of daily traffic entering Wisley Lane is from the A3 south but a smaller proportion of traffic leaving Wisley Lane returns via the A3 south; indicating the different routes to and from Wisley Lane are being taken.
- 3.1.12. With the Scheme, most journey times to and from Wisley Lane either reduce or only marginally increase compared to without the Scheme. Whilst journeys from the A3 south are forecast to increase a little, those who already return south via Ripley would have a shorter journey time. In all cases, the access and egress will be safer via the Wisley Lane diversion.

Table 1 - Journey time change (minutes) to/from Wisley Lane

Direction of travel		2022 AM peak hour	2022 Inter peak hour	2022 PM peak hour
To RHS from:	A3 N of J10	-0.3	-0.1	-0.4
	M25 CW	-3.8	-1	-2.5
	M25 ACW	-1.7	-0.6	-1.1
	A3 South (via j10)	6.3	4.7	4.5
	A3 South (via Ripley)	2.2	3.6	1
From RHS to:	A3 north of M25 J10	1.7	2.5	2.4
	M25 CW	0.9	1.7	1.5
	M25 ACW	2	2.3	2.4
	A3 South (via j10)	0.3	1.3	1.4
	A3 South (via Ripley)	-5.8	-3.7	-4.3

Further details are found in Appendix D

4. Ockham Roundabout South Facing Slips

4.1.1. This section discusses issues in relation to the provision of south facing slips at the Ockham Roundabout as discussed in paragraphs 4.16 to 4.29 of the technical note.

4.1.2. It has long been Highways England's view that south facing slips at Ockham Park junction are not required for this Scheme as they were not in the original RIS description and the reality of any scheme is that it must have defined boundaries to meet the Scheme programme and budgetary constraints. Interventions at the boundaries of a scheme could be added at a later date either as part of a Highways England scheme or if being promoted by a developer.

4.1.3. Section 7.6 of the Transport Assessment³ describes how the junction will be fully signalised, with two lanes around the circulatory from the Airfield Link and Ockham Road North to the A3 northbound on-slip to accommodate the predicted increase in demand. In the year of opening (2022) the junction is predicted to operate within capacity; with a maximum degree of saturation of 69.2% in the morning peak. In 2037, even with development at the Wisley Airfield (as envisaged in the Guildford Local Plan), the junction is still predicted to operate within capacity.

4.1.4. As a result of such analysis, a Ministerial Statement was made in the House of Commons on 26 October 2017 that states that the Government considers that south facing slip road at the Ockham Park junction are not required:

4.1.5. *"RHS Gardens Wisley alternative proposals Highways England has improved the design of Ockham Park Roundabout, including a full signalisation of the roundabout and the inclusion of formal pedestrian and cyclist crossing facilities. Highways England believe that the roundabout will operate effectively at the Scheme's design year of 2037, including catering for additional trips generated by a future Wisley Airfield development (assuming it is of the quantum of that provided for in Guildford Borough Council's draft Local Plan). As such, South facing slip roads at this junction are not required. Highways England has since shared the traffic modelling reports with GBC. The options that were considered for alternative access to Wisley Lane were appraised and assessed in the side roads addendum – an addendum to the Scheme assessment report, which is available online."*

4.1.6. Highways England acknowledge the proposals from RHS for south-facing slip roads at Ockham Park junction (Figure 2) and recognise that they could, if feasible and affordable, provide more direct access to Wisley Lane and RHS Garden Wisley, to and from the A3 south. However, the feasibility of delivering the south facing slip roads has a number of localised and much wider challenges that would have to be overcome:

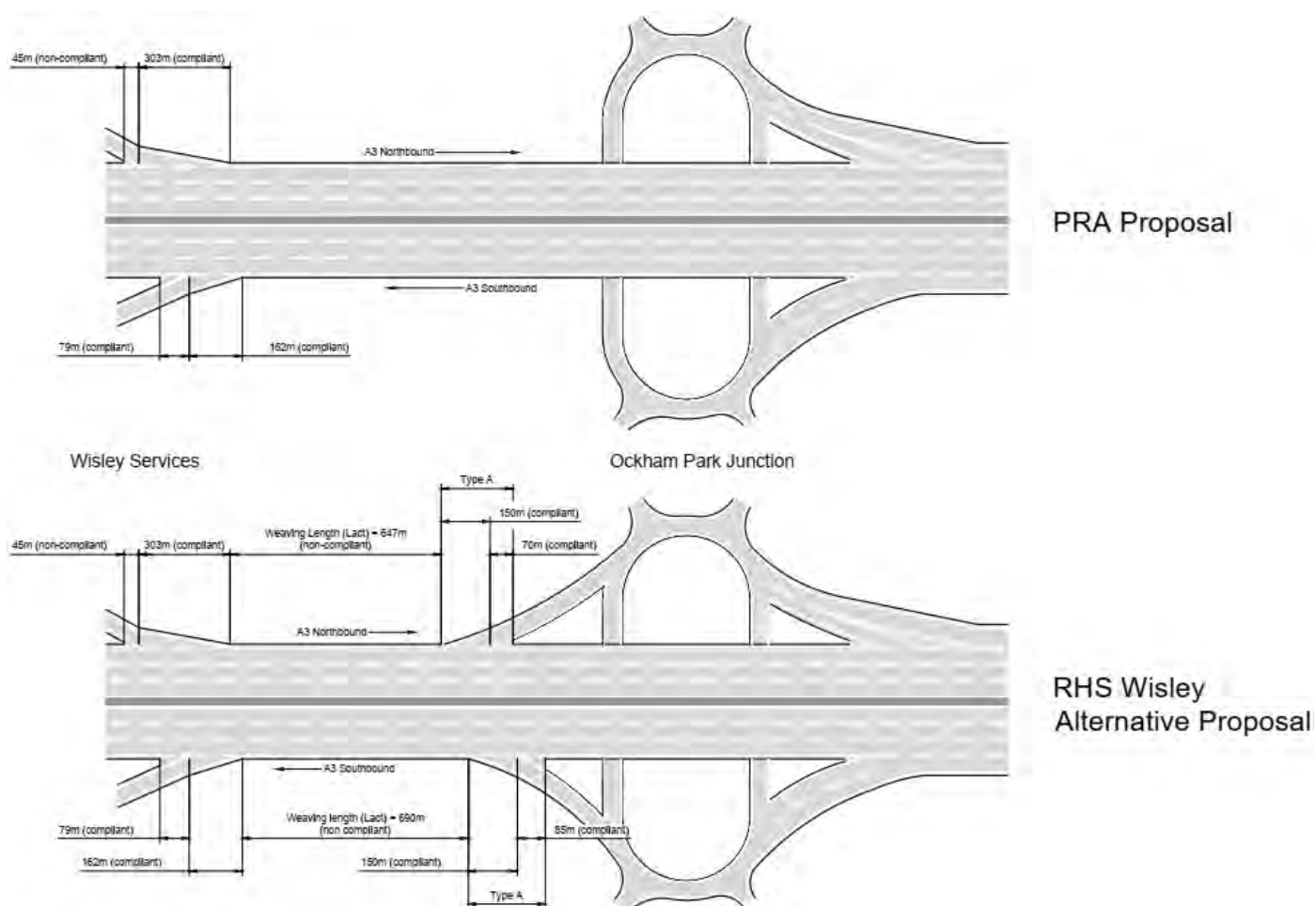
- Ockham Park junction may need to be enlarged and the south facing slip roads would require additional land take on both sides of the A3. It should be noted that the roundabout lies in a flood zone, and further changes to it may mean that additional land that could be allowed to flood would be required to compensate for the loss of flood zone.
- It may be that the A3 needs to be widened to four lanes south of Ockham Park junction to accommodate the south facing slip roads.
- Furthermore, due to the proximity of Ripley Service Station approximately 1.5km south of Ockham Park junction, there is insufficient space to provide adequate weaving length between the respective on and off-slip roads. The weaving length between the service station merge and the Ockham Park junction northbound diverge would result in a weaving length of

³ https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010030/TR010030-000232-TR010030_7.4_traffic_assessment.pdf

approximately 600m, compared to minimum DMRB design standard length of 1 km. A drawing illustrating the geometry issues associated with provision of south facing slip roads at the Ockham Park junction, assuming the A3 would not need widening to four lanes, is included in Appendix E.

- The provision of slip roads at junctions along this section of A3 between Guildford and the M25 is typically that face one direction only. The impacts of adding slip roads to the other side of a junction could have wider impacts on surrounding roads and villages.

Figure 2 – Ockham Park junction – South facing slip roads



5. Travel Distance and Air Quality

- 5.1.1. This section discusses issues in relation to the RHS Alternative would result in 2.7 million miles per annum less travel and these savings have been calculated to equate to a reduction of 780 tonnes of CO₂ and 4.4 tonnes of N₂O as discussed in paragraphs 5.1 to 5.7 of the technical note.
- 5.1.2. The air quality assessment for the Scheme has been undertaken on a scheme-wide basis, taking account of overall changes in traffic volumes, journey distances and traffic speeds. The air quality assessment has not separately evaluated the changes in vehicle emissions specifically related to RHS Wisley Gardens traffic, neither has it evaluated the potential changes in vehicle emissions associated with the RHS proposed alternative. The figures above are therefore not accepted.
- 5.1.3. With the Scheme it is likely that some RHS Garden Wisley traffic to the A3 south, and to a lesser degree from the A3 south, will travel via Ripley. However, the A3 will be the signed route for RHS Wisley Gardens with direction signage beginning before Burnt Common junction.
- 5.1.4. Whilst the most up to date traffic modelling has indicated that some roads in Ripley are likely to experience an increase in traffic flow with the Scheme compared to without the Scheme, some roads are also likely to experience a reduction in traffic flow at some times of the day. The overall forecast change in traffic flows through the junctions of Ripley High Street (Portsmouth Road) with Newark Lane and Rose Lane are relatively modest, as presented in the table below, with the annual average daily traffic (AADT) flows on all approaches combined forecast to increase by less than 4% when the Scheme opens.

Table 2 – Forecast traffic flows through Ripley

Road	Period	Without Scheme 2022	With Scheme 2022	Proportional difference
Newark La (EB)	AM Peak Hour	379	367	-3.2%
Ripley High St/Portsmouth Rd (SB)	AM Peak Hour	910	936	2.9%
Rose La (WB)	AM Peak Hour	80	75	-6.3%
Ripley High St/ Portsmouth Rd (NB)	AM Peak Hour	644	656	1.9%
All approaches	AM Peak Hour	2,013	2,034	1.0%
Newark Lane (EB)	PM Peak Hour	354	357	0.8%
Ripley High St/ Portsmouth Rd (SB)	PM Peak Hour	832	943	13.3%
Rose La (WB)	PM Peak Hour	37	24	-35.1%
Ripley High St/ Portsmouth Rd (NB)	PM Peak Hour	525	546	4.0%
All approaches	PM Peak Hour	1,748	1,870	7.0%
All approaches	AADT	22,214	23,089	3.9%

- 5.1.5. The modelled traffic flows through Ripley comprise a relatively small proportion of traffic leaving RHS Wisley Gardens, where the journey times are forecast to be quicker via Ripley than via Junction 10. Should traffic leaving the gardens and heading south not route through Ripley (e.g. because of signing), the already very modest traffic impact on Ripley on account of the Scheme will be reduced and the impact on air quality reduced.
- 5.1.6. Air quality in Ripley is currently relatively good. In accordance with their local air quality management duties, Guildford Borough Council monitor concentrations of nitrogen dioxide – the key pollutant associated with road traffic – at several roadside or kerbside locations in Ripley: Ripley High Street (until the end of 2017); and two sites on Newark Lane. At all these locations, annual average concentrations were below the national air quality objective set to protect human health in all available years of monitoring (between 2016 and 2018). Further information on monitoring data is available on Guildford Borough Council’s website at <https://www.guildford.gov.uk/article/19807/Air-quality-monitoring>.
- 5.1.7. Four receptors in Ripley were selected for inclusion in the air quality assessment (receptors R59 to R62 as documented in the Environmental Statement Chapter 5). With the Scheme in place, in the opening year, the change in pollutant concentrations is expected to be imperceptible (less than 0.4 µg/m³), compared to the situation without the Scheme. The assessment was based on the traffic modelling which includes the diversion of Wisley Lane and therefore RHS traffic through Ripley due to the Scheme. This is likely to be a worst case, since contrary to the model output, a proportion of this traffic is likely to use the signposted route via the A3 and Junction 10, rather than the Ripley route.
- 5.1.8. The Scheme is generally expected to have an imperceptible change at receptors near the M25 and M3, and a decrease at receptors along the A244 and in Esher. Along the A3 some receptors are expected to have a small increase and others to have a small decrease depending on their location.

6. Signage and Ease of Use

- 6.1.1. **This section discusses issues in relation to traffic arriving from the south; where drivers would be expected to pass the RHS site three times and undertake two U-turns at J10 and Ockham as discussed in paragraphs 5.11 to 5.13 of the technical note.**
- 6.1.2. Road signage will be used to encourage drivers to use the A3 and M25 junction 10 to access RHS Garden Wisley from the south. Traffic will be directed towards RHS Wisley Gardens by means of brown tourist symbols on the overhead and ground mounted signs.. A3 southbound traffic will have signs from Painshill junction to direct traffic off at Ockham Park junction. A3 northbound traffic will have signs starting at Burnt Common and between Ockham Park junction and junction 10 will be directing traffic to ‘U’ turn and return to Ockham Park junction. At Ockham Park junction brown tourist signs with ‘RHS Wisley’ text will direct traffic off the roundabout along Wisley Lane diversion towards RHS Wisley. Drawing showing the proposed signing strategy are contained in Appendix C.
- 6.1.3. A full assessment of driver stress has been undertaken for the scheme and is presented in the environmental statement⁴.
- 6.1.4. Traveller care for all users would be better with the Scheme; which provides better information for drivers through improved signage and the environment for road users and NMU’s being improved in the long term. Traveller stress will be lessened through reductions in frustration, fear of accidents

⁴ https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010030/TR010030-000224-TR010030_6.5_environmental_statement_appendix13.5_driver_stress.pdf

and route uncertainty by the scheme reducing congestion, improving safety and providing better signage.

7. Bus Service Implications

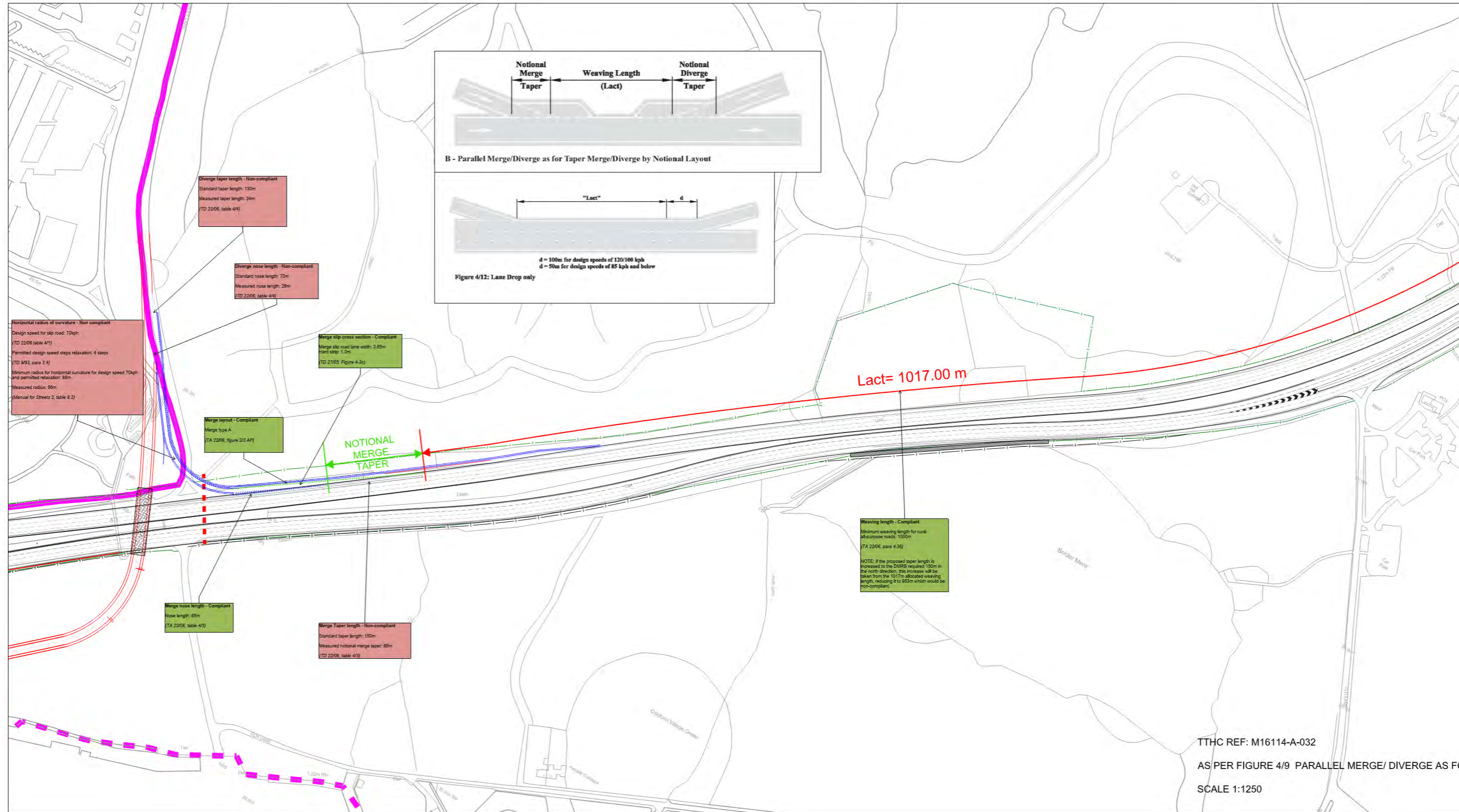
- 7.1.1. This section discusses issues in relation to the relocation of the existing bus stops which are currently situated either side of the A3 adjacent to the junction with Wisley Lane as discussed in paragraphs 5.14 to 5.17 of the technical note.**
- 7.1.2. The scheme would remove the bus stops on the A3 by Elm Lane and by Wisley Lane; neither of which are ideally located for access to RHS Gardens Wisley. Instead, bus stops would be located at the entrance to RHS Gardens Wisley at the car park gates; and involve a much more convenient walk to/from the gardens.
- 7.1.3. The revised arrangement has been discussed with Surrey County Council (the effective operator of the 715 service), and RHS Garden Wisley. Whilst it is recognised that the revised arrangement increases bus journey distances and times, the current operation includes sufficient layover time for the additional journey time to potentially be absorbed within the existing timetable.
- 7.1.4. This would be an improvement compared to the existing situation and could contribute towards increasing the very low levels of public transport demand to the gardens

8. Other access improvements

- 8.1.1. In addition to the scheme, Highways England has made an application for funding under its Designated Funding programme for a package of non-motorised user (NMU) improvements in areas surrounding the M25 junction 10. The package of measures includes the schemes that will improve non-motorised access to RHS as follows:
- West Byfleet Station to RHS Garden Wisley - A cycle route between RHS Garden Wisley and West Byfleet railway station via rural, suburban and town centre roads and streets, which would encourage visitors to Wisley gardens to cycle and/or travel by train.
 - Cobham to Painshill Junction - An upgrade of the route that currently exists between the A307/A245 roundabout and the Painshill junction, tying in proposed improvements as part of this scheme to form a continuous route from Cobham to Ockham that will pass and include access to RHS Gardens Wisley.
 - B2215 Ockham Park Junction to Ripley - Additional controlled crossings beyond the Ockham Park junction into Ripley via the B2215 that will link the proposed improvements in to the village of Ripley and this provide a continuous route from Ripley to Cobham via RHS Gardens Wisley.
- 8.1.2. These schemes have resulted from discussions with the various stakeholders involved in the M25 junction 10 scheme. However, they fall outside of the scope of the Scheme. The proposed improvements would, if funded, contribute to the sustainable transport objectives of HE and of Surrey County Council, who are keen to provide the public with low carbon transport options.

9. APPENDICES

9.1. Appendix A: Geometric review of RHS alternative proposal for direct access to A3

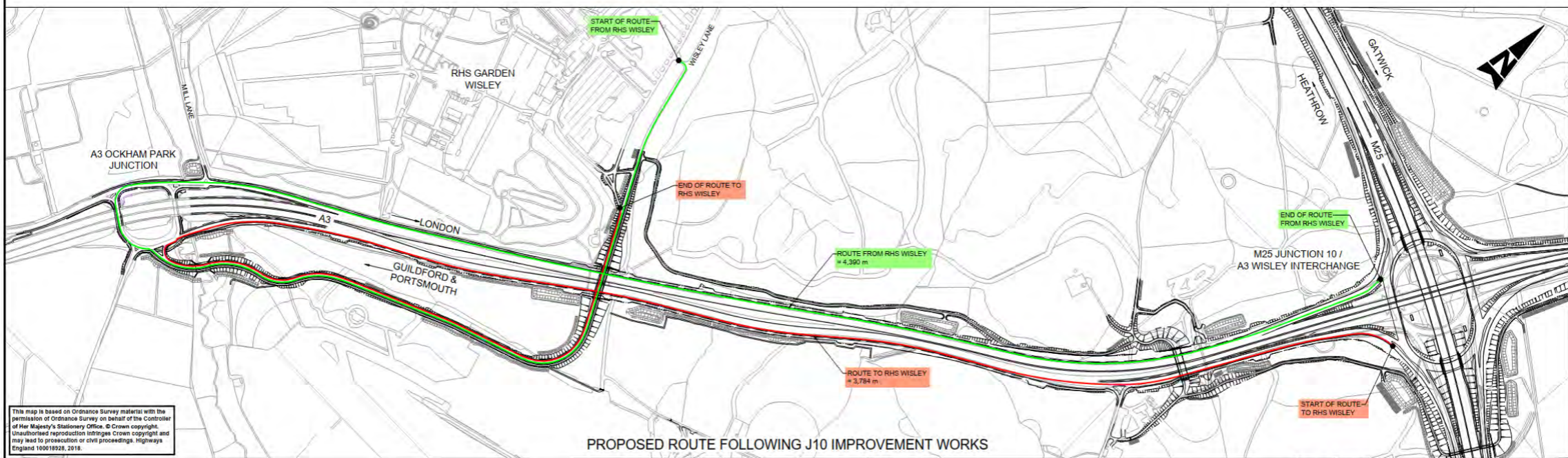
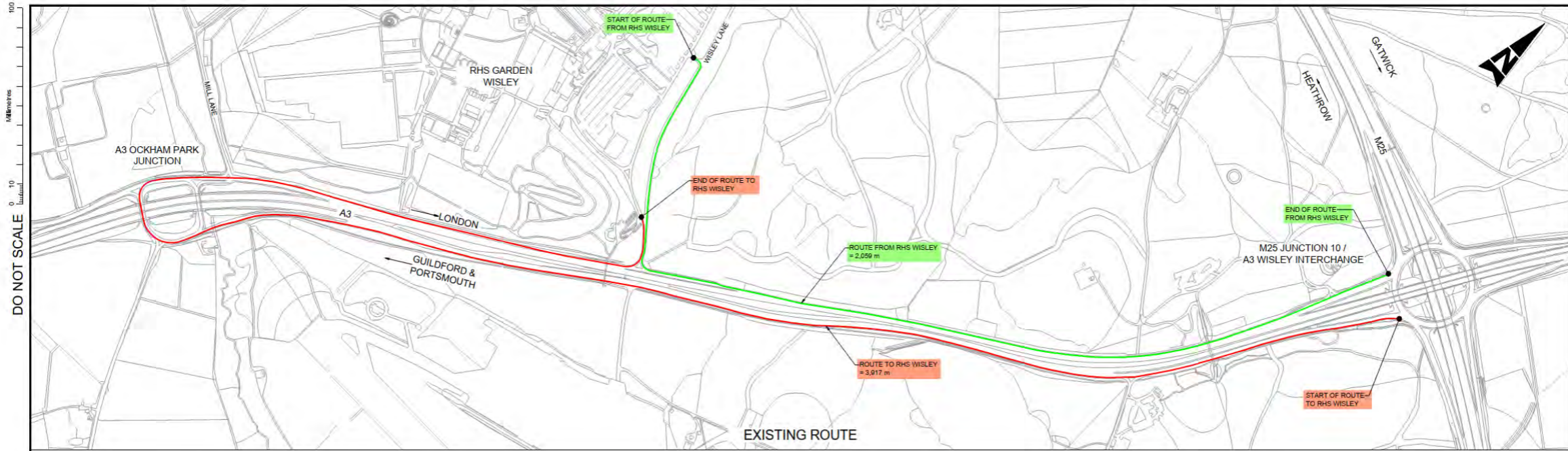


TTHC REF: M16114-A-032

AS PER FIGURE 4/9 PARALLEL MERGE/ DIVERGE AS FOR

SCALE 1:1250

9.2. Appendix B: Anticipated routes and diversions



This map is based on Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Highways England 10001929, 2018.

NOTES

CHANGE IN DISTANCE:
J10 TO RHS WISLEY 133 m SHORTER
RHS WISLEY TO J10 2,331 m LONGER

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Subtitle: **WORK IN PROGRESS** Status: **S0**

Project Title: **M25 junction 10/A3 Wisley interchange**

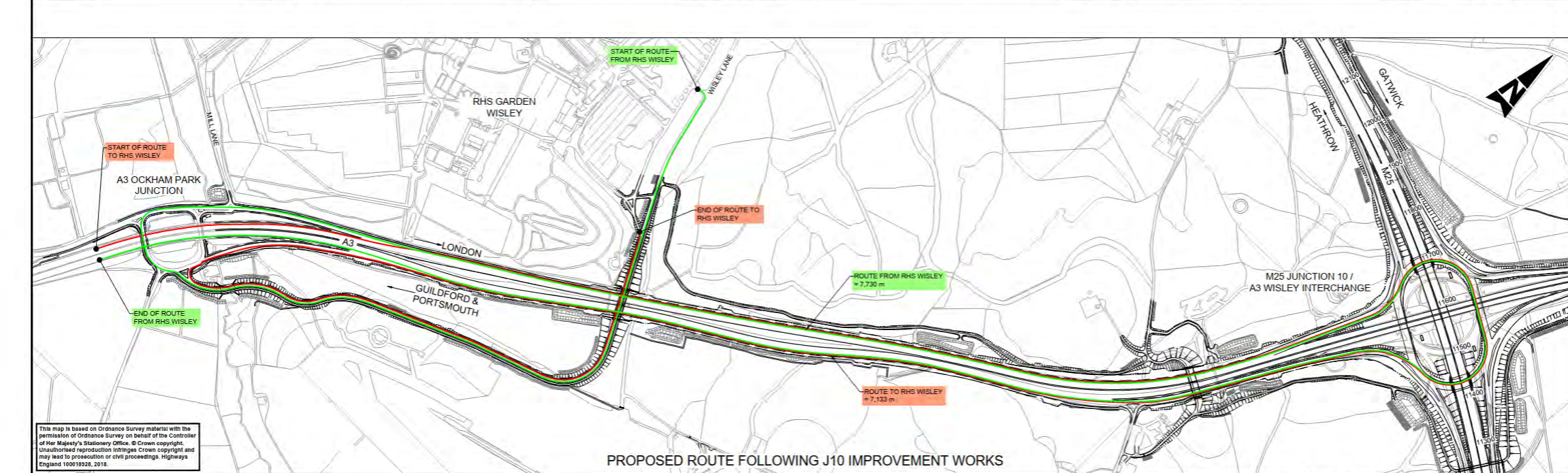
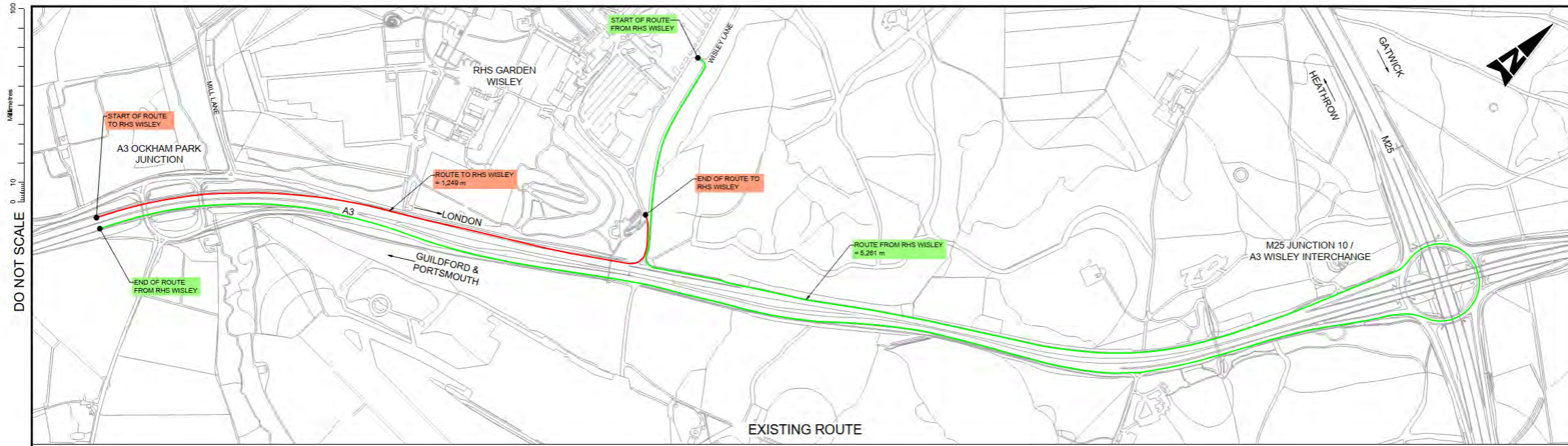
ATKINS Epsom Gateway, Ashley Avenue, Epsom, Surrey, KT18 5AL
Tel: +44 (0)1372 720140, Fax: +44 (0)1372 740055, www.atkinsglobal.com

highways england

Drawing Title: EXISTING AND PROPOSED JOURNEY DISTANCES BETWEEN RHS WISLEY AND J10	
Drawing Number: HE551522 - ATK - HTA -	Volume: -
Project: A3_L1_ML - SK - CH - 000001	
Location: A1	
Scale: NTS	
Project Ref: 5158141	
Sheet: 1 of 3	Rev: P01.1

This Drawing is saved on ProjectWise. Plotted: 17/07/2019 11:56:30 By: ARRO9099

HE551522-ATK-HTA-A3_L1_ML-SK-CH-001



This map is based on Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Highways England 10001928, 2019.

NOTES

CHANGE IN DISTANCE:
A3 SOUTH TO RHS WISLEY 5,884 m LONGER
RHS WISLEY TO A3 SOUTH 2,498 m LONGER

Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

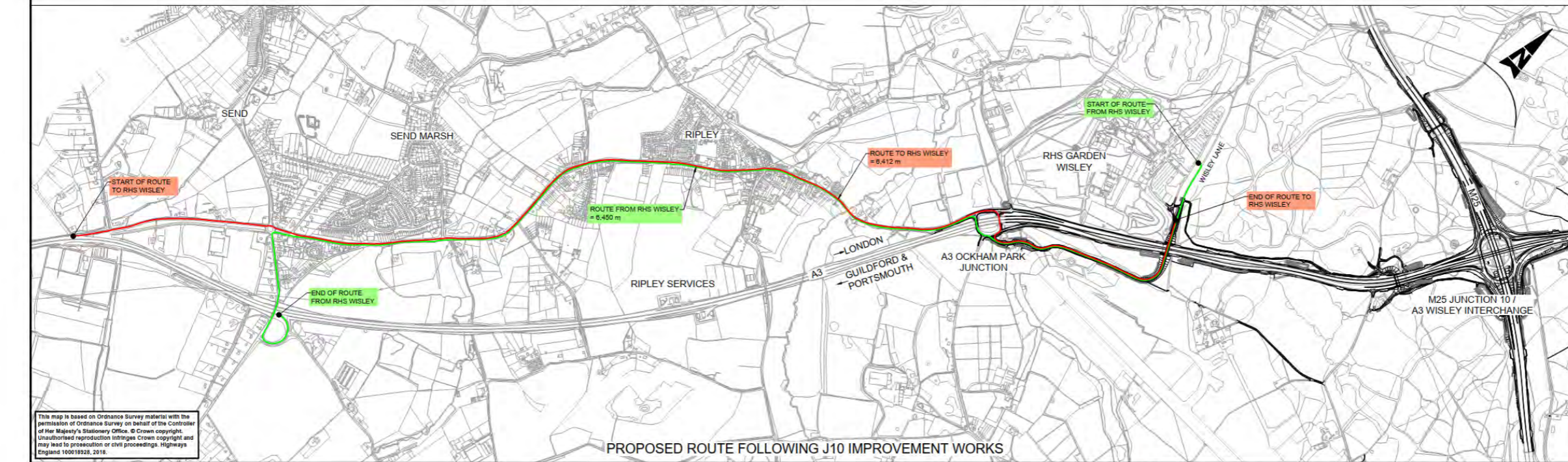
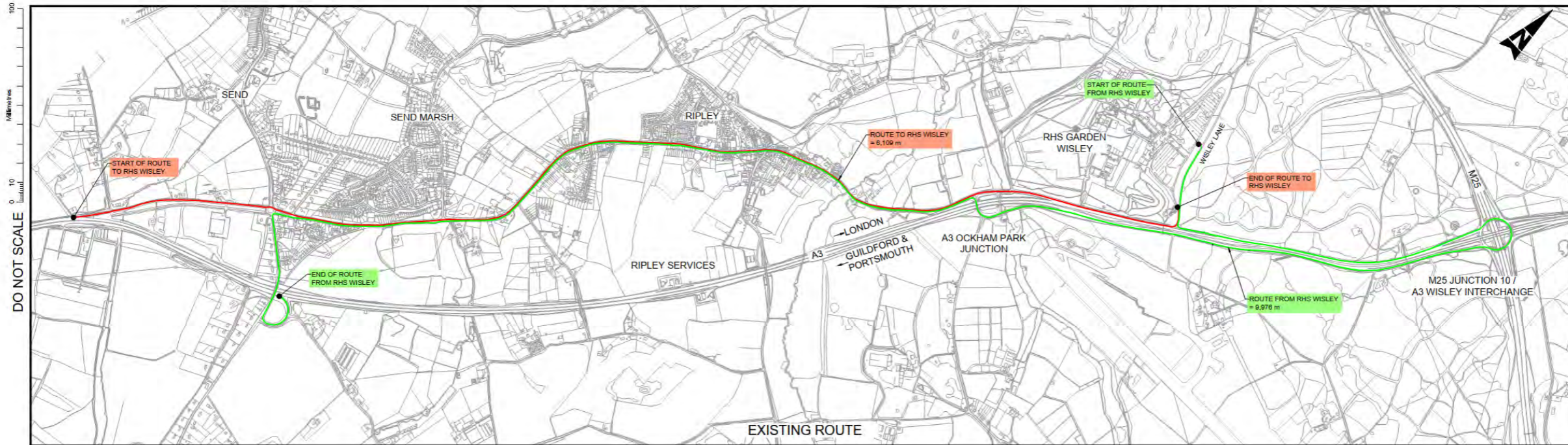
WORK IN PROGRESS

ATKINS
Epsom Gateway
Ashley Avenue
Epsom
Surrey
KT18 5AL
Tel: +44 (0)1372 728140
Fax: +44 (0)1372 740055
www.atkinsglobal.com

Working on behalf of
highways
england

Project Title	M25 junction 10/A3 Wisley interchange
Drawing Title	EXISTING AND PROPOSED JOURNEY DISTANCES BETWEEN RHS WISLEY AND A3 SOUTH (VIA A3)
Drawing Number	HE551522 - ATK - HTA -
Project	A3_L1_ML - SK - CH - 000002
Location	
Original Scale	A1
Code	NTS
Project Ref. No.	5158141
Sheet	2 of 3
Rev.	P01.1

This Drawing is saved on ProjectWise. Plotted: 17/07/2019 11:57:26 By: ARRO9099



This map is based on Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Highways England 100019928, 2018.

NOTES

CHANGE IN DISTANCE:
A3 SOUTH TO RHS WISLEY 303 m LONGER
RHS WISLEY TO A3 SOUTH 3,256 m SHORTER

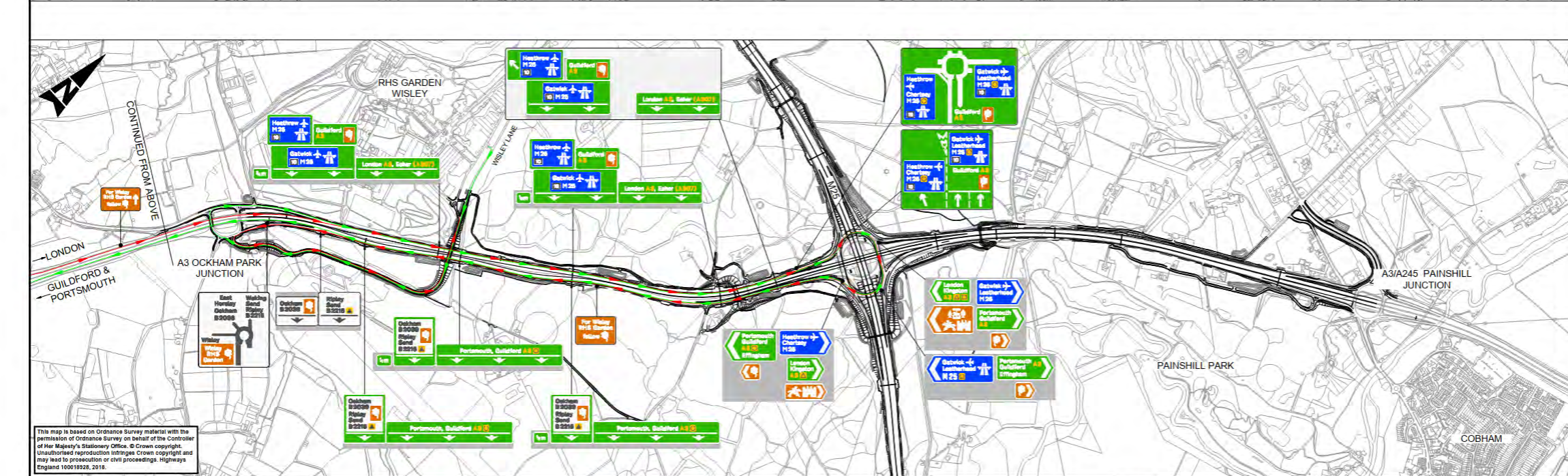
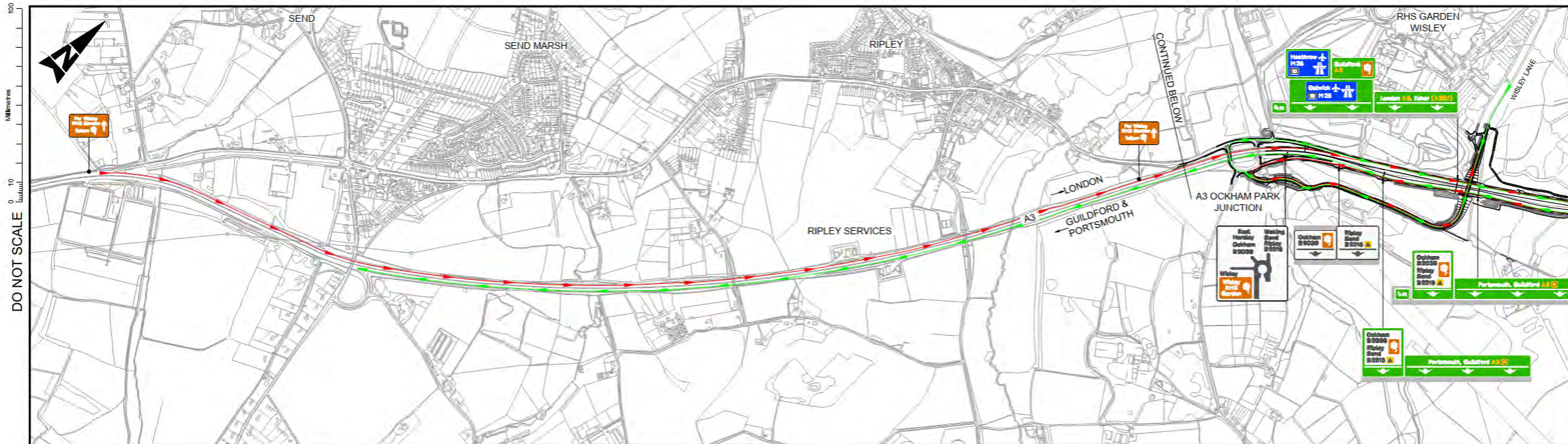
PROPOSED ROUTE FOLLOWING J10 IMPROVEMENT WORKS

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Subtitle	WORK IN PROGRESS	Scale	S0	Project No.	M25 junction 10/A3 Wisley interchange
Client	Atkins Limited (2018) www.atkinsglobal.com Working on behalf of highways england				
Drawing Title	EXISTING AND PROPOSED JOURNEY DISTANCES BETWEEN RHS WISLEY AND A3 SOUTH (VIA RIPLEY)				
Drawing Number	HE551522 - ATK	Volume	HTA -	Project	A3 L1 ML - SK - CH - 000003
Location	A1	Scale	NTS	Project Ref. No.	5158141
Sheet	3 of 3	Revision	P01.1	Issue Date	

This Drawing is saved on ProjectWise. Plotted: 17/07/2019 11:58:08 By: ARRO099

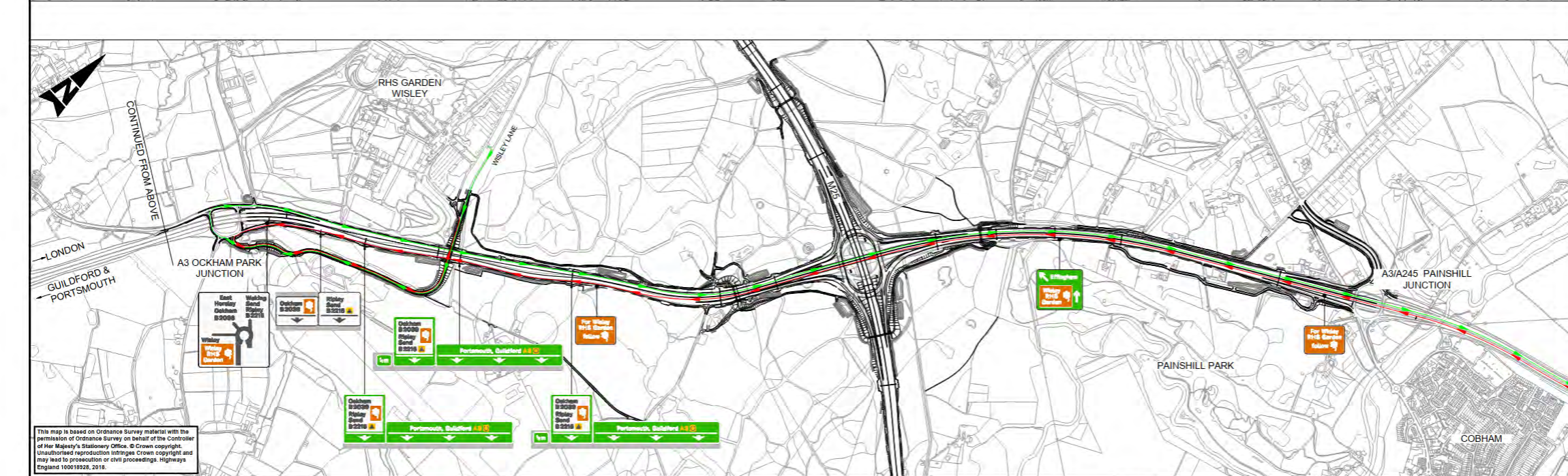
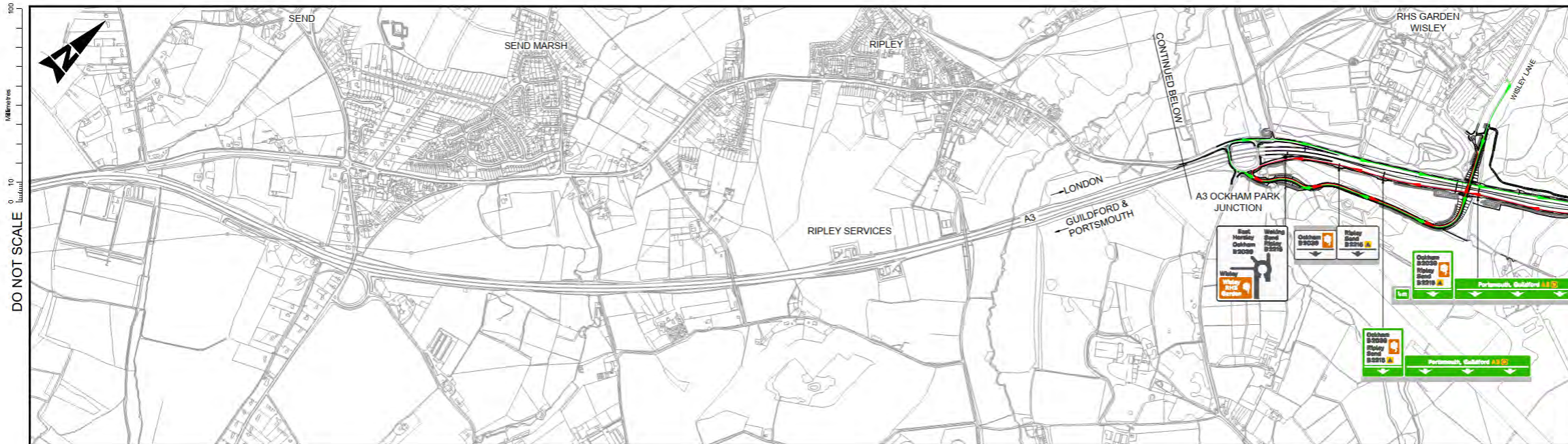
9.3. Appendix C: M25 J10 Scheme proposed signing strategy to and from RHS Wisley



This map is based on Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Highways England 10001926, 2019.

Description		Drawing Subtitle	Scale	Project Title
M25 junction 10/A3 Wisley interchange		WORK IN PROGRESS	S0	M25 junction 10/A3 Wisley interchange
Description		Atkins Epsom Gateway Ashley Avenue Epsom Surrey KT18 5AL Tel: +44 (0)1372 726140 Fax: +44 (0)1372 740055 www.atkinsglobal.com		Drawing Title
Description		SNC-LAVALIN		PROPOSED RHS WISLEY SIGNAGE FOR JOURNEYS TO/FROM SOUTH OF THE SCHEME
Description		Working on behalf of highways england		Drawing Number
Description		Project: HE551522 - ATK - HSN - A3_ML - SK - CH - 000001		Volume
Description		Location: A3_ML - SK - CH - 000001		Sheet
Description		Original: A1 Code: NTS Project: 5158141 Sheet: 1 of 2 Rev: P01.1		Rev

This Drawing is saved on ProjectWise. Plotted: 01/08/2019 12:11:04 By: ARRO9099



This map is based on Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Highways England 10001926, 2019.

Description		Drawing Subtitle	Scale	Project Title														
<table border="1"> <tr><td>Status</td><td>Revision</td><td>Drawn</td><td>Checked</td><td>Reviewed</td><td>Authorised</td><td>Issue Date</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>		Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date								WORK IN PROGRESS	S0	M25 junction 10/A3 Wisley interchange
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date												
Description		Drawing Title																
<table border="1"> <tr><td>Status</td><td>Revision</td><td>Drawn</td><td>Checked</td><td>Reviewed</td><td>Authorised</td><td>Issue Date</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>		Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date								<p>Epsom Gateway Ashley Avenue Epsom Surrey KT18 5AL Tel: +44 (0)1372 726140 Fax: +44 (0)1372 740055 www.atkinsglobal.com</p>		
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date												
Description		Drawing Number																
<table border="1"> <tr><td>Status</td><td>Revision</td><td>Drawn</td><td>Checked</td><td>Reviewed</td><td>Authorised</td><td>Issue Date</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>		Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date								HE551522 - ATK - HSN -		
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date												
Description		Project																
<table border="1"> <tr><td>Status</td><td>Revision</td><td>Drawn</td><td>Checked</td><td>Reviewed</td><td>Authorised</td><td>Issue Date</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>		Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date								A3_ML - SK - CH - 000002		
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date												
Description		Location																
<table border="1"> <tr><td>Status</td><td>Revision</td><td>Drawn</td><td>Checked</td><td>Reviewed</td><td>Authorised</td><td>Issue Date</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>		Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date								A1		
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date												
Description		Sheet																
<table border="1"> <tr><td>Status</td><td>Revision</td><td>Drawn</td><td>Checked</td><td>Reviewed</td><td>Authorised</td><td>Issue Date</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>		Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date								2 of 2		
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date												
Description		File Name																
<table border="1"> <tr><td>Status</td><td>Revision</td><td>Drawn</td><td>Checked</td><td>Reviewed</td><td>Authorised</td><td>Issue Date</td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>		Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date								P01.1		
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date												

This Drawing is saved on ProjectWise. Plotted: 01/08/2019 12:13:17 By: ARRO0099

9.4. Appendix D: Time–Distance graphs for different route options

Table 9-1 - Journey time change summary: Traffic Portion (%) and Journey Times (minutes) to/from Wisley Lane

Direction	Destination/ origin	Distance change (km)	2022 AM peak hour					2022 Inter peak hour					2022 PM peak hour				
			RHS Demand	RHS %	Without Scheme (mins)	With Scheme (mins)	Change (mins)	RHS Demand	RHS %	Without Scheme (mins)	With Scheme (mins)	Change (mins)	RHS Demand	RHS %	Without Scheme (mins)	With Scheme (mins)	Change (mins)
To RHS	A3 N of J10	0.1	48	22%	4	3.7	-0.3	81	21%	3.6	3.4	-0.1	49	22%	4.2	3.9	-0.4
	M25 CW	0.1	26	12%	8.3	4.5	-3.8	19	5%	5.3	4.3	-1	9	4%	7	4.5	-2.5
	M25 ACW	0.1	0	0%	6.9	5.2	-1.7	46	12%	5.3	4.7	-0.6	27	12%	6.2	5.1	-1.1
	A3 South (via j10)	5.9	47	21%	5.37	11.6	6.3	83	22%	5.1	9.9	4.7	48	22%	5.4	10	4.5
	A3 South (via Ripley)	0.3			9.27	11.5	2.2			8.4	12	3.6			9	10	1
		Total Demand		222					379					223			
From RHS	A3 north of M25 J10	2.3	53	27%	3	4.7	1.7	88	27%	1.8	4.3	2.5	92	27%	2.1	4.4	2.4
	M25 CW	2.3	29	15%	3.4	4.2	0.9	49	15%	2.2	3.9	1.7	52	15%	2.5	4	1.5
	M25 ACW	2.3	15	8%	4	6	2	26	8%	3.1	5.4	2.3	27	8%	3.1	5.5	2.4
	A3 South (via j10)	2.5	31	16%	12.2	12.6	0.3	53	16%	9.8	11	1.3	56	16%	10.7	12.1	1.4
	A3 South (via Ripley)	-3.5			16.8	11	-5.8			13.7	10.1	-3.7			15	10.7	-4.3
		Total Demand		198					327					344			

Figure 9-1 - Distance-Time: Wisley Gardens to A3 South Guildford (2037 AM)

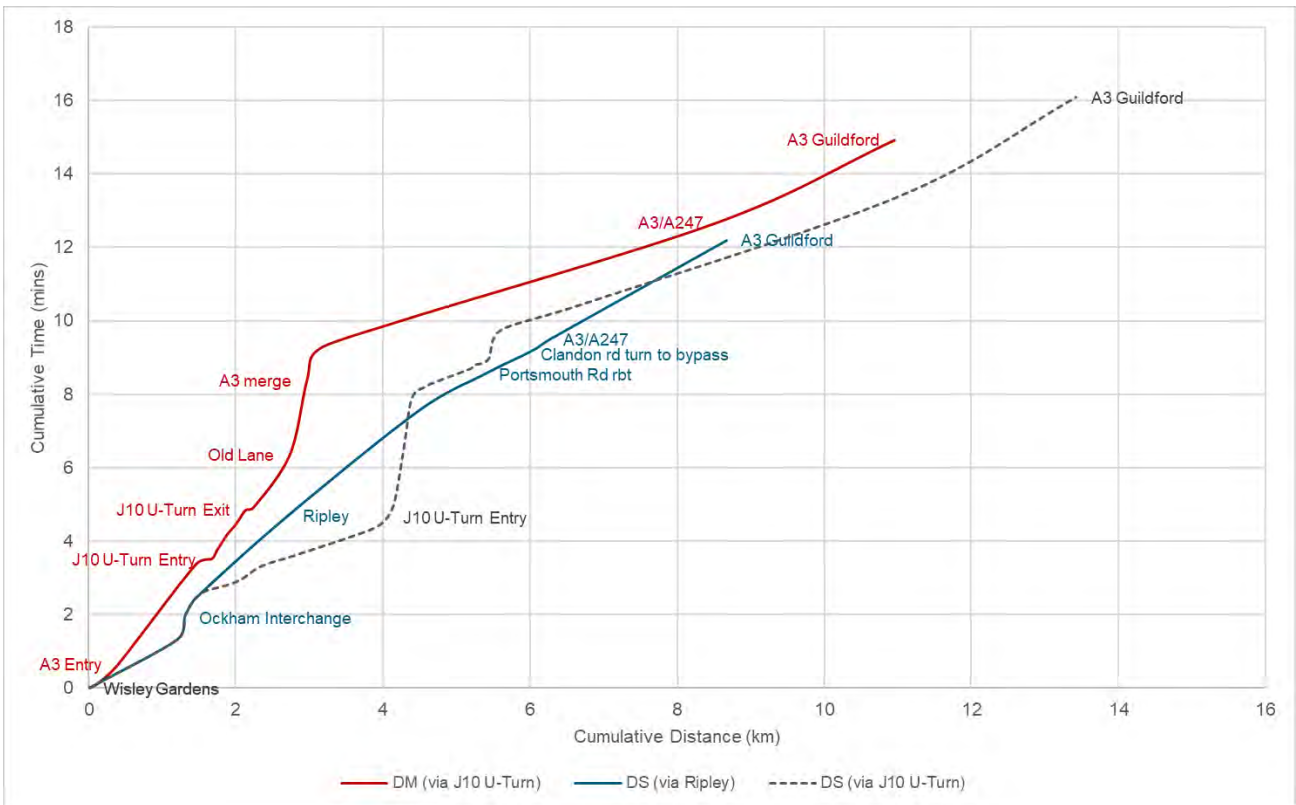


Figure 9-2 - Distance-Time: Wisley Gardens to A3 South Guildford (2037 IP)

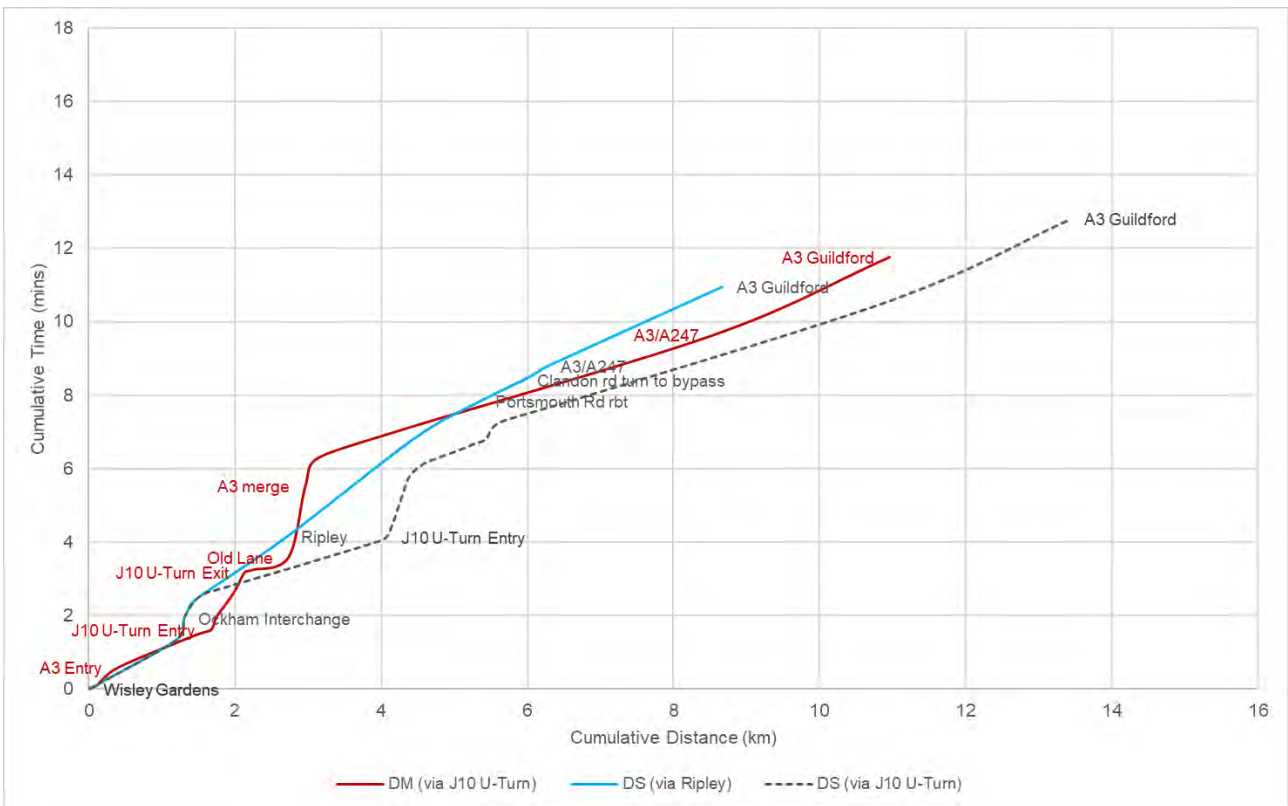


Figure 9-3 - Distance-Time: Wisley Gardens to A3 North (2037 AM)

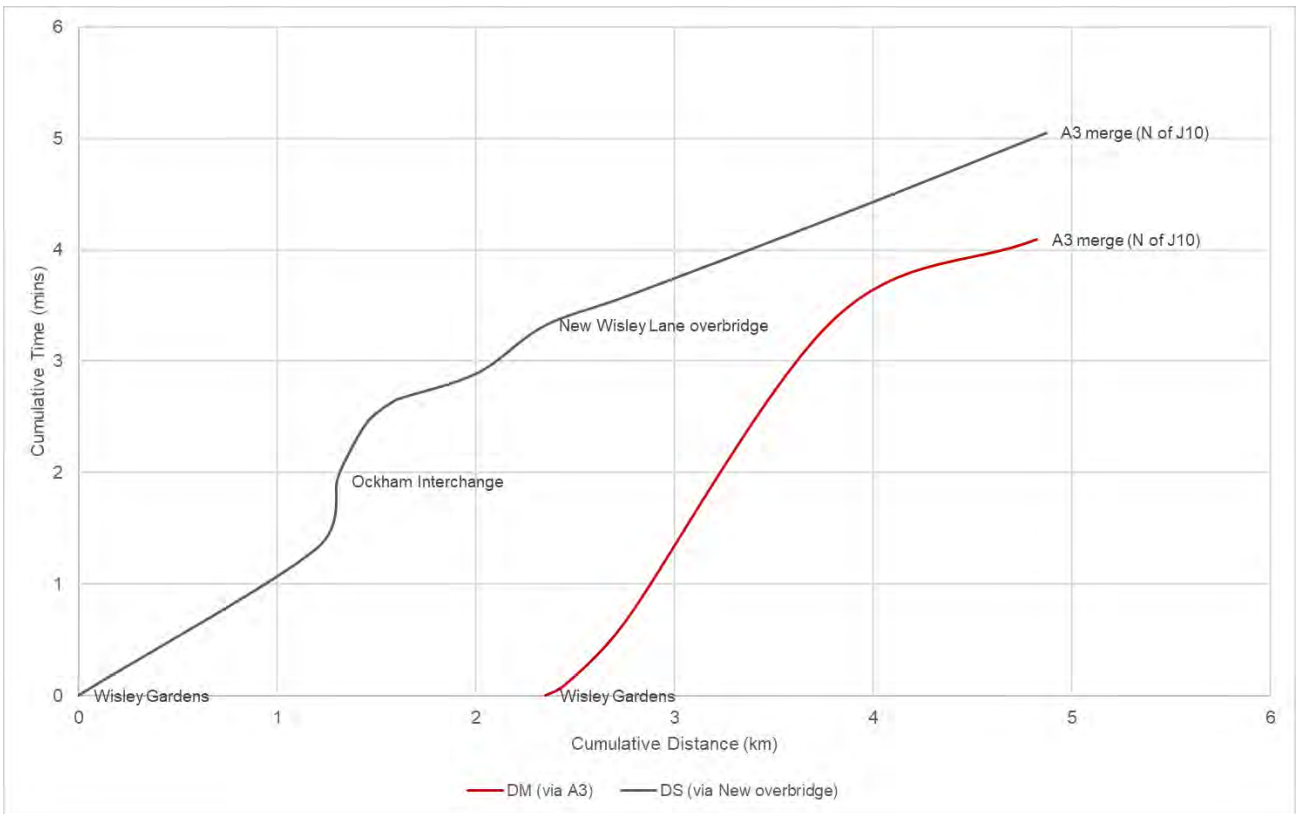


Figure 9-4 - Distance-Time: Wisley Gardens to A3 South Guildford (2037 IP)

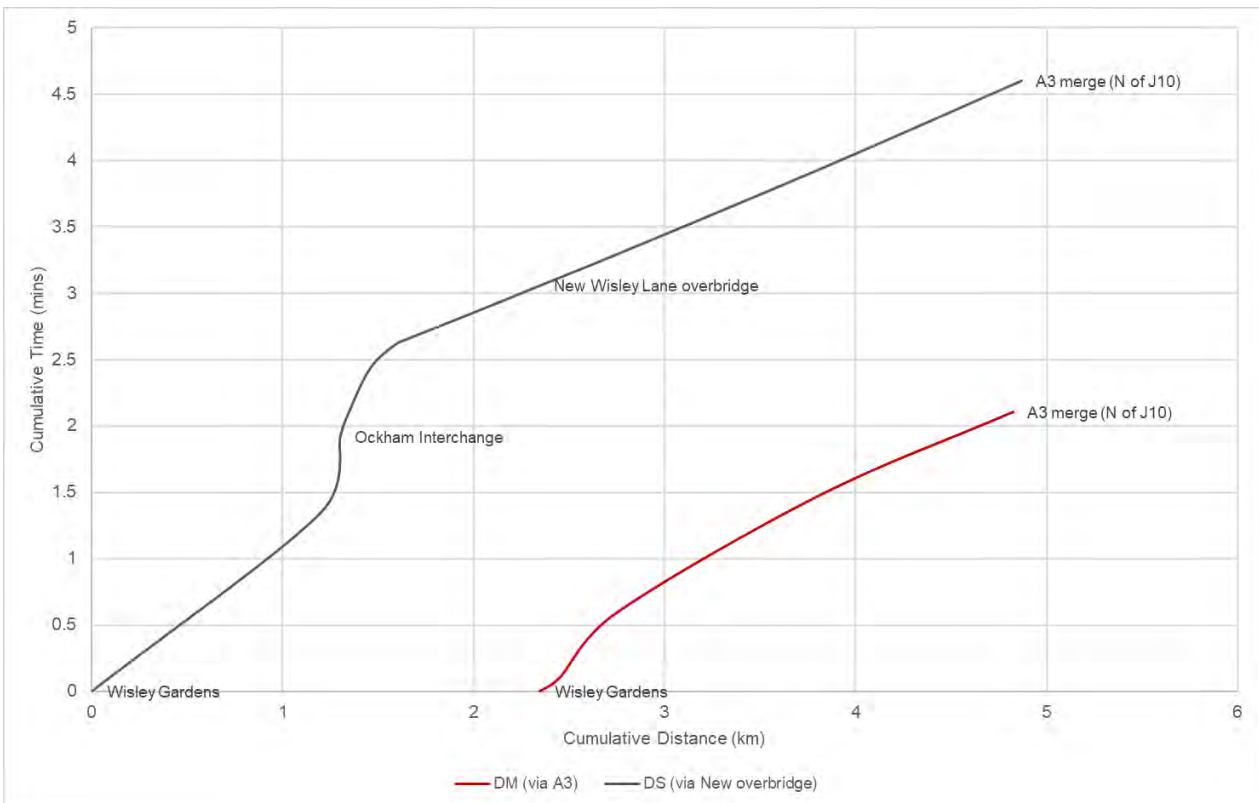


Figure 9-5 - Distance-Time: A3 North to Wisley Gardens (2037 AM)

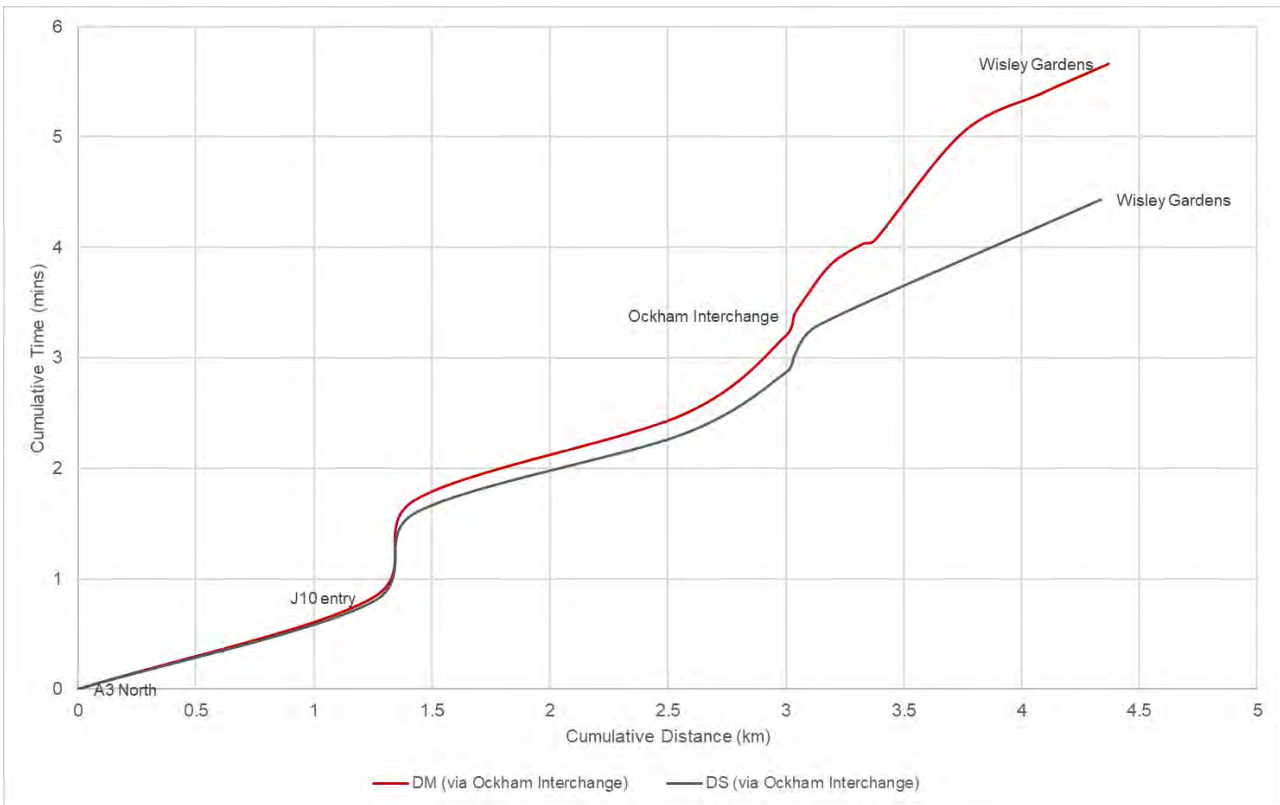
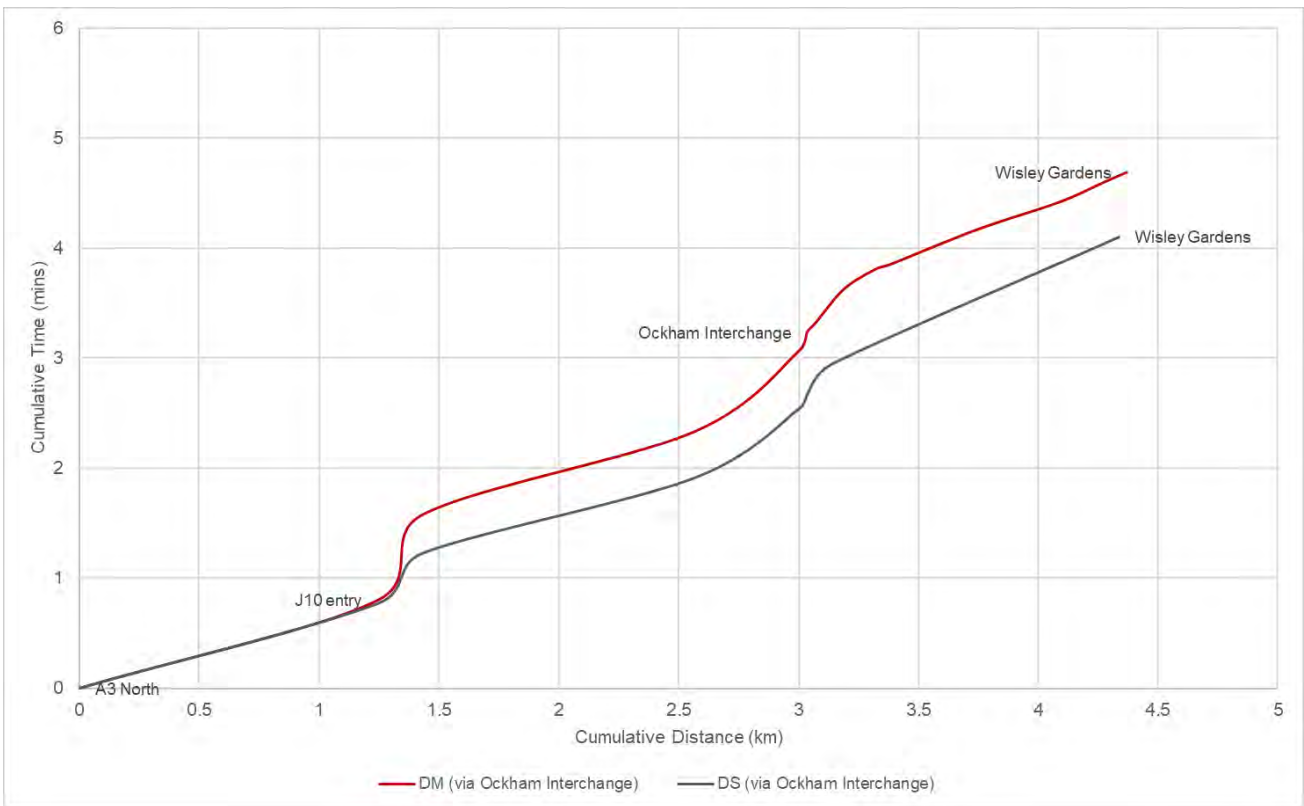
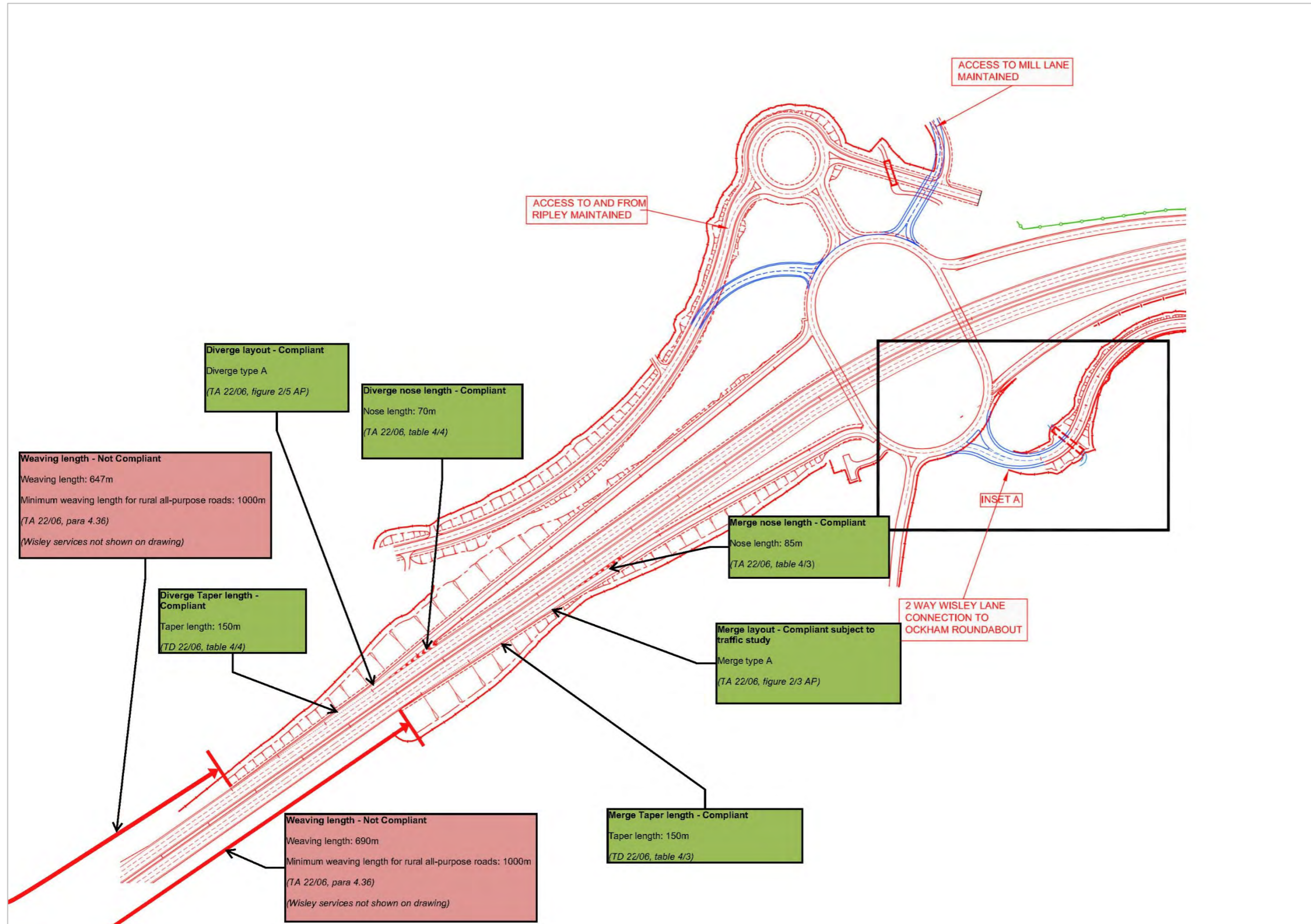


Figure 9-6 - Distance-Time: A3 North to Wisley Gardens (2037 IP)



9.5. Appendix E: Geometric review of RHS alternative proposal for Ockham Park Junction south facing slip roads



Safety Risk Assessment Table

Project: M25 J10 / A3 Wisley Interchange		Document Reference		Safety Risk Assessment	
Description of Decision: To determine the risks associated with providing a merge slip road onto the A3 from Wisley Lane, compared to the scheme proposal for an access road via a new bridge over the A3 to Ockham Park junction. Due to the proximity of M25 J10 to Wisley Lane it is not possible to provide both full weaving length and the required merge to meet design standards. The options below consider providing either standard weaving length or standard merge and assess the effect of each in peak and off-peak conditions.		Revision No:		C01	
Produced to support: DCO		GG 104 Populations with <u>no discernible impact</u> resulting from the decision			
		Workers		Users	
		✓		✓	
Prepared by:	David Osborne	Checked by:	Rebecca Thomas	Reviewed by:	Alexis Pope
Contact Details	David.Osborne@atkinsglobal.com	Contact Details	Rebecca.Thomas@atkinsglobal.com	Contact Details	alexis.pope@atkinsglobal.com
Date:	9/8/19	Date:	16/8/19	Date:	
Authorised by:	Graham Bown		Authorised by:	Graham Bown	
Contact Details	Graham.bown@atkinsglobal.com		Contact Details	Graham.bown@atkinsglobal.com	
Date:			Date:		

Ref	Hazard	Population	Sub-group	Location	Undesirable outcome	Causation Factors	Commentary to support assessment	Risk - before Control Measures				Confirmed Control Measure (State Type and detail)	Risk - after Control Measures				Alternative control measures	Assumptions
								L ⁵	S	R	Class.		L ⁶	S	R	Class.		
1a	Sub-standard taper length Off-peak - Free flow conditions	Users	All road users	Proposed Wisley Lane merge to NB A3 (Min. 1km weaving length provided)	Nose to tail collision on slip road as vehicle fails to find gap to merge and brakes on slip road	Below standard taper	Below standard taper length will reduce time to match speed and find gaps in mainline traffic. Drivers on slip road will be required to find a gap in fast moving mainline traffic and accelerate to match speed – and also be aware of what traffic immediately ahead of them in the slip road is doing. A vehicle ahead, failing to merge and braking on the slip road could result in a nose to tail collision.	2	2	4	L	Closure of direct access to A3 eliminates the risk of merging at this point. The alternative route via a new bridge over A3 and Ockham Park junction provides a safer option with Type F merge with lane gain. Lane gain reduces the likelihood of braking on the slip road (off peak). Above standard weaving length to J10 is provided. (c.1580m)	1	2	2	L		Southbound A3 traffic will be signed onto the NB A3 to circulate the J10 roundabout (similar to the current arrangement), but it is accepted that some may choose to divert through Ripley to join the SB A3 at Burnt Common (or may be directed by sat nav).
					Nose to tail or lane change collision at	Below standard taper	Below standard taper length will reduce time to match speed and find gaps in mainline traffic.	5	2	10	M	Closure of direct access to A3 eliminates the risk of merging at this point.	3	2	6	L		Southbound A3 traffic will be signed onto the NB A3 to circulate the J10 roundabout

⁵ Likelihood 'before' risk scores are based on existing Stats 19 collision data.

⁶ Likelihood 'after' risk scores refer to the risk of collisions to re-routed traffic via the new A3 Wisley bridge and Ockham Park junction

Ref	Hazard	Population	Sub-group	Location	Undesirable outcome	Causation Factors	Commentary to support assessment	Risk - before Control Measures				Confirmed Control Measure (State Type and detail)	Risk - after Control Measures				Alternative control measures	Assumptions
								L ⁵	S	R	Class.		L ⁶	S	R	Class.		
					merge point as vehicle merges, forcing main line traffic to brake or change course		Due to the proximity to J10 diverge, mainline traffic at this point is looking to access the lane drop diverge for J10.					The alternative route via a new bridge over A3 and Ockham Park junction provides a safer option with Type F merge with lane gain. Motorway style signs and signals on the A3 will provide clear directions to encourage early decision making by users, avoiding late lane changes which can cause conflicts.					(similar to the current arrangement), but it is accepted that some may divert through Send village to join the SB A3 at Burnt Common (or may be directed by sat nav).	
1b	Sub-standard taper length Peak - Congested conditions	Users	All road users	Proposed Wisley Lane merge to NB A3 (Min. 1km weaving length provided)	Nose to tail collision on slip road as vehicle fails to find gap to merge and brakes on slip road	Insufficient taper length	Congestion at J10 can result in queues back to the merge point and potentially along the slip road. Although there may be a risk of some nose-to-tail collisions in this scenario, risk is reduced due to lower traffic speeds. (Dependent on the extent of the congestion)	4	1	4	L	Closure of direct access to A3 eliminates the risk of merging at this point. The alternative route via a new bridge over A3 and Ockham Park junction provides a safer option with Type F merge with lane gain. Lane gain reduces the likelihood of braking on the slip road.	2	1	2	L	This scenario is less likely to occur due to scheme improvements which are expected to increase flows through J10 and reduce NB queues on the A3, (hence the reduction in the 'after' likelihood score). However this is dependent on wider conditions on the M25.	
					Nose to tail or lane change collision at merge point as vehicle merges, forcing main line traffic to brake or change course	Insufficient taper length	Congestion at J10 can result in queues back to the merge point and potentially along the slip road. In this scenario, risk is reduced as merging can take place at slow speeds without a significant speed differential between mainline and merging traffic.	5	1	5	L	Closure of direct access to A3 eliminates the risk of merging at this point. The alternative route via a new bridge over A3 and Ockham Park junction provides a safer option with Type F merge with lane gain. Motorway style signs and signals on the A3 will provide clear directions to encourage early decision making by users, avoiding late lane changes which can cause conflicts.	2	1	2	L	This scenario is less likely to occur due to scheme improvements which are expected to increase flows through J10 and reduce NB queues on the A3, (hence the reduction in the 'after' likelihood score). However this is dependent on wider conditions on the M25.	
2a	Insufficient weaving length provision Off-peak - Free flow conditions	Users	All road users	Proposed Wisley Lane merge to NB A3	Nose to tail and lane change collisions as weaving takes place between mainline	Insufficient weaving length: 953m provided compared to a minimum of 1000m required by TD22/06	Below standard weaving length reduces time for vehicles to match speed and find gaps with adjacent traffic in order to safely change lane. London bound traffic from the slip road will have to cross two lanes of traffic and compete for	4	3	12	M	Closure of direct access to A3 with an alternative route via new bridge over A3 and Ockham Park junction with NB traffic joining the A3 via lane gain. Motorway style signs and signals on the A3 will provide clear directions to encourage early decision making by users.	3	3	9	L		

Ref	Hazard	Population	Sub-group	Location	Undesirable outcome	Causation Factors	Commentary to support assessment	Risk - before Control Measures				Confirmed Control Measure (State Type and detail)	Risk - after Control Measures				Alternative control measures	Assumptions
								L ⁵	S	R	Class.		L ⁶	S	R	Class.		
					traffic leaving the A3 at J10 and London bound merging traffic from Wisley Lane.	Double lane drop at M25 J10 Weaving requirement: 2022 forecast modelling suggests that 41% of inter peak traffic will need to access lane 3 or 4 after merging from the slip road. This is the highest of any manoeuvres from the slip road.	space with diverging traffic from lane 3/4 before merging with NB lane 3 and avoiding the lane drop. (Current arrangement is single lane drop, so the new arrangement with a 2x lane drop effectively doubles the weaving requirement for merging traffic). The scheme has followed TD22/06 for highway design, which requires a minimum weaving length for APTR of 1km, but only allows for three lanes. As the A3 will have four lanes this is beyond the scope of this standard. The only standard which accommodates four lanes is TD22/06 which prescribes that for a four lane motorway, 2km weaving length is required.											
2b	Insufficient weaving length provision Peak - Congested conditions	Users	All road users	Proposed Wisley Lane merge to NB A3	Nose to tail and lane change collisions	Insufficient weaving length: 953m provided compared to a minimum of 1000m required by TD22/06 Double lane drop at M25 J10 Weaving requirement: 2022 forecast modelling suggests between 34% AM Peak and 41% and PM	Merging traffic will join slow moving/queuing traffic in lanes 1 and 2, whilst traffic in lanes 3 and 4 is likely to be free flowing. (Current arrangement is single lane drop, so the new arrangement with a 2x lane drop effectively doubles the weaving requirement for merging traffic). Motorway style signals on the A3 will be set to display a reduced speed limit which will reduce the speed differential, however there is still a risk that traffic emerging from a queue in lane 2 will result in a collision with free flowing traffic in lane 3 or 4 which is forced to	4	2	8	L	Closure of direct access to A3 with an alternative route via new bridge over A3 and Ockham Park junction with NB traffic joining the A3 via lane gain. Motorway style signs and signals on the A3 will provide clear directions to encourage early decision making by users, with variable speed limits displayed when congestion occurred.	3	2	6	L	Scheme improvements are expected to increase flows through J10 and reduce NB queues on the A3, however, this is dependent on wider conditions on the M25.	

Ref	Hazard	Population	Sub-group	Location	Undesirable outcome	Causation Factors	Commentary to support assessment	Risk - before Control Measures				Confirmed Control Measure (State Type and detail)	Risk - after Control Measures				Alternative control measures	Assumptions
								L ⁵	S	R	Class.		L ⁶	S	R	Class.		
						<p>peak traffic will need to access lane 3 or 4 after merging from the slip road. This is the highest of any manoeuvres from the slip road.</p>	<p>brake from high speed or alter course.</p> <p>The scheme has followed TD22/06 for highway design, which requires a minimum weaving length for APTR of 1km, but only allows for three lanes. As the A3 will have four lanes this is beyond the scope of this standard.</p> <p>The only standard which accommodates four lanes is TD22/06 which prescribes that for a four lane motorway, 2km weaving length is required.</p>											
										43	'Before' total risk score					27	'After' total risk score	

Note:

Updated collision data obtained for the period 1/12/2013 – 30/11/2018 shows collisions at the following locations:

Wisley Lane slip road there were:

- 4 slight injury collisions (all at peak* times)

Northbound A3 within c.150m of Wisley Lane merge there was:

- 1 serious injury collision (peak), and
- 8 slight injury collisions (4 peak and 5 off-peak)

Northbound A3 Lane change collisions (not including the above) there were:

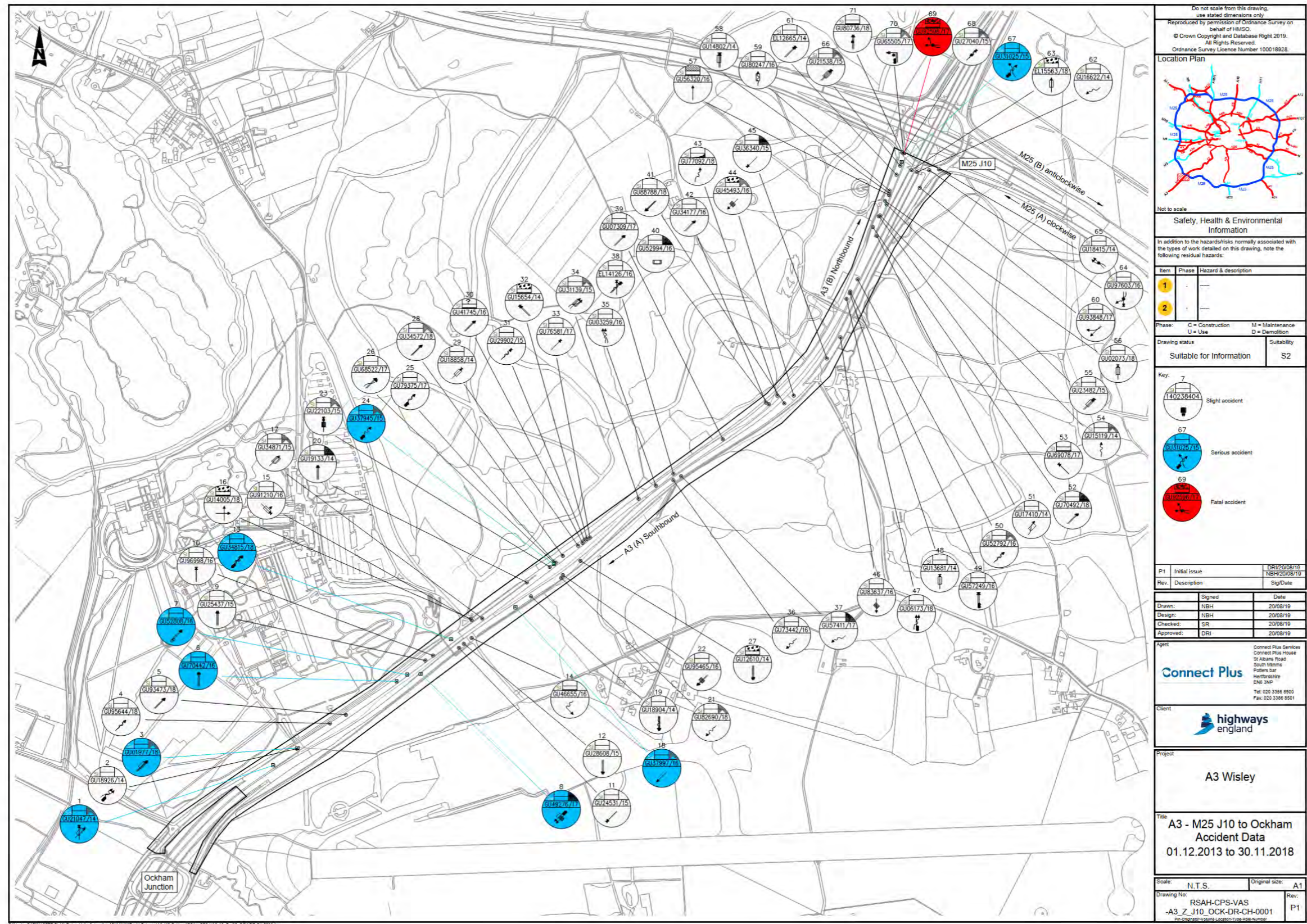
- 7 slight injury collisions (3 peak and 4 off-peak)

*Peak times between 0700-1000 and 1600-1900

GG 104 (Table D.1) Risk value, likelihood and severity of outcomes that may be assigned to qualitative data for the purposes of assessment

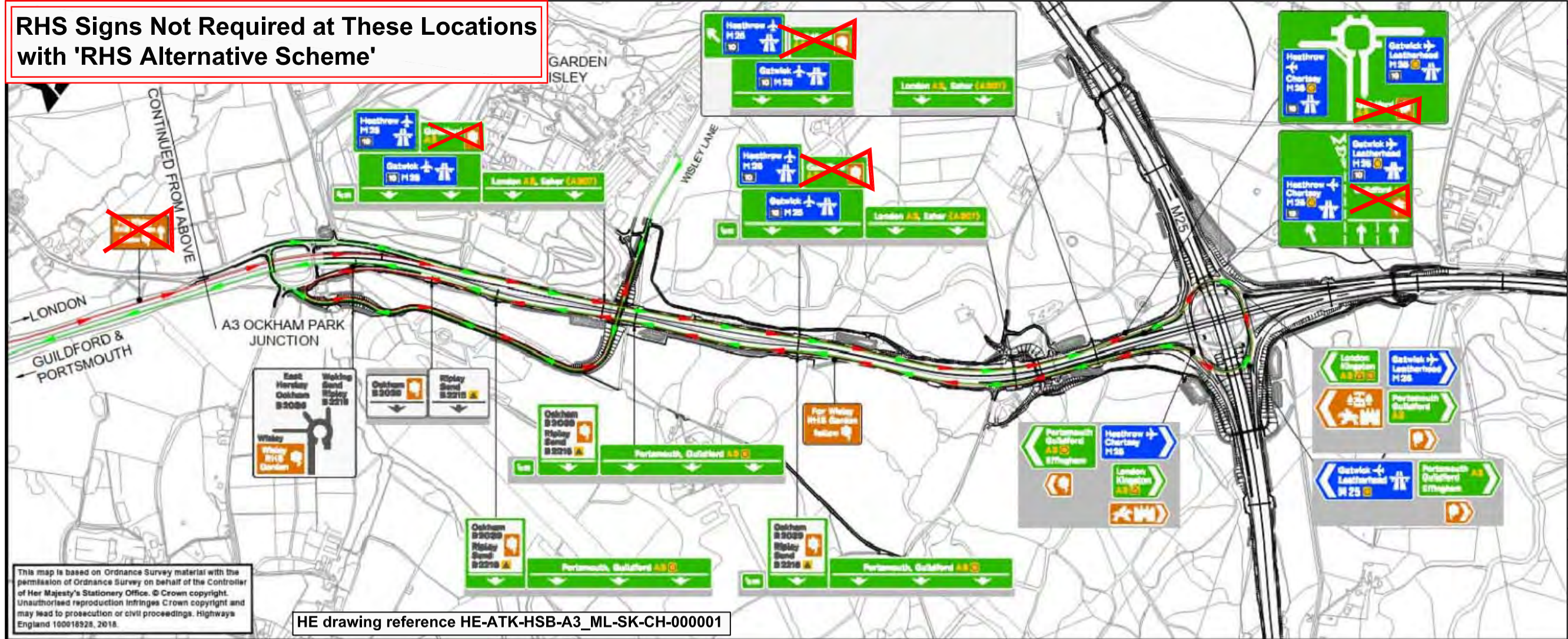
Likelihood (L) x Severity (S) = Risk value (R)		Severity (S)				
		Minor harm; Minor damage or Loss, no injury	Moderate harm; Slight injury or illness, moderate damage or loss	Serious harm; Serious injury or illness, substantial damage or loss	Major harm; Fatal injury, major damage or loss	Extreme harm; Multiple fatalities, extreme loss or damage
Likelihood (L)	Very unlikely; Highly improbable, not known to occur	1	2	3	4	5
	Unlikely; Less than 1 per 10 years	2	4	6	8	10
	May happen; Once every 5-10 years	3	6	9	12	15
	Likely; Once every 1-4 years	4	8	12	16	20
	Almost certain; Once a year or more	5	10	15	20	25
Risk Value (R)		Required Action				
Low (1-9)		Ensure assumed control measures are maintained and reviewed as necessary.				
Medium (10-19)		Additional control measures needed to reduce risk rating to a level which is equivalent to a test of "reasonably required" for the population concerned.				
High (20-25)		Activity not permitted. Hazard to be avoided or risk to be reduced to tolerable.				

Collision plot



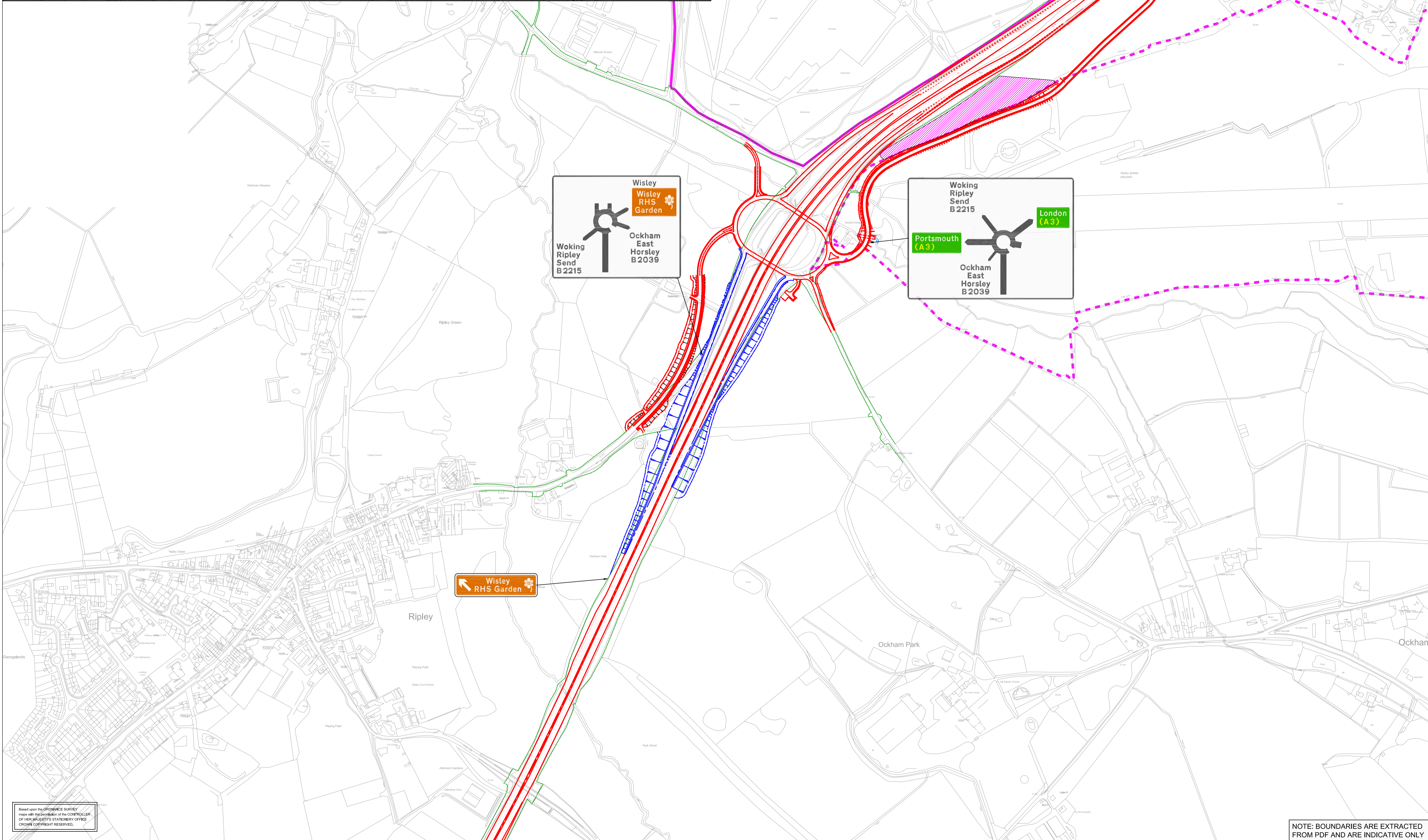
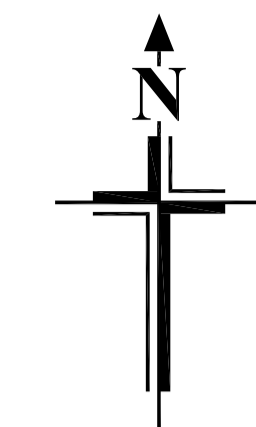
APPENDIX C
Signage Scheme Comparison

RHS Signs Not Required at These Locations with 'RHS Alternative Scheme'



This map is based on Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Highways England 10004926_2016

HE drawing reference HE-ATK-HSB-A3_ML-SK-CH-000001



Woking Ripley Send B2215

Wisley RHS Garden

Ockham East Horsley B2039

Woking Ripley Send B2215

Portsmouth (A3)

Ockham East Horsley B2039

London (A3)

Wisley RHS Garden

Based upon the ORDNANCE SURVEY maps with the permission of the CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE. CROWN COPYRIGHT RESERVED.

NOTE: BOUNDARIES ARE EXTRACTED FROM PDF AND ARE INDICATIVE ONLY

REV	DATE	DESCRIPTION	DRAWN BY	AUTHORISED BY

ISSUE PURPOSE

DRAFT

This drawing is issued solely for the purpose indicated by the original stamp in this box.
No stamp - informative only.

Offices at:
Manchester - St James' Building, Oxford Street, Manchester, M1 6EJ
(Tel 0161 235 8600 - Fax 0161 235 8601)
London - Mayfair Point, 34 South Molton Street, London, W1K 5RG
(Tel 0207 344 9700 - Fax 0207 409 7309)

PROJECT	RHS, WISLEY		
DRAWING TITLE	RHS WISLEY SIGNAGE PROPOSED SIGNAGE REQUIREMENTS WITH SOUTH FACING SLIPS		
CLIENT	RHS, WISLEY		
SCALE	PAPER SIZE	DATE	
NTS	A1	25.11.19	
DRAWN BY	AUTHORISED BY	FILE REFERENCE	
UD	MH	M16114-A-044	
DRAWING NUMBER	REVISION		
M16114-A-044			

APPENDIX D

Design Standard CD122 'Geometric Design of Grade Separated Junctions'

Design Manual for Roads and Bridges



Road Layout
Design

CD 122

Geometric design of grade separated junctions

(formerly TD 22/06, TD 39/94, TD 40/94)

Revision 0

Summary

This document provides requirements for the geometric design of grade separated junctions.

Application by Overseeing Organisations

Any specific requirements for Overseeing Organisations alternative or supplementary to those given in this document are given in National Application Annexes to this document.

Feedback and Enquiries

Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Highways England team. The email address for all enquiries and feedback is: Standards_Enquiries@highwaysengland.co.uk

This is a controlled document.

Contents

Release notes	3
Foreword	4
Publishing information	4
Contractual and legal considerations	4
Introduction	5
Background	5
Assumptions made in the preparation of this document	5
Abbreviations	6
Terms and definitions	7
1. Scope	10
Aspects covered	10
Implementation	10
Use of GG 101	10
2. Selection of grade separated junction form	11
Full grade separated junctions	11
Compact grade separated junctions	11
3. Full grade separated: merges and diverges	12
General	12
Datum points	13
Ghost island width	14
Merges and diverges traffic flows	14
Merge	15
Merge layout	15
Merge visibility	22
Diverge	22
Diverge layout	22
Diverge visibility	28
Successive diverges and merges	32
Forks	34
4. Full grade separated: weaving and spacing	36
General	36
Weaving section length	36
Measurement of weaving sections	36
Minimum length of weaving sections	40
Weaving section lanes calculation	42
5. Connector roads	45
Full grade separated connector road geometry	45
Design speed, horizontal and vertical geometry and superelevation	45
Stopping sight distance/visibility	48
Cross-sections	48
Compact connector road geometry	49
Design speed, horizontal and vertical geometry and superelevation	49
Stopping sight distance/visibility	50
Cross-section and widening	51
6. Normative references	54

7. Informative references	55
Appendix A. Examples of full grade separated junction layouts	56
A1 Diamond	56
A2 Half-cloverleaf	57
A3 Dumbbell roundabout	58
A4 Two bridge roundabout	59
A5 Interchanges	60
A5.1 4 way, 3 level interchange	60
A5.2 4 way, 2 level 'cyclic' interchange	61
A5.3 4 way, 4 level interchange	62
A5.4 4 way, 2 level interchange	63
A5.5 3 way interchanges	64

Release notes

Version	Date	Details of amendments
0	Sep 2019	CD 122 replaces TD 22/06 and TD 39/94. CD 122 and CD 123 together replace TD 40/94. The relevant content of these documents have been re-written to comply with the new Highways England drafting rules.

Foreword

Publishing information

This document is published by Highways England.

This document supersedes TD 22/06 and TD 39/94. In combination with CD 123 [Ref 2.N], this document supersedes TD 40/94, which is withdrawn.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

Introduction

Background

This document provides requirements and advice on the geometrical design of grade separated junctions. It merges and rationalises the content of TD 22/06 and TD 39/94 and incorporates the connector road elements of compact grade separated junctions, which were previously covered by TD 40/94.

With the incorporation of the requirements and advice of TD 39/94, this document covers the geometrical design of grade separated junctions with up to three lanes joining or leaving the mainline.

Notable changes from the previous documents listed above include:

- 1) merge layout referencing has been updated to better reflect the progression in capacity provision through the types e.g. Layout D in TD 22/06 is now Layout A Option 2 in this document. The associated flow diagram references have therefore been updated to reflect this;
- 2) 3 lane merge and diverge layouts from TD 39/94 have been reviewed and amended to ensure that only those layouts that reflect the safe design ethos of the more contemporary TD 22/06 are included;
- 3) merge and diverge datum points that were originally included only in Interim Advice Note 149/17 for existing motorways have been included; and
- 4) simplification of the curve widening requirements and advice relating to compact connector roads.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 4.N] apply to this document.

Abbreviations

Abbreviations

Abbreviation	Definition
AADT	Annual average daily traffic
HGV	Heavy Goods Vehicle
kph	Kilometres per hour
SSD	Stopping sight distance
vph	Vehicles per hour

Terms and definitions

Terms

Term	Definition
Auxiliary lane	An additional lane parallel to the mainline carriageway to provide increased merge or diverge opportunity or additional space for weaving traffic.
Compact connector road	A two way connector road between a major and minor road designed as part of a compact grade separated junction.
Compact grade separated junction	A grade separated junction designed with a two way unsegregated link road between the major and minor road. The connector road joins the major road via a priority junction designed to CD 123 [Ref 2.N].
Connector road	A collective term for interchange links, link roads, slip roads and loops designed as part of a full grade separated junction.
Datum points	Defined points at merges and diverges used for the purposes of locating features such as signs and signals and measuring weaving lengths.
Direct access	A connection to an all-purpose trunk road that provides access to a single field or dwelling only, which does not provide a through route.
Downstream	That part of the carriageway(s) where the traffic is flowing away from the section in question.
Fork	An at-grade junction of two roads, usually within an interchange, which diverge from the approach road at similar angles. NOTE: Usually both diverging roads have equal status.
Full grade separated junction	A grade separated junction designed with free flowing merges and/or diverges in accordance with this document.
Ghost island	An area of the carriageway marked to separate lanes of traffic travelling in the same direction on merge and diverge layouts. NOTE 1: The purpose of the ghost island at a merge is to separate the points of entry of two slip road traffic lanes. NOTE 2: The purpose of the ghost island at a diverge it is to separate the points of exit to a slip road.
Grade separated junction	A grade separated junction has at least two carriageway links at different levels, and usually involves the provision of a structure to accommodate carriageways crossing.
Interchange	A grade separated junction that provides free flow from one mainline to another.
Interchange link	A connector road carrying free flowing traffic within an interchange between one level and/or direction and another.
Intra-junction	The section of mainline within a junction, between a diverge and merge.
Lane drop	A layout where a lane(s) of the upstream carriageway becomes a lane(s) of the diverging connector road.

Terms (continued)

Term	Definition
Lane gain	A layout where a lane(s) of the merging connector road becomes a lane(s) of the mainline carriageway.
Link road	In the context of junctions, a link road is one way connector road adjacent to but separate from the mainline carriageway carrying traffic in the same direction. It is used to connect the mainline carriageway to the local highway network where successive direct connections cannot be provided to an adequate standard because the junction spacing is too close.
Loop	A connector road, one or two way, which is made up of the elements of the loops shown in Figure 5.10N and which passes through an angle in the range of approximately 180 to 270 degrees. NOTE: The loop is considered to extend to the end of the near straight length of road contiguous with the back of the diverge or merge nose.
Mainline	The major route within a junction which typically is a higher road classification and/or carries greater traffic volumes.
Near straight	A length of connector road with a radius no less than the desirable minimum radius with superelevation of 5% as detailed in TD 9 [Ref 3.N] for the mainline design speed.
Nose	A paved area, approximately triangular in shape, between a connector road and the mainline at a merge or diverge, suitably marked to discourage drivers from crossing it.
Nose ratio	Nose ratio is the ratio of the back of nose width and the nose length.
Parallel merge/diverge	A merge or diverge layout where an auxiliary lane is provided alongside the mainline carriageway.
Priority junctions	A junction controlled by a 'Give Way' or 'Stop' arrangement. NOTE 1: Stop arrangements are only used where there is severe visibility restrictions. NOTE 2: Direct accesses can operate in a similar manner but are not classed as priority junctions.
Rural road	An all-purpose road or motorway that is generally not subjected to a local speed limit.
Slip road	A connector road between a mainline carriageway and another road NOTE: At the end of a slip road, traffic usually encounters a priority junction, a roundabout or traffic signals.
Stopping sight distance	As defined in TD 9 [Ref 3.N].
Taper merge/diverge	A merge or diverge layout where merging or diverging traffic joins or leaves the mainline carriageway through an area forming a funnel to or flare from the mainline carriageway.

Terms (continued)

Term	Definition
Transition curves	Transition curves have a changing radius to provide a smooth transition between two different radius curves, or a curve and a straight.
Upstream	That part of the carriageway(s) where traffic is flowing towards the section in question.
Urban road - motorway	A motorway with a speed limit of 60 mph or less within a built up area.
Urban road - all purpose roads	An all-purpose road within a built up area, either a single carriageway with a speed limit of 40 mph or less or a dual carriageway with a speed limit of 60 mph or less.
Weaving section	The length of the carriageway between a successive merge or lane gain and diverge or lane drop, where vehicles leaving the mainline at the diverge or lane drop have to cross the paths of vehicles that have joined the mainline at the merge or lane gain.
Weaving section lanes calculation	The weaving section lanes calculations determine the requirements for overall carriageway width based on the traffic flows and the length of the weaving section.

1. Scope

Aspects covered

- 1.1 This document shall be used for the geometric design of grade separated junctions, including merges, diverges, forks and connector roads.

NOTE 1 This document is applicable to both new and improved junctions.

NOTE 2 This document does not cover the general provision of walking, cycling and horse riding facilities at grade separated junctions. Requirements and advice relating to this are provided in TA 68 [Ref 5.I], TA 90 [Ref 6.I], TA 91 [Ref 3.I], TD 36 [Ref 4.I] and CD 195 [Ref 1.I].

- 1.2 This document shall be used for the geometric design of the compact connector road element of a compact grade separated junction.

NOTE Requirements and advice for the geometric design of the priority junction element of a compact grade separated junction are provided in CD 123 [Ref 2.N].

- 1.3 The relaxations prescribed by TD 9 [Ref 3.N] shall not be applied to this document.

NOTE TD 9 [Ref 3.N] provides the base geometric parameters for a number of elements covered by this document; however, the relaxations prescribed by TD 9 [Ref 3.N] do not apply.

Implementation

- 1.4 This document shall be implemented forthwith on all schemes involving geometric design of grade separated junctions on the Overseeing Organisations' motorway and all-purpose trunk roads according to the implementation requirements of GG 101 [Ref 4.N].

Use of GG 101

- 1.5 The requirements contained in GG 101 [Ref 4.N] shall be followed in respect of activities covered by this document.

2. Selection of grade separated junction form

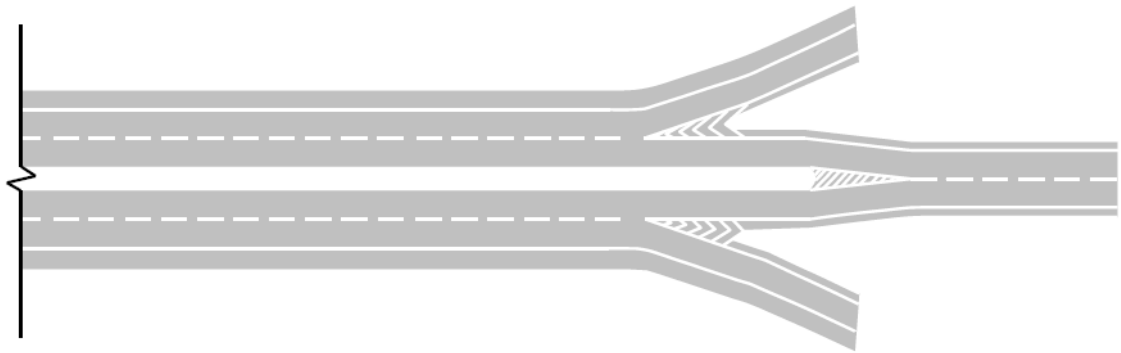
Full grade separated junctions

2.1 Full grade separated junctions shall only be used on dual carriageways and motorways.

NOTE 1 Appendix A provides examples of typical full grade separated junction layouts.

NOTE 2 The transition between a dual carriageway and a single carriageway can be formed using a merge and diverge as illustrated in Figure 2.1N2.

Figure 2.1N2 Dual carriageway to single carriageway transition



2.1.1 A merge forming part of a grade separated junction should not be located within 0.5 km of a transition from a dual carriageway to a single carriageway, measured from the end of the merge taper to the start of the lane reduction hatching.

2.1.2 Where transitions between dual carriageway and single carriageways are at grade separated junctions, the central reserve should be present at the merge / diverge.

2.1.3 Interchanges may be provided at the intersection of motorways and/or dual carriageways to provide one or more free flow links to accommodate traffic flows that would normally exceed the capacity of priority junctions, roundabouts and signal controlled junctions.

NOTE Appendix A provides examples of typical interchange layouts.

Compact grade separated junctions

2.2 Compact grade separated junctions shall not be used on motorways.

2.2.1 Compact grade separated junctions should not be used on dual and single carriageway roads when mainline flows are above 30,000 AADT.

2.3 On single carriageways, compact grade separated junctions shall only be used where the junction layout includes a section of physical central reserve on the mainline to prevent right turn movements.

NOTE Compact grade separated junctions consist of left-in left-out priority junction(s), between the mainline and connector road, designed in accordance with CD 123 [Ref 2.N], and connector roads designed in accordance with this document.

3. Full grade separated: merges and diverges

General

3.1 Offside merges and diverges shall not be provided at full grade separated junctions.

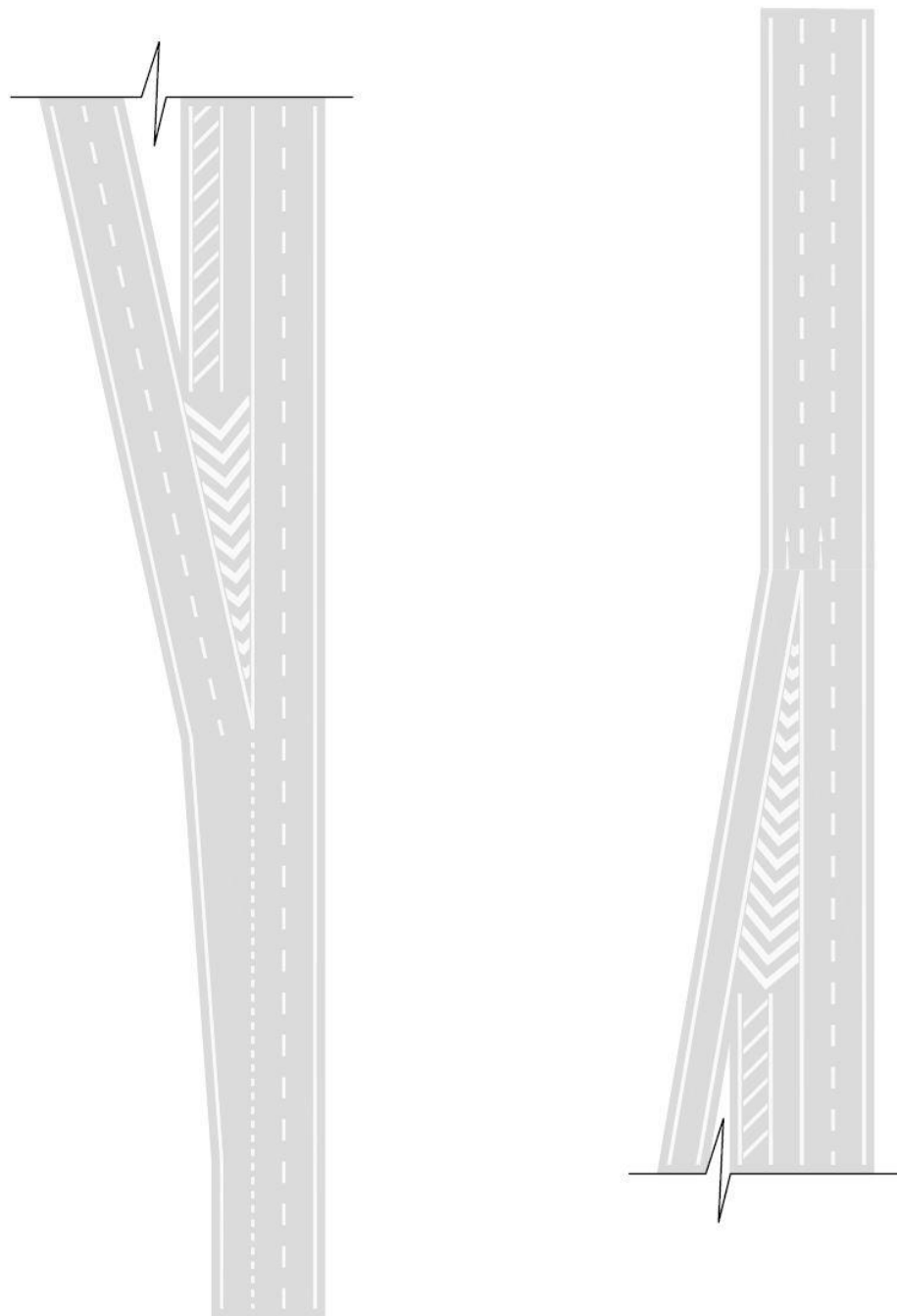
NOTE Offside diverges do not include forks.

3.1.1 At a diverge, or as part of an interchange, the principal signed or through route should continue ahead as the secondary route diverges on the left.

3.2 Reduction in the number of lanes (excluding climbing lanes) shall not take place on the intra-junction link.

3.3 At lane drop/lane gain junctions with 3 lanes upstream of the diverge and 3 lanes downstream of the merge, the intra-junction carriageway shall be the width of 3 lanes (plus hard shoulder if a motorway), with the nearside pavement adjacent to the 2 running lanes hatched out to leave a normal width of hard strip (or hard shoulder if a motorway) as shown in Figure 3.3.

Figure 3.3 Lane drop to two lanes and subsequent lane gain showing hatched pavement for maintenance and traffic management



NOTE *Maintaining a 3 lane width intra-junction provides the necessary space for maintenance and traffic management purposes.*

3.4 At lane drop/lane gain junctions with 3 lanes upstream of the diverge and 3 lanes downstream of the merge, the diverge and merge areas shall allow for the future conversion of the junction from a lane drop/lane gain to a taper diverge and merge with 3 lanes intra-junction.

Datum points

3.5 Merge datum points for the purposes of locating signs, signals and measuring weaving lengths shall be as defined in Table 3.5 and illustrated on Figures 3.14a to 3.14l.

Table 3.5 Merge datum points

Merge layout	Entry datum
A Options 1 & 2, B, C, and E Option 2	End of downstream taper
D	Tip of nose
E Option 1, F, G Option 1 & 2, and H	Downstream tip of ghost island tail

3.6 Diverge datum points for the purposes of locating signs, signals and measuring weaving lengths shall be as defined in Table 3.6 and illustrated on Figures 3.30a to 3.30g.

Table 3.6 Diverge datum points

Diverge layout	Exit datum
A Options 1 & 2, B Options 1 & 2, C and D Option 2	Start of upstream taper
D Layout 1 and F	200m upstream of tip of ghost island head
E	200m upstream of tip of nose

Ghost island width

3.7 The minimum width of a ghost island shall be 1.2 metres at a distance of 50 metres from the tip of the ghost island head or tail.

NOTE 1 Ghost islands less than 1.2 metres in width cannot be marked with a chevron, and therefore 50 metres keeps the unmarked section to a minimum.

NOTE 2 Ghost island layouts can require significant length and this needs to be reflected in land requirements.

Merges and diverges traffic flows

3.8 The mainline maximum vehicles per hour (vph) per lane shall be taken as:

- 1) 1,800 for motorways;
- 2) 1,600 for all-purpose roads.

NOTE The flows for maximum vph per lane do not represent the maximum hourly throughputs that are possible, but greater flows often results in decreasing levels of service and safety.

3.9 Where there is an uphill gradient and a presence of HGVs the hourly design flows for the mainline and merges shall be adjusted in accordance with Table 3.9a and 3.9b.

Table 3.9a Adjustment factors for uphill gradients and for the presence of large goods vehicles on the mainline

% HGVs on mainline	Mainline gradient	
	<2%	≥2%
5	none	1.10
10	none	1.15
15	none	1.20
20	1.05	1.25

Table 3.9b Adjustment factors for uphill gradients and for the presence of large goods vehicles on merge connector roads

% HGVs on merge connector	Merge connector gradient		
	<2%	2% to 4%	>4%
5	-	1.15	1.30
10	-	1.20	1.35
15	1.05	1.25	1.40
20	1.10	1.30	1.45

NOTE Adjustments are not made to diverge flows.

3.10 The mainline gradient used to calculate the adjusted hourly design flows shall be the average gradient over a distance 0.5 km either side of the merge or diverge nose tip.

3.11 The merge connector road gradient used to calculate the adjusted hourly design flows shall be the average of the 0.5 km section before the nose tip.

Merge

Merge layout

3.12 For up to 2 lane merges onto the main carriageway, the adjusted hourly design flows for the worst case peak flow (see Section 3, sub-section "Merge and diverge traffic flows") shall be inserted into Figure 3.12a for all-purpose roads and Figure 3.12b motorways to determine the minimum merge layout to be provided.

Figure 3.12a All-purpose road merging diagram

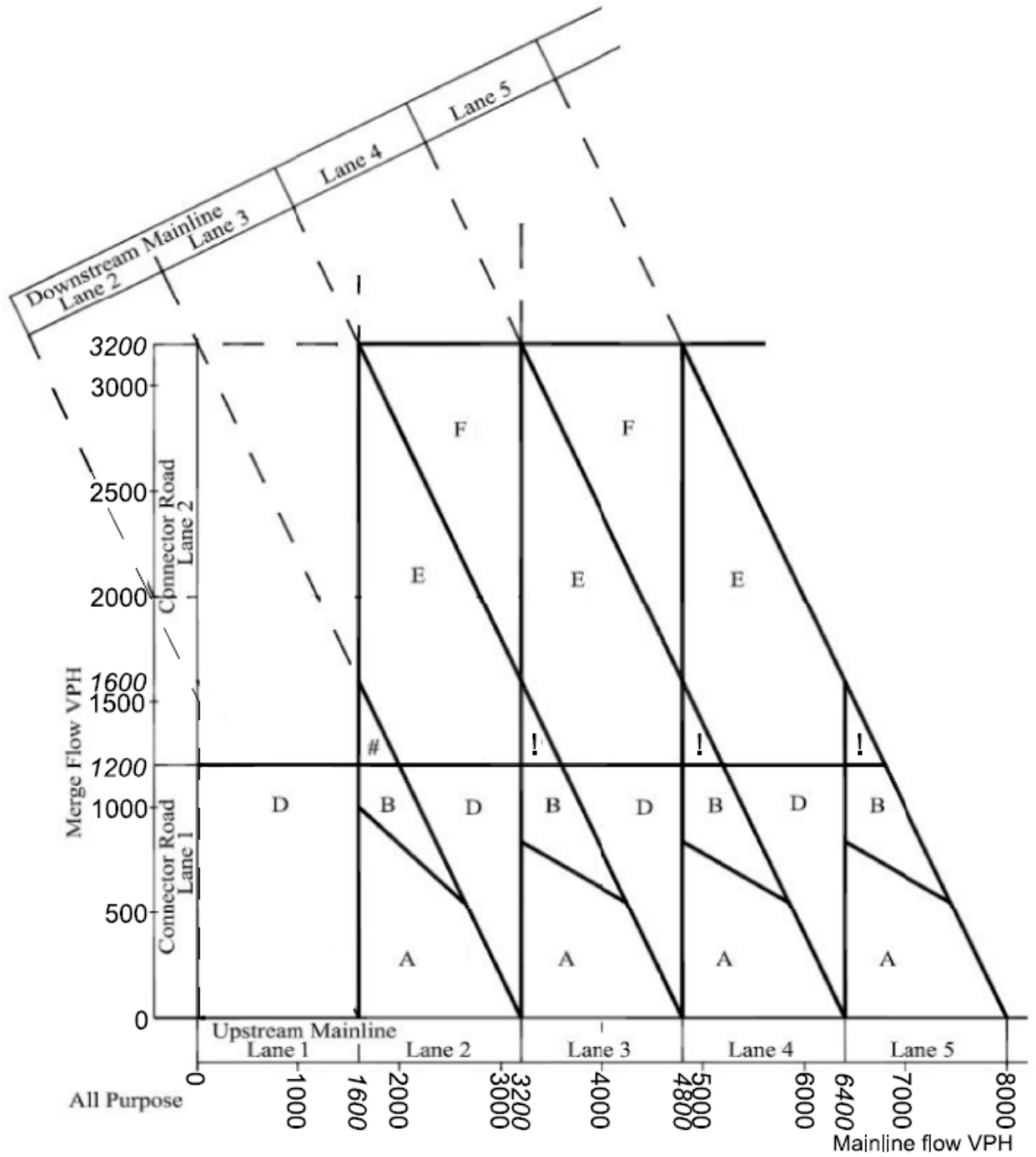
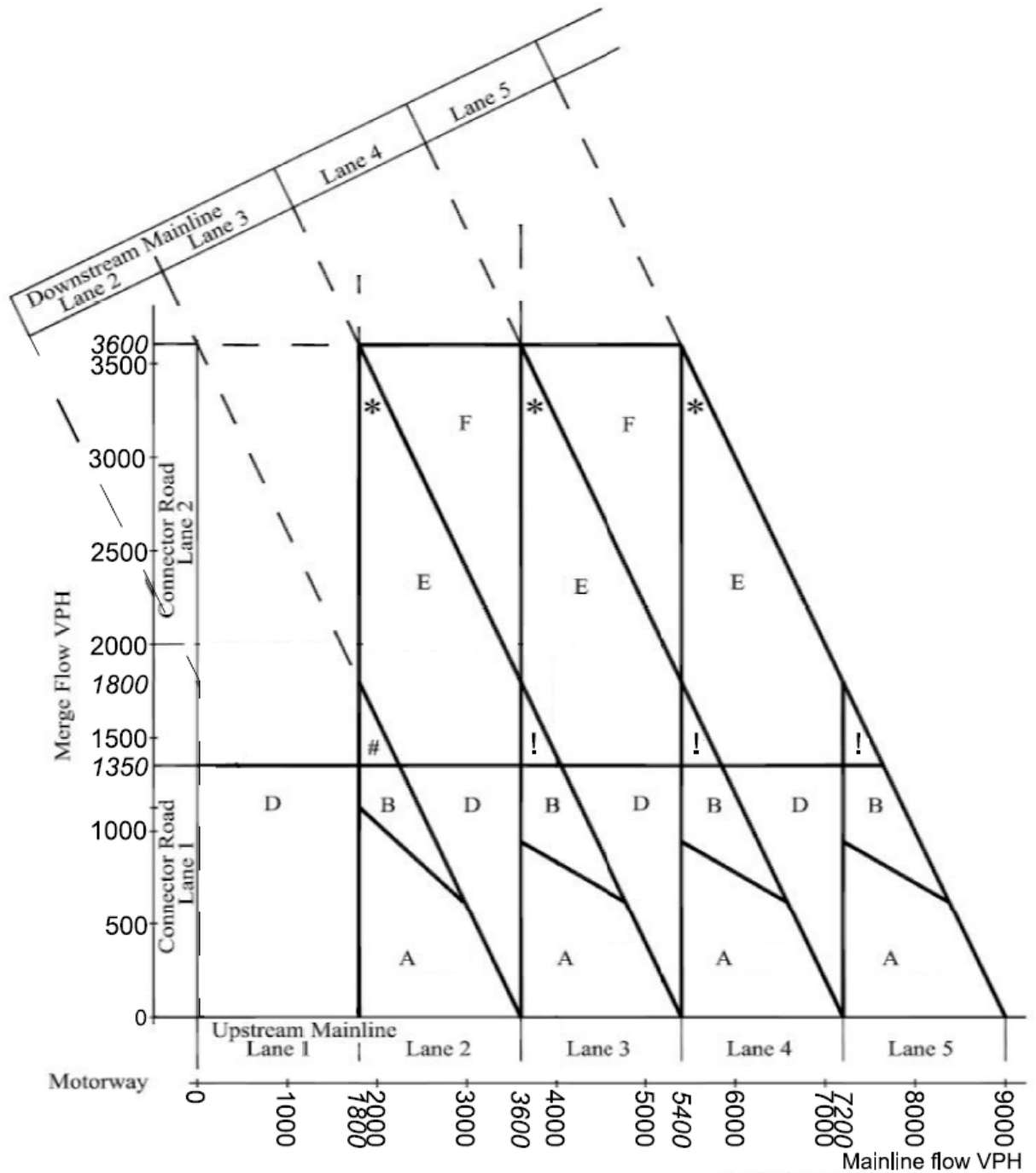


Figure 3.12b Motorway merging diagram



NOTE 1 As an example of how to use Figures 3.12a and 3.12b, if the merge flow is 2000vph and the upstream mainline flow is 4000vph, this would give a Type E layout with 3 lanes upstream and 4 lanes downstream.

NOTE 2 On Figures 3.12a and 3.12b, the # symbol indicates areas of uncertainty and the choice depends on the upstream and downstream provision and the ability for the mainline to accept the flows from the merge.

NOTE 3 On Figures 3.12a and 3.12b, the ! symbol indicates that the minimum layout to be provided is:

- 1) Layout C for rural roads;
- 2) Layout A Option 2 for urban roads.

- 3.12.1 Where the flows are in the region indicated by the * symbol in Figure 3.12b and Layout E option 2 is to be used, an extended auxiliary lane should be provided instead of a taper merge.
- 3.12.2 A merge layout that offers a higher level of capacity than the worst case peak flow may be provided, e.g. Layout C instead of Layout A.
- NOTE* A merge layout that offers less capacity than the worst case peak flow cannot be used e.g. a Layout C instead of Layout F.
- 3.13 For 3 lane merges onto the main carriageway, Layout G or H (see Figures 3.14i to 3.14k) shall be used based on the number of downstream lanes to be provided.
- 3.14 Merge layouts shall be as shown in Figures 3.14a to 3.14k below.

Figure 3.14a Layout A option 1 - taper merge

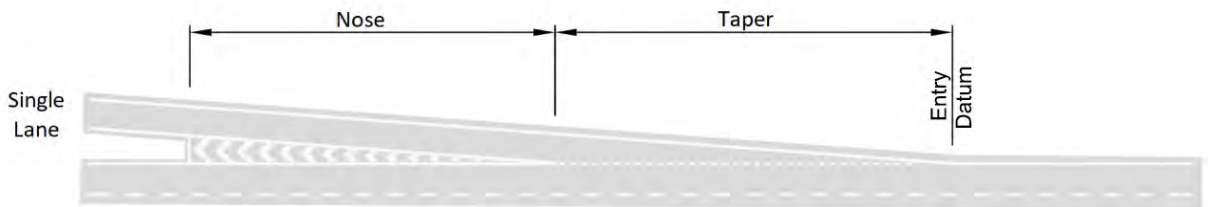


Figure 3.14b Layout A option 2 - 2 lane taper merge

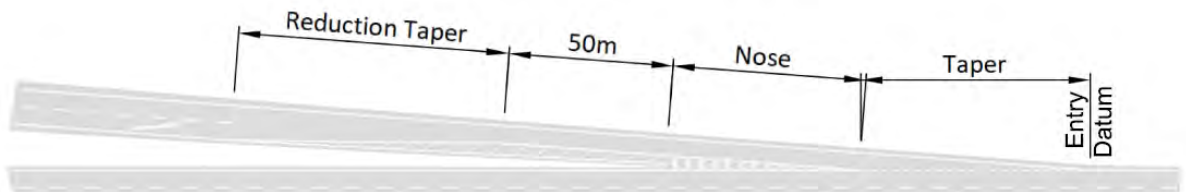


Figure 3.14c Layout B - parallel merge

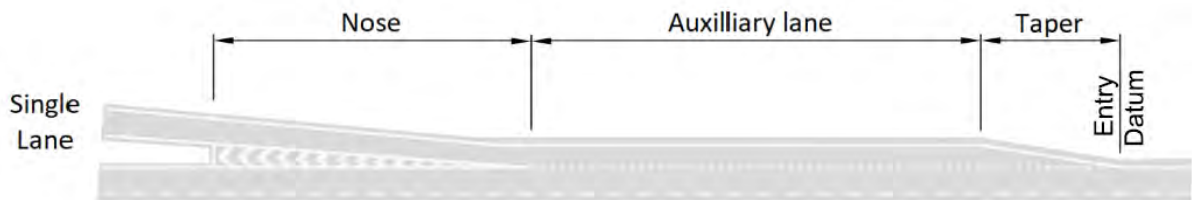


Figure 3.14d Layout C - ghost island merge

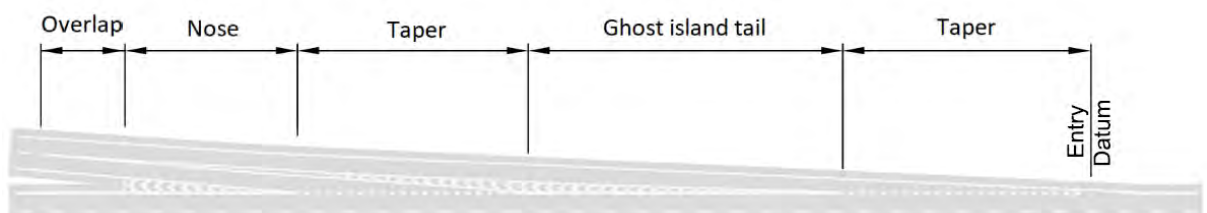


Figure 3.14e Layout D - lane gain

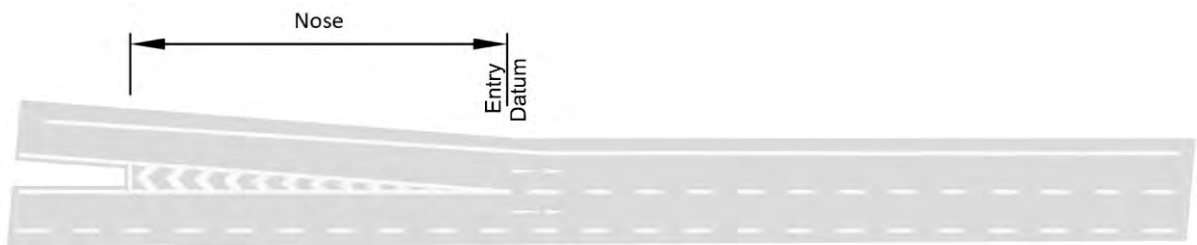


Figure 3.14f Layout E Option 1 - lane gain with ghost island offside merge

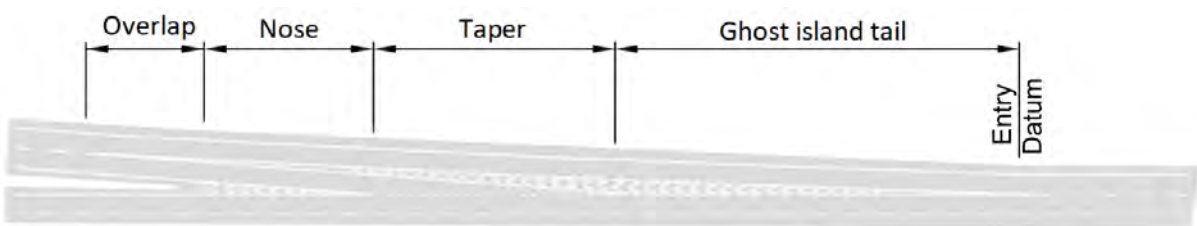


Figure 3.14g Layout E Option 2 - lane gain with ghost island nearside merge

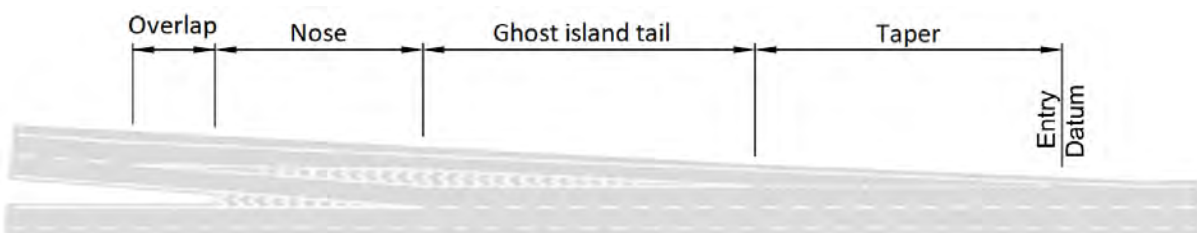


Figure 3.14h Layout F - 2 lane gain with ghost island

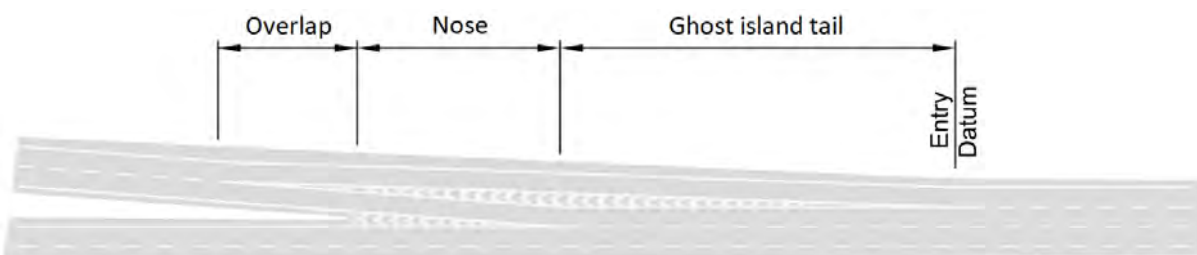


Figure 3.14i Layout G Option 1 - mainline lane gain and double ghost island merge

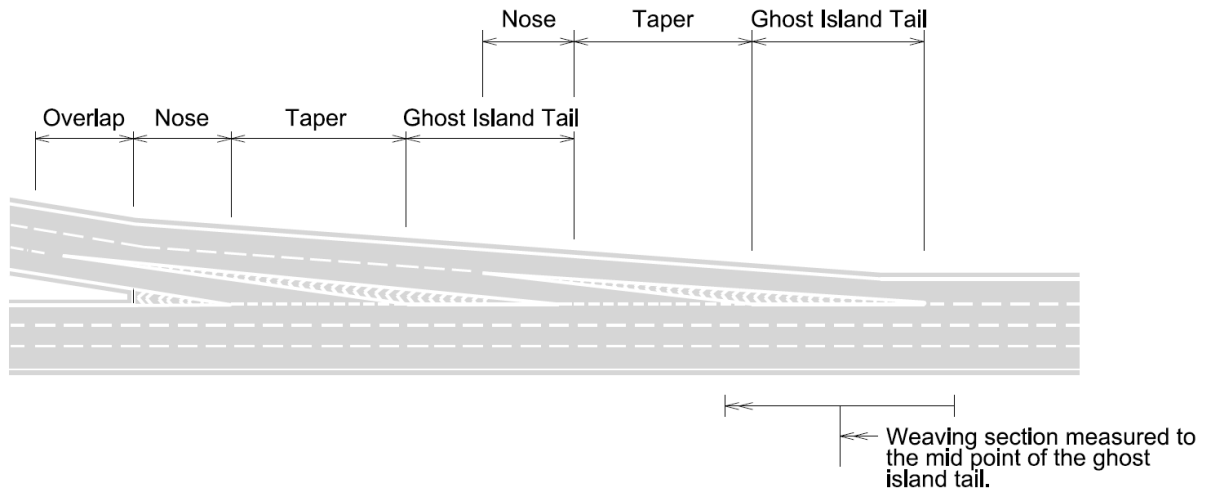


Figure 3.14j Layout G Option 2 - mainline lane gain and single ghost island merge

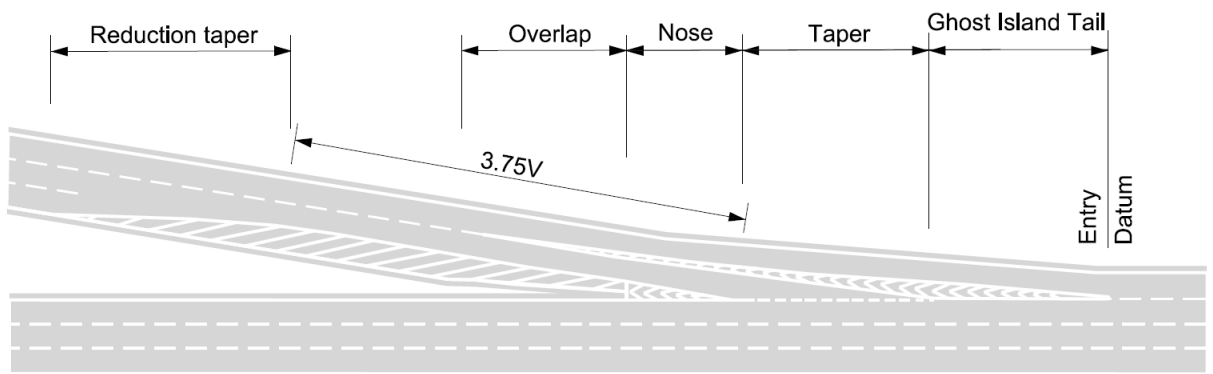
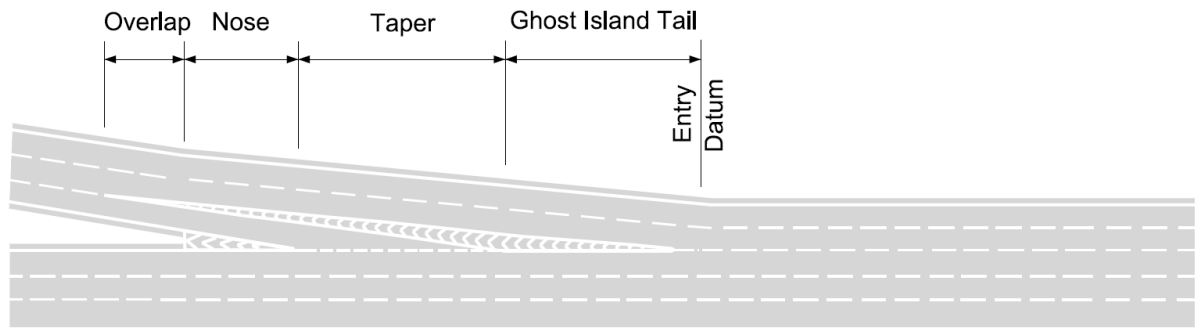


Figure 3.14k Layout H - mainline 2 lane gain and ghost island merge



3.14.1 Layout C should only be used where there are 3 lanes or more on the mainline.

3.14.2 Layout E option 2 should only be used where physical constraints on existing roads prevent Layout E option 1 from being feasible.

NOTE *Layout E option 1 has a larger footprint than Layout E option 2; however it requires potentially slower moving vehicles such as HGVs to merge into a lane carrying potentially faster moving traffic.*

3.14.3 Layout G option 2 should only be used where the merging flow is less than 3 lanes capacity but there is

a need to maintain continuity with the number of upstream lanes (on the slip road).

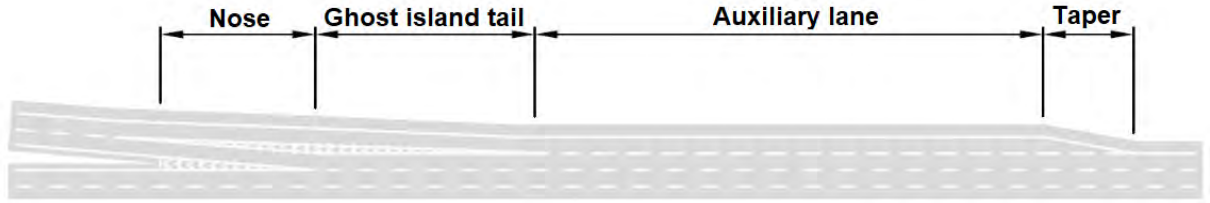
- 3.15 Parallel merges (Layout B) shall be used instead of taper merges (Layout A) if one or more of the following apply:
 - 1) the mainline horizontal radius is less than desirable minimum in a left hand curve direction;
 - 2) the mainline is on an uphill or downhill gradient of 3% or steeper for longer than 1.5 km prior to the start of the taper;
 - 3) the connector road entering a merge is on an uphill gradient of 3% or steeper for longer than 400 metres before the back of nose.
 - 3.16 Ghost island merge layouts shall not be used on urban roads.
 - 3.16.1 For new slip roads on urban roads where a Layout A merge is required, Layout A option 2 may be provided.
 - 3.17 For new slip roads on rural roads where a Layout A merge is to be provided, Layout A option 1 shall be used.
 - 3.18 Where a single lane Layout A option 1 or Layout B merge is to be provided from an existing 2 lane slip road, the slip road shall be reduced to a single lane prior to the nose in accordance with Layout A option 2.
 - 3.19 The reduction taper in Layout A option 2 and Layout G option 2 shall be in accordance with Table 7-4 of TSM Chapter 5 [Ref 5.N].
- NOTE For Layout G option 2, the lane reduction followed by the merge are successive merges and therefore the 3.75v spacing requirements apply (see Section 3, "Successive diverges and merges").*
- 3.20 An overlap of 50 metres shall be provided on Layouts C, E, F, G option 1 and 2 and H.
 - 3.21 The geometric design parameters for a merge layout shall be in accordance with Table 3.21.

Table 3.21 Merge layouts geometric parameters

Road class	Length of entry taper (metres)	Nose ratio (metres)	Nose length (metres)	Minimum auxiliary lane length (metres)	Length of auxiliary lane taper (metres)	Length of ghost island tail (metres)
Rural motorway						
Mainline	205	1:40	115	230	75	180
Within in-terchange	130	1:25	75	160	55	150
Rural all-purpose design speed						
120kph	150	1:30	85	190	55	150
100A kph or less	130	1:25	75	160	55	150
Urban road speed limit						
60 mph	95	1:15	50	125	40	n/a see Note
50 mph or less	75	1:12	40	100	40	n/a see Note

NOTE Lengths are measured along the left edge of the carriageway and shown on Figure 3.21N.

Figure 3.21N Geometrical parameters measurement



3.21.1 On rural motorway mainlines, auxiliary lane lengths should be extended to 370 metres or greater where merge and mainline traffic flows are both forecast to reach or exceed 85% of the maximum design capacities given in Figure 3.12b for more than 1,000 hours per year.

3.21.2 On uphill gradients in excess of 2% and where the proportion of HGVs is greater than 10%, the minimum auxiliary lane lengths given in Table 3.21 should be extended to allow merging traffic to match mainline traffic speed.

NOTE *An extended auxiliary lane on a gradient in excess of 2% where there is a higher proportion of HGVs can provide increased opportunity for merging vehicles to match their speed with mainline traffic.*

3.22 For extended auxiliary lanes, or auxiliary lanes on crests, at least one sign indicating that the number of traffic lanes reduces ahead shall be provided.

3.22.1 For extended auxiliary lanes, or auxiliary lanes on crests, more than one sign indicating that the number of traffic lanes reduces ahead should be provided suitable to the length of auxiliary to be provided.

NOTE *Signs indicating that the number of traffic lanes reduces ahead are useful to drivers merging on extended auxiliary lanes as they can mistake them for lane gains, and on crests because the end of the auxiliary lane might not be obvious.*

Merge visibility

3.23 The connector road stopping sight distance (SSD) shall be provided along the length of the connector road up to the back of nose with the SSD being available at any point along this length.

3.24 The mainline SSD shall be provided from the back of nose.

3.25 Obstructions to visibility between the connector road and mainline shall not occur along the full length of the merge nose.

NOTE *Visibility across the merge nose is necessary to allow merging drivers to see vehicles on the mainline in advance of merging.*

Diverge

Diverge layout

3.26 For up to 2 lane diverges from the main carriageway, the adjusted hourly design flows for the worse case peak flow (see Section 3, sub-section "Merge and diverge traffic flows") shall be inserted into Figure 3.26a and Figure 3.26b to determine the minimum diverge layout to be provided.

Figure 3.26a All-purpose road diverging diagram

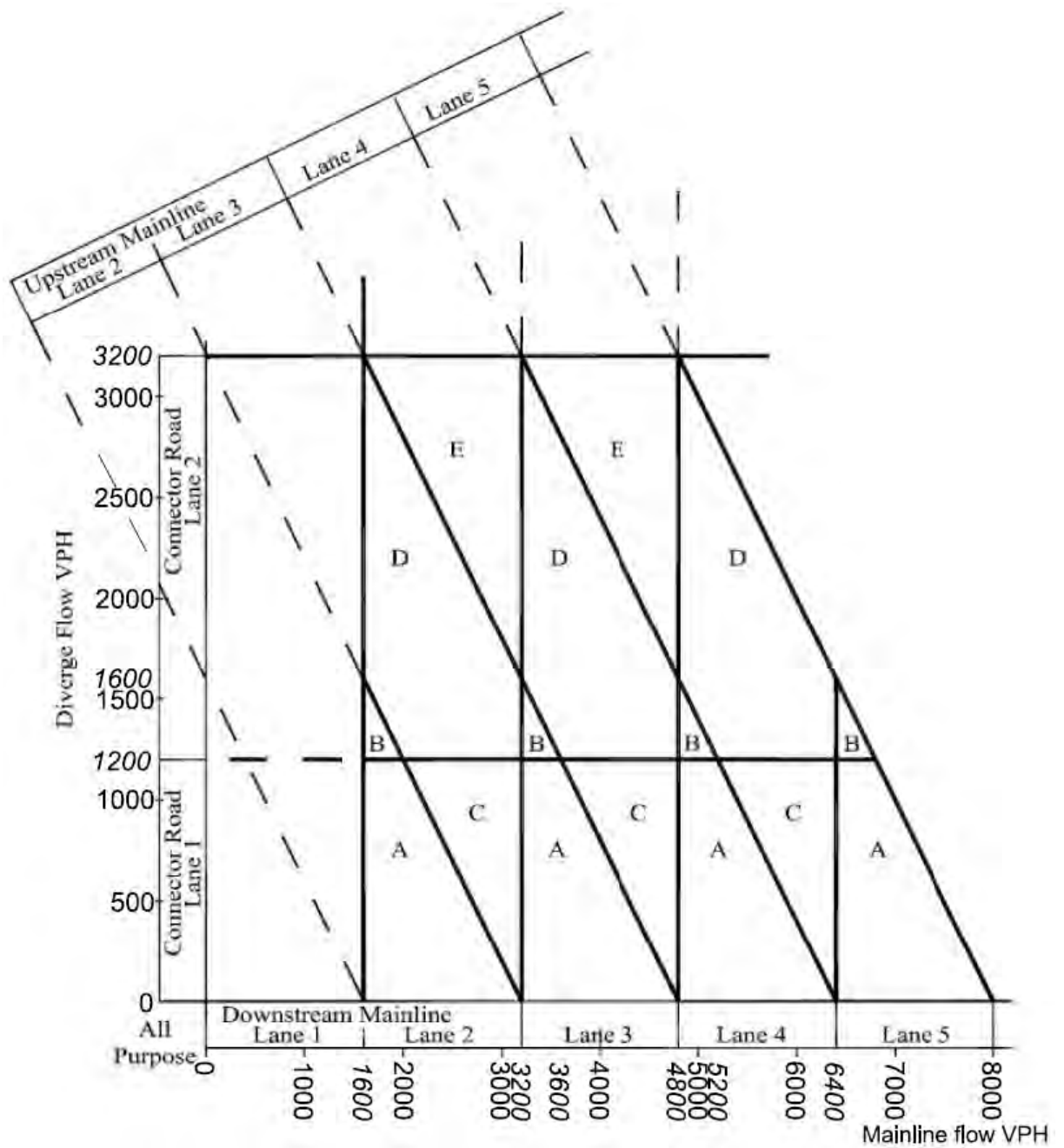
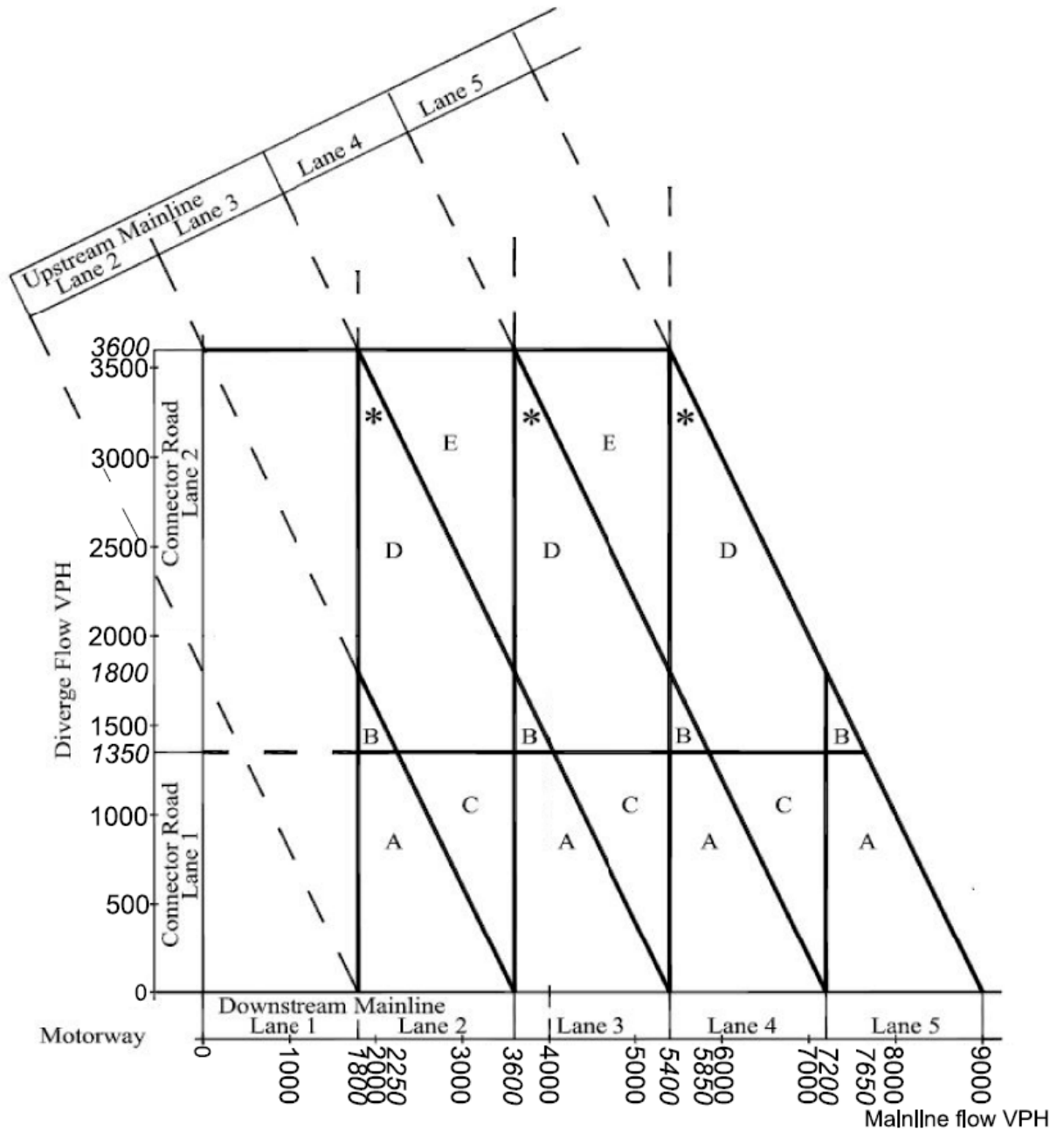


Figure 3.26b Motorway diverging diagram



- NOTE** As an example of how to use Figures 3.24a and 3.24b, if the diverge flow is 2000vph and the downstream mainline flow is 4000vph, this would give a Type D layout with 3 lanes downstream and 4 lanes upstream.
- 3.26.1 Where the flows are in the region indicated by the * symbol in Figures 3.25b and Layout D option 2 is to be used, an extended auxiliary lane should be provided instead of a taper diverge.
- 3.26.2 A diverge layout that offers a higher level of capacity than the worst case peak flow may be provided, e.g. Layout C instead of Layout A.
- NOTE** A diverge layout that offers less capacity than the worst case peak flow cannot be used e.g. a Layout C instead of Layout E.
- 3.27 For situations where 3 lanes on the diverge connector road are needed, Layout F shall be used.

3.28 A parallel diverge (Layout A option 2) shall be used instead of a taper diverge (Layout A option 1) if one or more of the following apply:

- 1) the mainline horizontal radius is less than the desirable minimum in a right hand curve direction;
- 2) the mainline is on an uphill or downhill gradient of 3% or steeper for longer than 1.5 km prior to the start of the taper.

3.29 Diverge Layouts B option 2 and D option 2 shall only be used when modifying an existing diverge.

NOTE For the construction of new junctions and new slip roads at existing junctions, Layouts B option 2 and D option 2 are not used.

3.30 Diverge layouts shall be as shown in Figures 3.30a to 3.30j.

Figure 3.30a Layout A option 1 - taper diverge

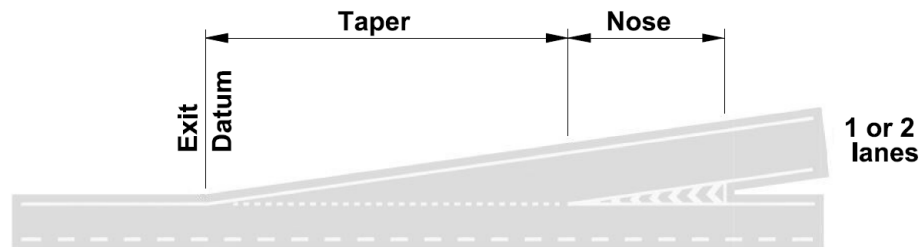


Figure 3.30b Layout A option 2 - Single lane auxillary diverge

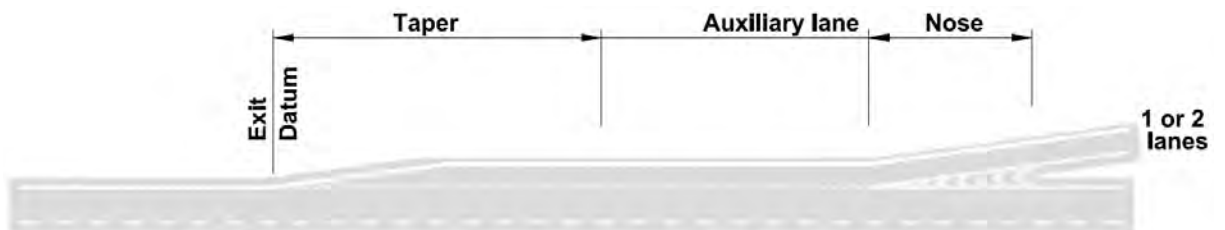


Figure 3.30c Layout B option 1 - ghost island diverge

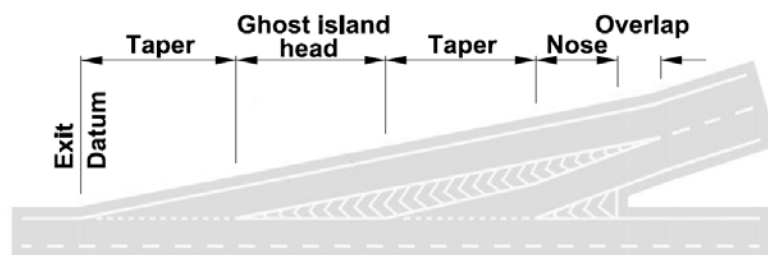


Figure 3.30d Layout B option 2 - Two lane auxillary diverge

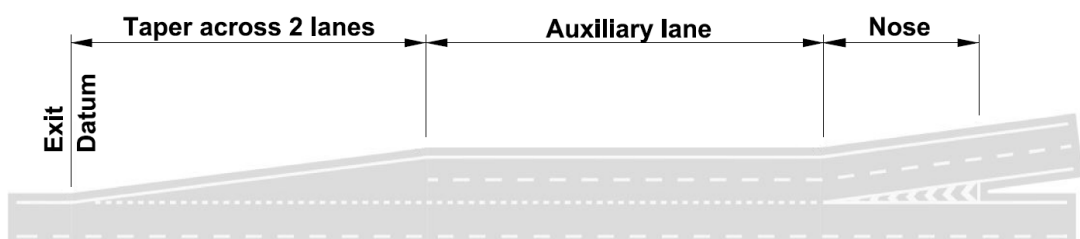


Figure 3.30e Layout C - lane drop

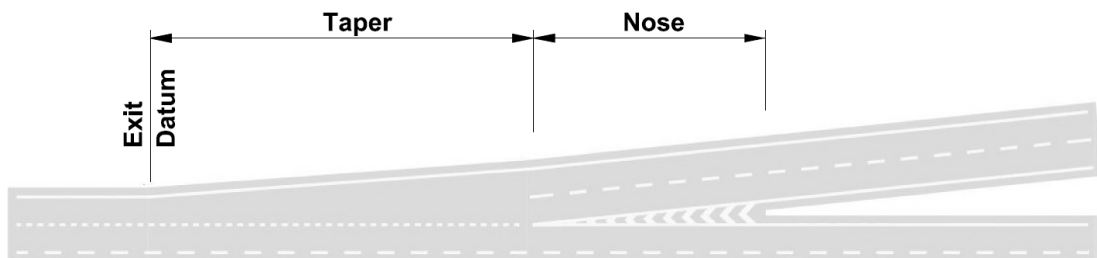


Figure 3.30f Layout D option 1 - ghost island lane drop

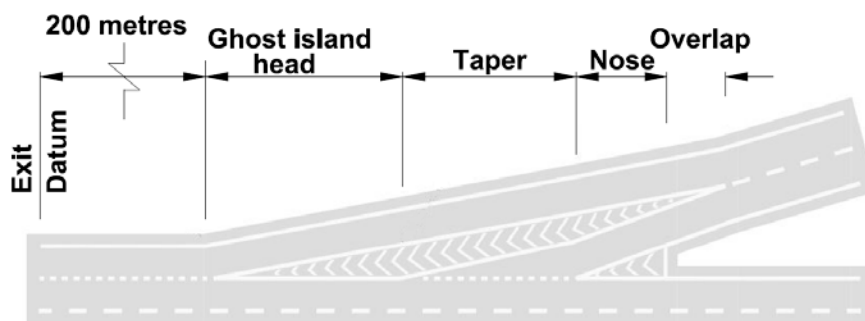


Figure 3.30g Layout D option 2 - auxilliary lane lane drop

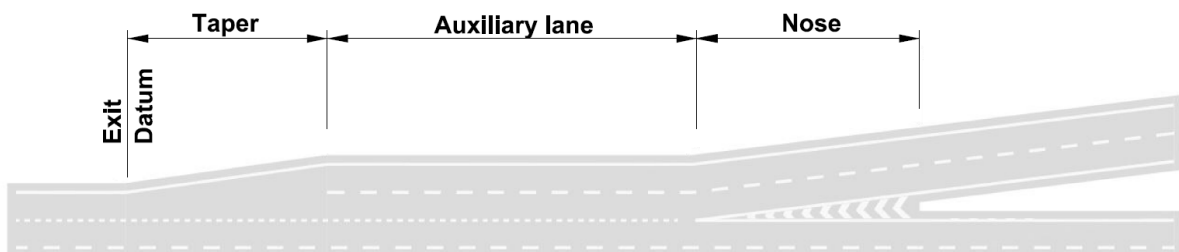


Figure 3.30h Layout E - 2 lane drop

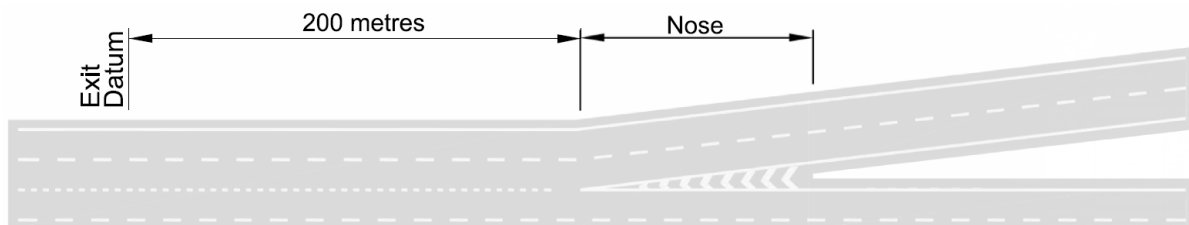
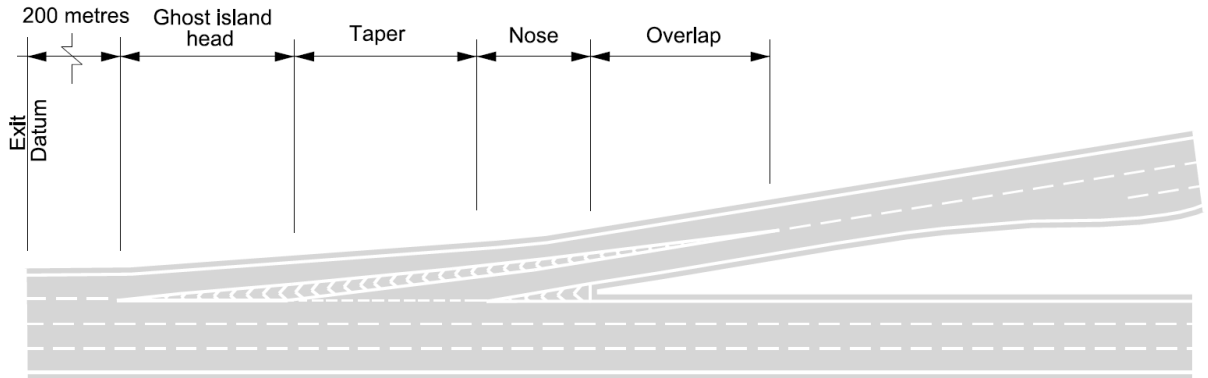


Figure 3.30i Layout F - mainline lane drop and ghost island diverge



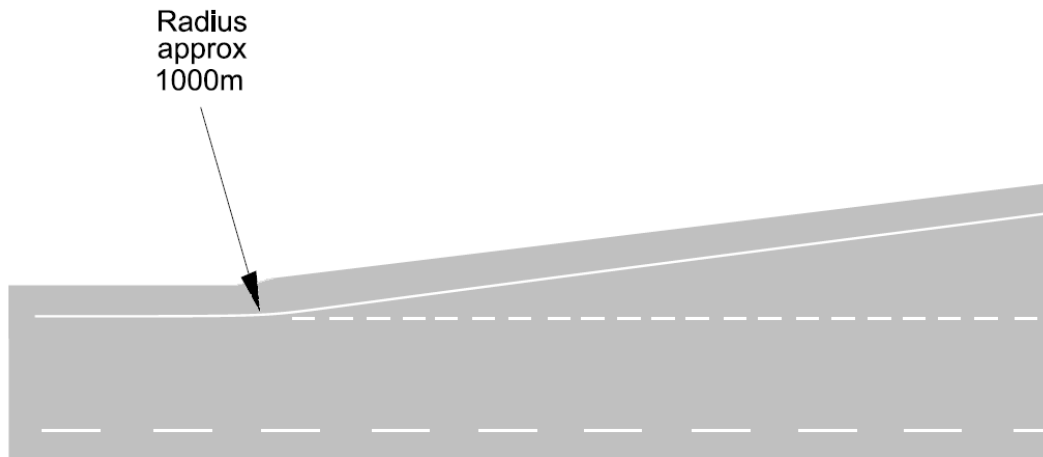
3.31 The geometric design parameters for a diverge shall be as shown in Table 3.31.

Table 3.31 Diverge layouts geometric parameters

Road class	Length of exit taper (metres)		Nose ratio	Nose length (metres)	Minimum auxiliary lane length (metres)	Length of auxiliary lane taper (metres)	Length of ghost island head (metres)
	1 lane	2 lane					
Rural motorway							
Mainline	170	185	1:15	80	200	75	180
Within Interchange	130	130	1:15	70	150	55	n/a
Rural all-purpose design speed							
120 kph	150	150	1:15	70	170	55	160
100 A kph or less	130	130	1:15	70	150	55	140
Urban road speed limit							
60 mph	95	110	1:15	50	125	40	100
50 mph or less	75	90	1:12	40	100	40	80

3.31.1 For diverges, the layout of the edge line should incorporate radii of approximately 1000m at the corners, as illustrated in Figure 3.31.1.

Figure 3.31.1 Example of a 1000m radius edge line corner at a diverge



- 3.32 Countdown markers indicating the distance in hundreds of yards shall be provided on the approaches to all diverges, except where the diverge includes a lane drop.

Diverge visibility

- 3.33 On diverges, mainline SSD shall be provided:
- 1) along the diverge and into the connector road up until the back of the nose, where the length of the connector road is greater than the mainline SSD, as illustrated in Figure 3.33a; or
 - 2) to a 0.26 metre object height at the give way line or stop line from a distance equal to the mainline SSD, where the length of the connector road is equal to or less than the mainline SSD, as illustrated in Figure 3.33b.

Figure 3.33a Application of mainline SSD where the length of connector road is greater than the mainline SSD

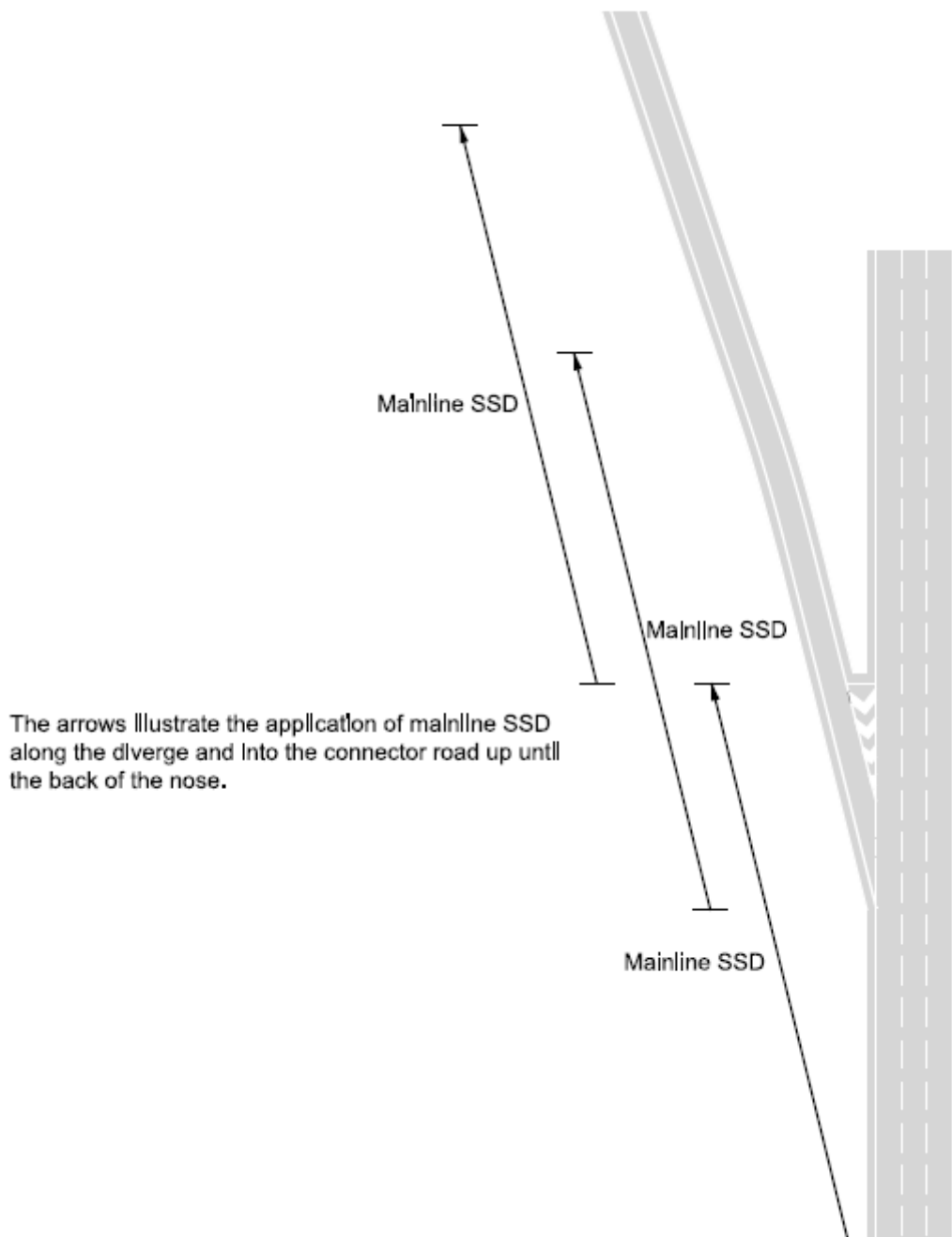
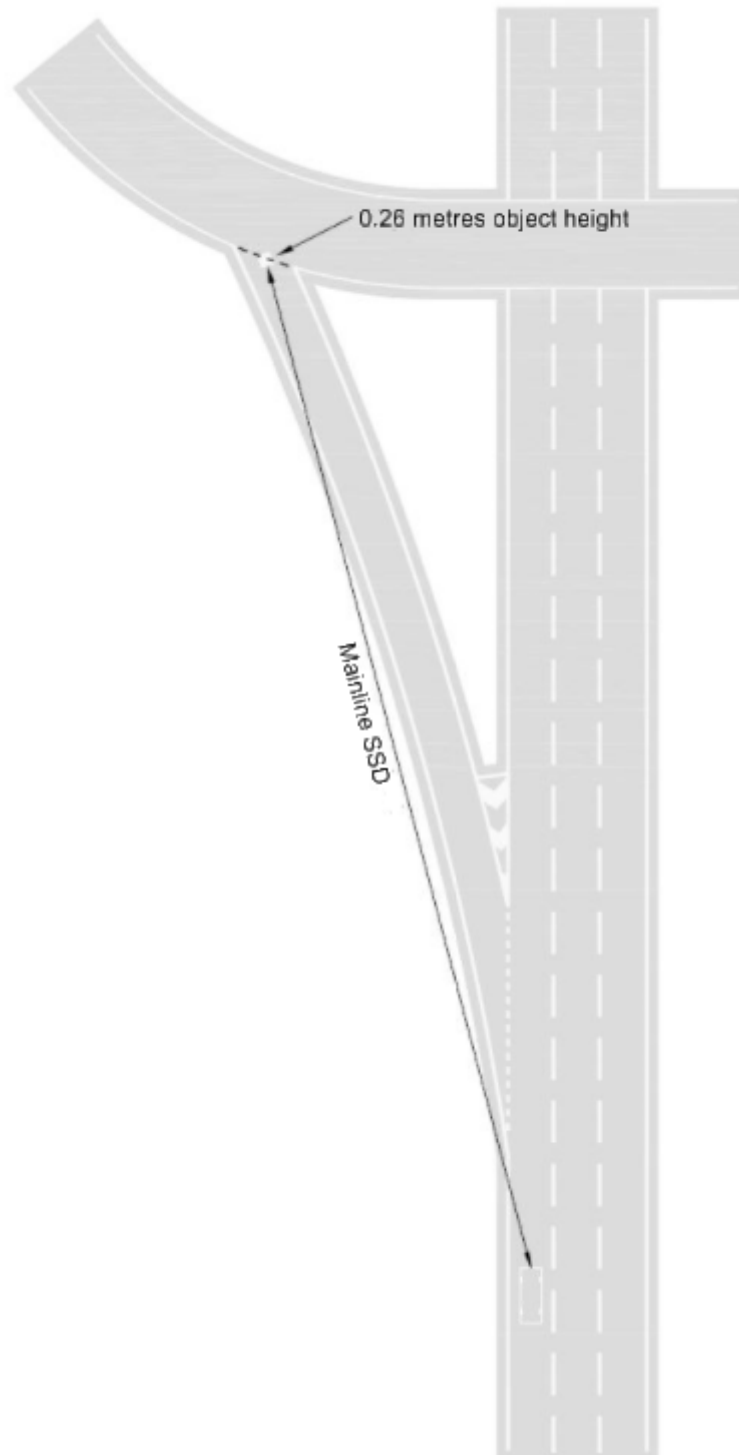


Figure 3.33b Application of mainline SSD where the length of connector road is less or equal to the mainline SSD



NOTE The mainline SSD needs to be available at any point along the diverge up to the back of the nose.

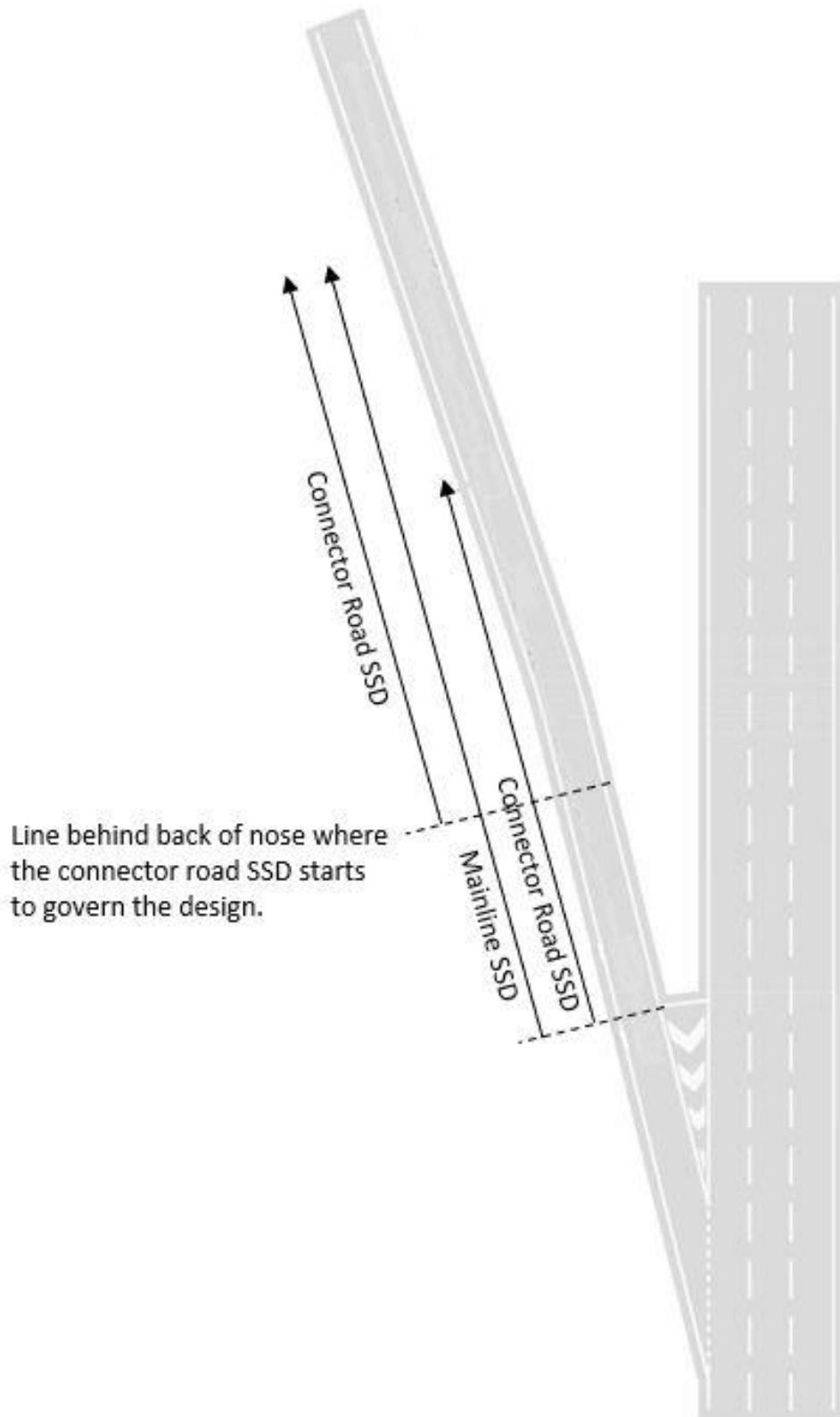
3.34 On diverges, connector road SSD shall be provided from the back of nose.

NOTE 1 At any point along the connector where the connector road SSD would extend beyond the give way or stop line, the SSD only needs to extend to the give way or stop line.

NOTE 2 Instantaneously at the back of nose where the connector road and mainline SSD are both provided, the

mainline SSD is the more onerous. However, beyond the back of nose, when continuation of the mainline SSD is not required, the connector road SSD becomes the more onerous, as illustrated on Figure 3.34N2. As an example, where the mainline SSD is 295m and the connector road SSD is 160m, at a point 135m behind the back of nose the connector road SSD starts to govern the design instead of the mainline SSD.

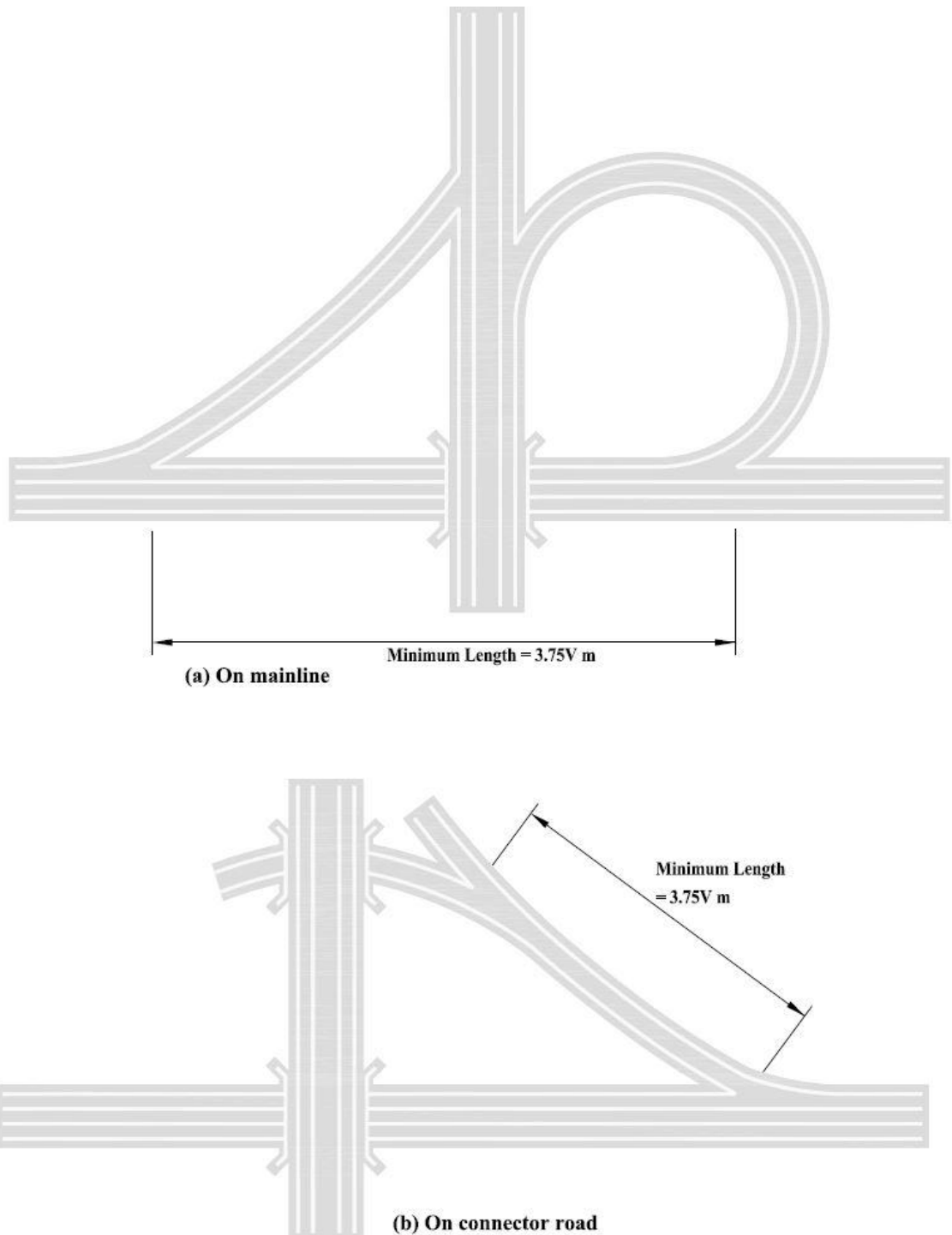
Figure 3.34N2 Example of transition between mainline and connector road SSD governing design



Successive diverges and merges

3.35 The minimum spacing between the tips of the noses of successive merges, successive diverges or a diverge followed by a merge shall be $3.75V$ metres, where V is the design speed of the mainline or connector road (see Figure 3.35).

Figure 3.35 Example of successive merges/diverges



NOTE Spacing between a merge and a diverge is determined by weaving lengths.

- 3.35.1 Spacing greater than the minimum between successive merges and diverges may be provided to accommodate signing and motorway signalling.
- 3.35.2 Diverges for left and right turning traffic at interchanges should be combined so that all turning traffic leaves the mainline at one diverge, instead of multiple successive diverges from the mainline.

NOTE Combining both diverging flows results in less complex layout that is easier to sign and reduces the number of route choice made on the mainline.

Forks

- 3.36 Forks shall only be used on interchange links with a design speed of 70 kph or 85 kph.
- 3.37 At a fork, the taper shall be developed as shown in Table 3.37 and Figure 3.37a and 3.37b.

Table 3.37 Geometric design parameters for a fork within an interchange link

Interchange link design speed	Length of taper (metres)		Nose ratio	Nose length (metres)
	1 lane	2 lanes		
70/85 kph	75	90	1:12	40

Figure 3.37a Development of taper at a single lane fork

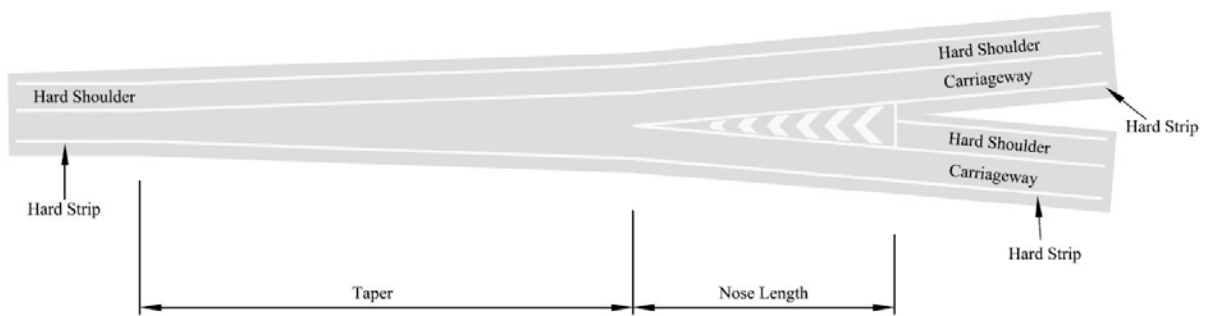
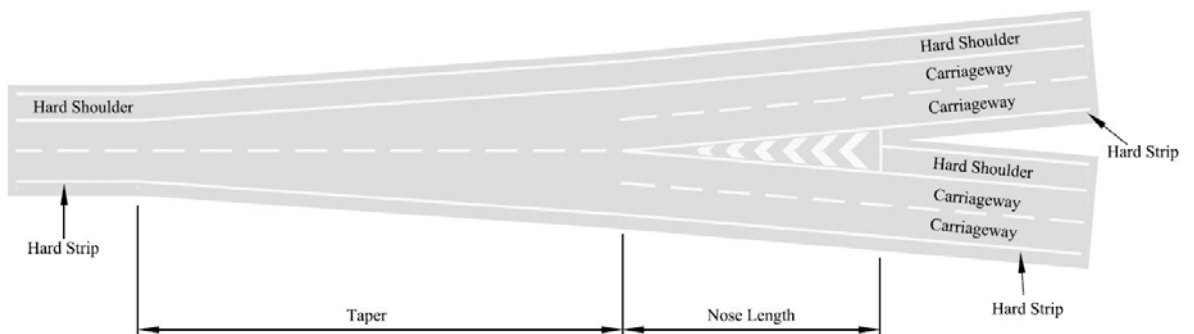
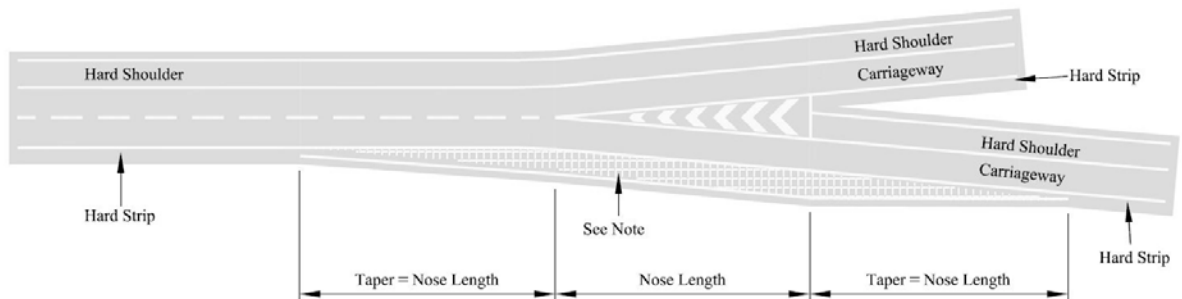


Figure 3.37b Development of taper at a two lane fork



- 3.38 On forks where a single lane passes to the right, the offside verge shall be hardened and hatched out using road markings opposite the nose and for a length before and after as illustrated on Figure 3.38.

Figure 3.38 Hardened verge at single lane fork



NOTE *The hardened verge can accommodate a broken down vehicle and allow other road users to pass.*

3.38.1 The hardened verge should be capable of withstanding the weight of traffic.

3.39 The maximum width of the offside hardened verge shall be that of the nearside hard shoulder.

4. Full grade separated: weaving and spacing

General

4.1 For all-purpose roads, the minimum length between a full grade separated junction and an at-grade junction, service area and lay-by shall be:

- 1) 1 km for rural roads; and
- 2) the minimum weaving section length as derived for urban roads.

NOTE At-grade junctions include priority junctions, signal controlled junctions, roundabouts and direct accesses.

4.2 A weaving section shall be assessed using the weaving section lanes calculation where successive full grade separated junctions are spaced less than:

- 1) 3 km for rural motorways; and
- 2) 2 km for rural all-purpose roads.

NOTE 1 An assessment of weaving is only required between closely spaced (less than 3km for rural motorways and 2km for rural all-purpose roads) successive junctions where a merge is followed by a diverge.

NOTE 2 On motorways up to 5 lanes wide, merges and diverges tend not to interact where they are spaced over 3 km apart.

NOTE 3 On all-purpose roads up to 3 lanes wide, merges and diverges tend not to interact where they are spaced over 2 km apart.

NOTE 4 Weaving section lanes calculation is provided in Equation 4.7.

4.3 Motorway service areas accesses shall be treated as a junction for the purpose of weaving assessments.

Weaving section length

Measurement of weaving sections

4.4 Weaving sections shall be measured to/from the points detailed in Tables 4.4a and 4.4b.

Table 4.4a Weaving section measurement points - merges

Merge type	Measurement point
Layouts A1, A2 and D	Entry datum point
Layout B	As defined in Figure 4.4a
Layout C	As defined in Figure 4.4b
Layouts E1, E2, G2 and H	As defined in Figure 4.4c
Layout F	As defined in Figure 4.4d
Layout G1	As defined in Figure 4.4e

Table 4.4b Weaving section measurement points - diverges

Diverge type		Measurement point
Layout A1		Exit datum point
Layouts A2 and B2		As defined in Figure 4.4f
Layout B1		As defined in Figure 4.4g
Layouts C, D1, D2, E, and F	≥100kph design speeds	Exit datum point + 100 metres as defined in Figure 4.4h
	≤85kph design speeds	Exit datum point + 50 metres as defined in Figure 4.4h

Figure 4.4a Auxilliary lane merge weaving section

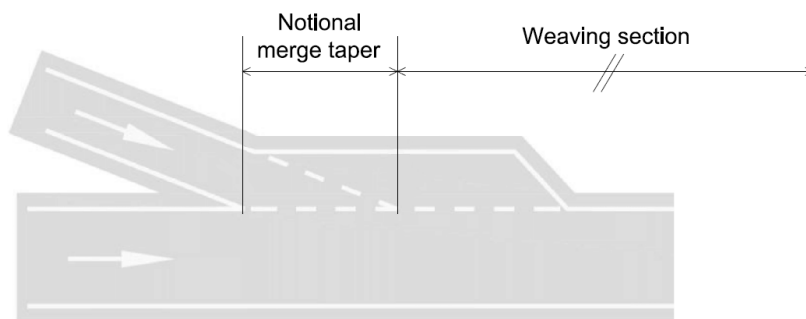


Figure 4.4b Ghost island merge weaving section

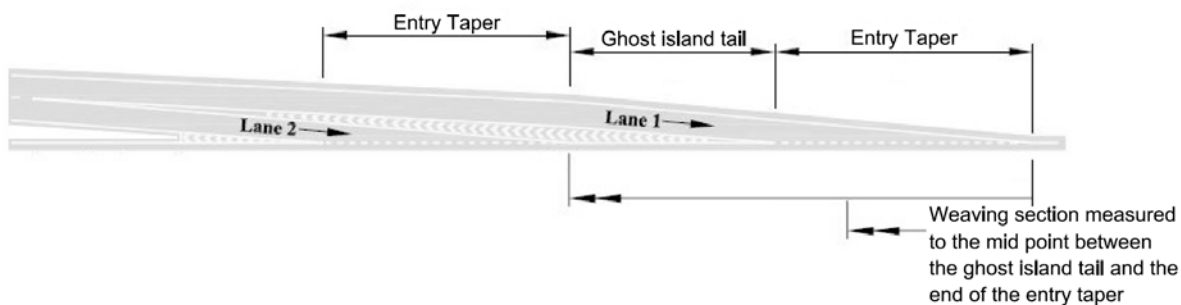


Figure 4.4c Ghost island and lane gain merge weaving section

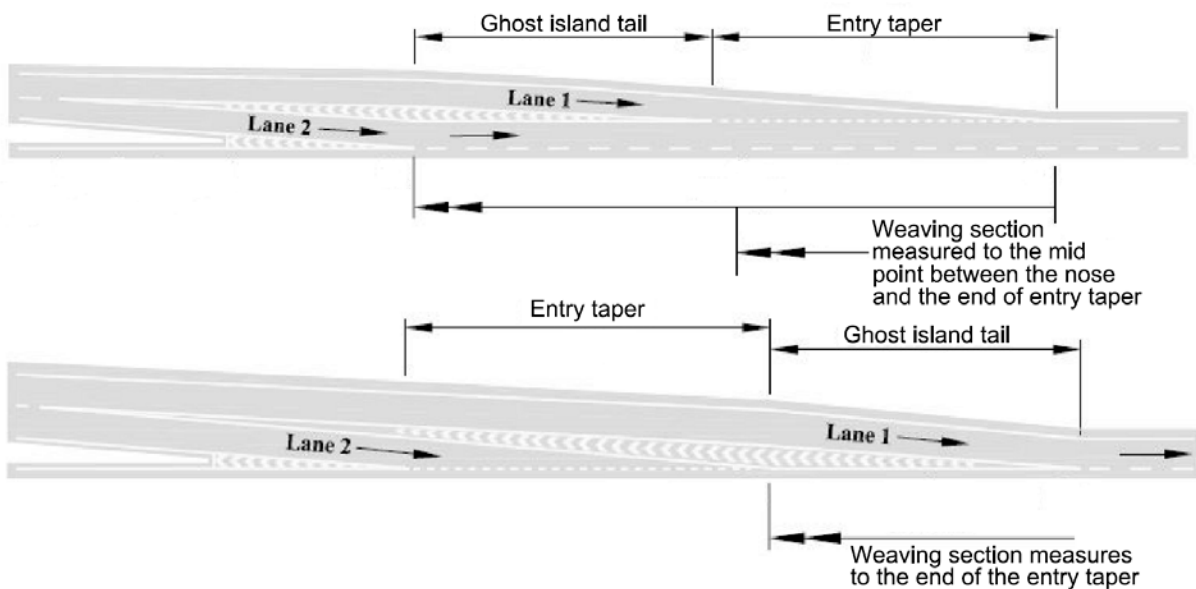


Figure 4.4d Ghost island and two lane gain merge weaving section

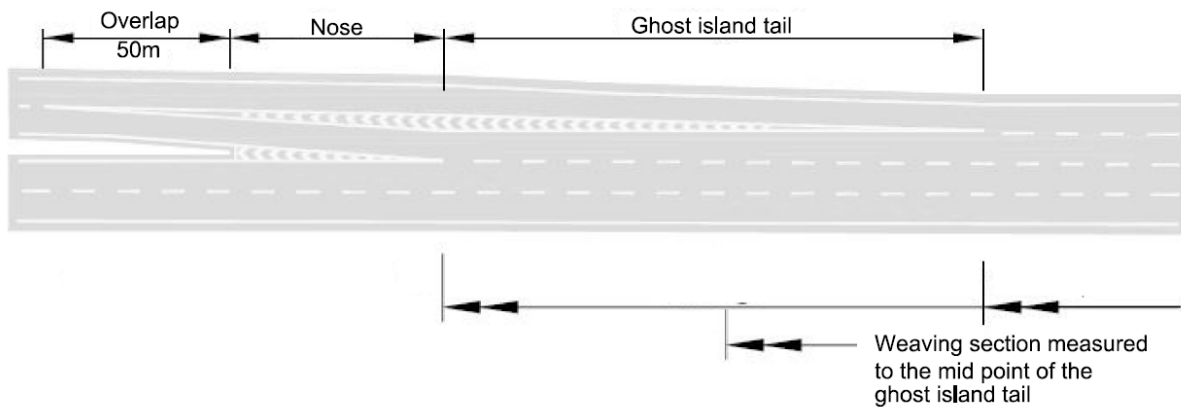


Figure 4.4e Double ghost island and lane gain merge weaving section

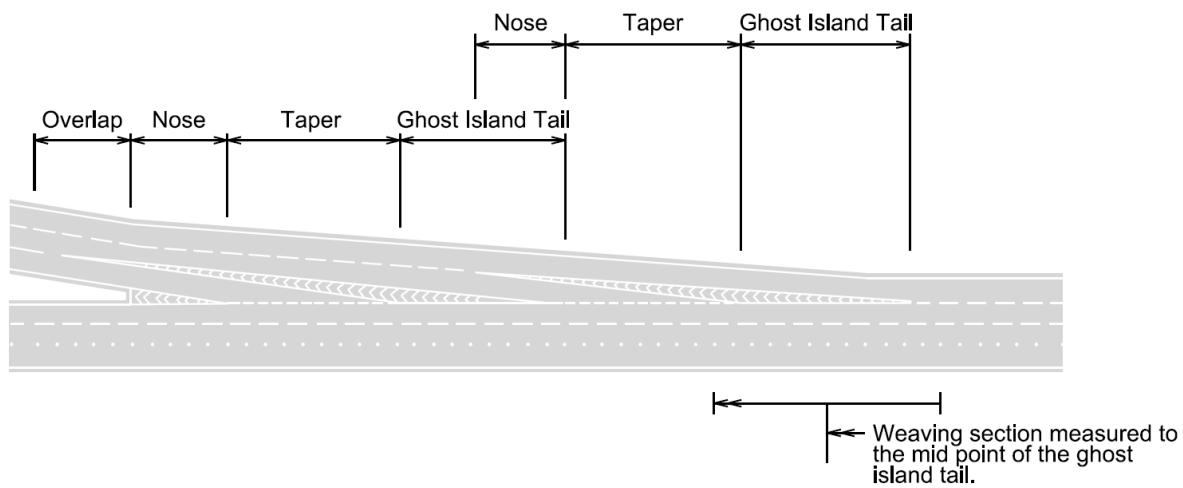


Figure 4.4f Auxilliary lane diverge weaving section

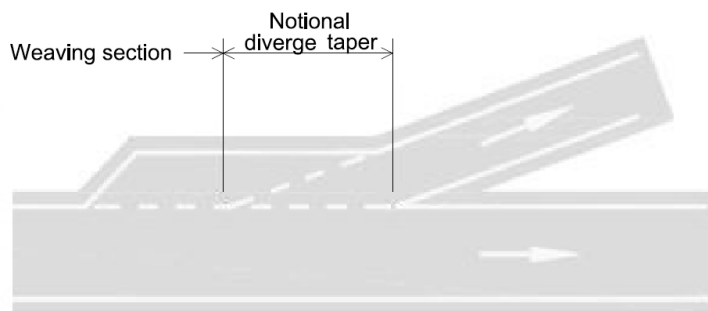


Figure 4.4g Ghost Island and direct taper diverge weaving section

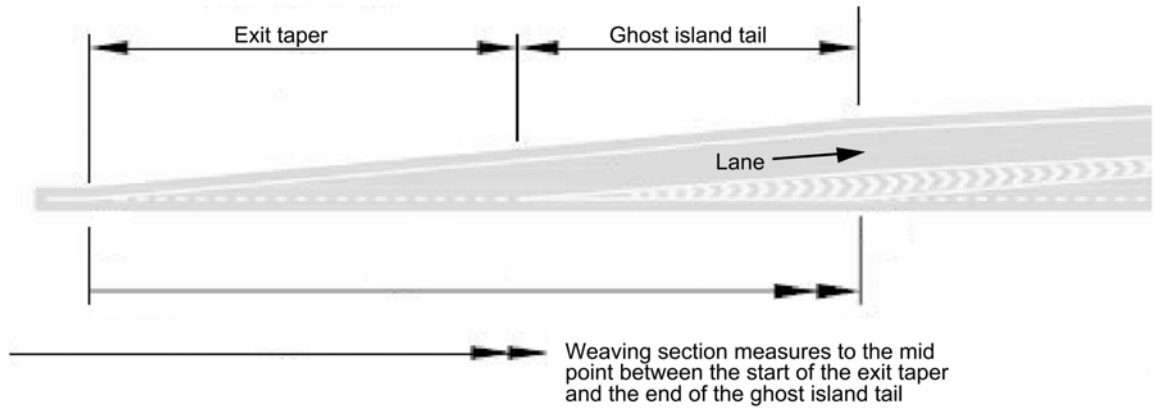
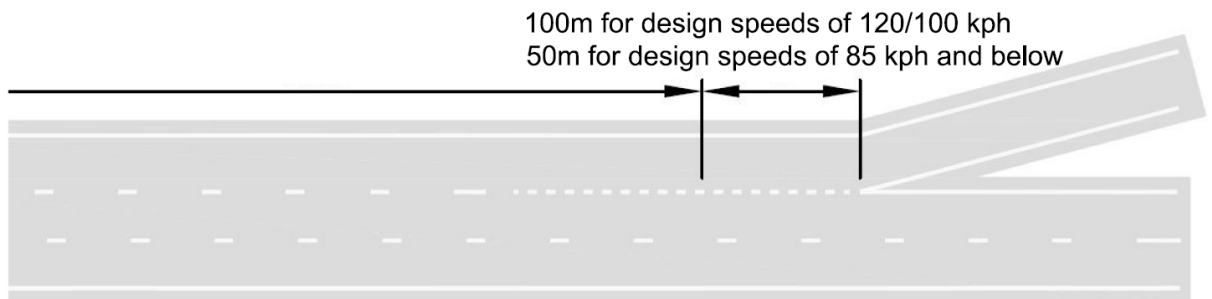


Figure 4.4h Lane drop diverge weaving section



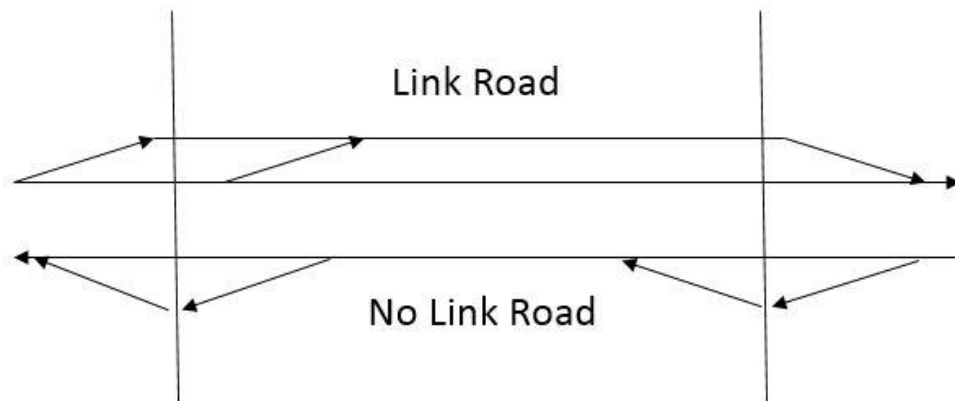
Minimum length of weaving sections

4.5 For rural roads, the minimum weaving section length shall be:

- 1) 2 km for motorways; and
- 2) 1 km for all-purpose roads.

NOTE Where the minimum weaving section length cannot be provided between two closely spaced grade separated junctions, the need for a weaving section can be eliminated by the inclusion of link roads between the junctions, as illustrated in Figure 4.5N.

Figure 4.5N Indicative link road layout



- 4.6 For urban roads, the minimum weaving section length shall be the greater of:
- 1) the minimum weaving section length from Figure 4.6a based on the design speed; and
 - 2) the minimum weaving section length from Figure 4.6b based on the design flows.

Figure 4.6a Minimum weaving length for urban roads based on design speed

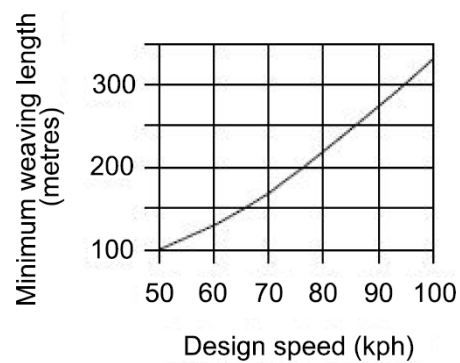
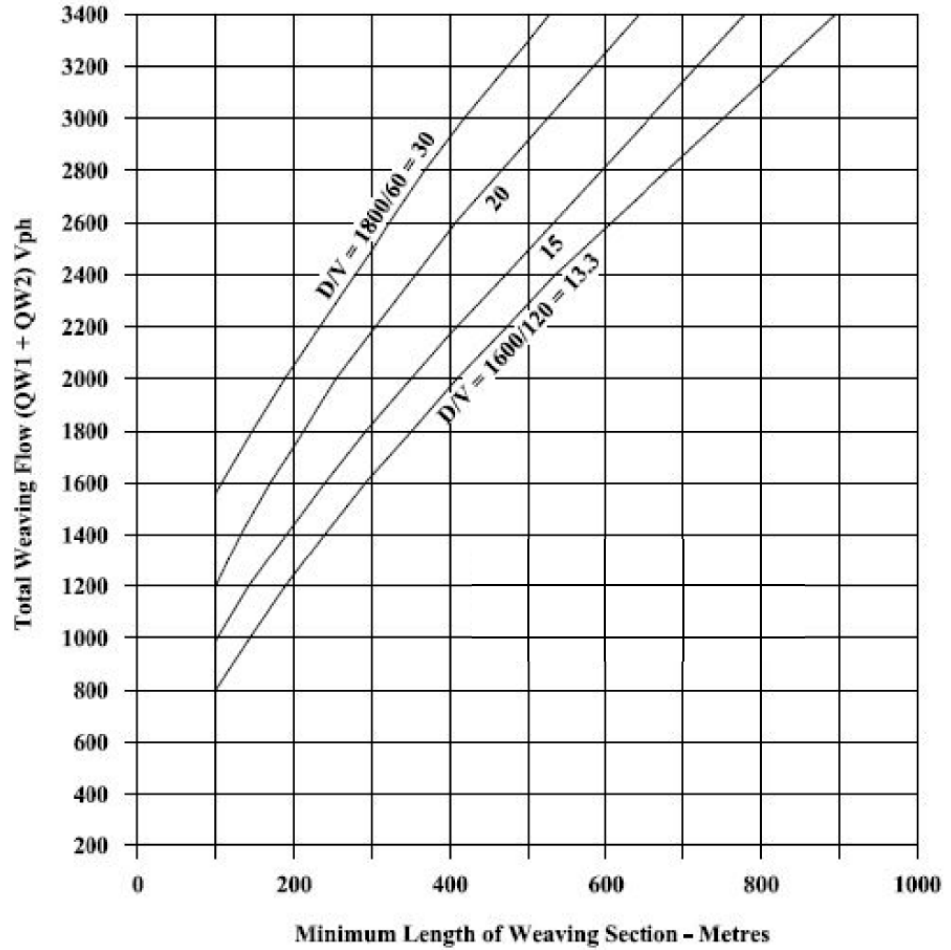


Figure 4.6b Minimum weaving section length for urban roads based on design flows



- NOTE 1 *In Figure 4.6b, D is the hourly flow and V is the design speed of the mainline upstream of the weaving section.*
- NOTE 2 *For urban roads, the design flows are adjusted for uphill gradients and the presence of HGVs by using Table 3.9a.*
- NOTE 3 *When determining the appropriate spacing between successive merges and diverges, it is necessary to consider whether the spacing is sufficient to accommodate the necessary advance directional signage.*

Weaving section lanes calculation

4.7 The number of lanes to be provided within a weaving section shall be calculated using Equation 4.7.

Equation 4.7 Number of traffic lanes required for weaving

$$N = \frac{1}{D} \left(Q_{nw} + Q_{w1} + Q_{w2} \left(2 \frac{L_{min}}{L} + 1 \right) \right)$$

where:

N	Number of traffic lanes
Q_{nw}	Total non-weaving flow in vph
Q_{w1}	Major weaving flow in vph
Q_{w2}	Minor weaving flow in vph
	Maximum mainline flow
D	1) for motorways: 1,800 vph per lane 2) for all-purpose roads: 1,600 vph per lane
L_{min}	Minimum weaving length for the road class
L	Available (measured) weaving length available

NOTE 1 The principle of the weaving section lanes calculation is that the weaving length is fixed based on road type and the carriageway width is calculated from the lane formula. The purpose of this is to establish the need for the addition of one or two auxiliary lanes.

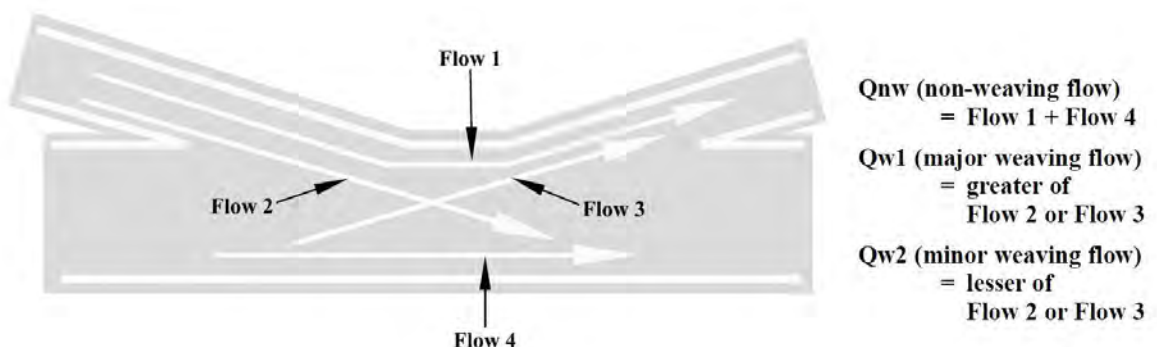
NOTE 2 For the purpose of the calculation the 'available weaving length' is never less than the 'minimum weaving length'.

NOTE 3 The purpose of calculating lanes for weaving sections is to determine whether any additional lanes are needed over and above those provided for in Figures 3.12a, 3.12b, 3.26a and 3.26b.

NOTE 4 For weaving sections on motorways and dual carriageway roads, design flows are calculated as indicated in Section 3.

NOTE 5 The flows Q_{nw} , Q_{w1} and Q_{w2} are formed as indicated in Figure 4.7N5.

Figure 4.7N5 Flow terms used in weaving



4.7.1 Where the calculation of the number of traffic lanes required results in a fractional number of lanes, the number of lanes should be rounded up where the fractional part is 0.5 or greater.

4.7.2 Where the calculation of the number of traffic lanes required results in a fractional number of lanes, the number or lanes should be rounded up or down where the fractional part is less than 0.5 based on:

- 1) the number of lanes required on the merge or diverge connector roads;

- 2) whether the route is likely to be used by a high proportion of drivers who can be unfamiliar with the layout and therefore weave less efficiently, e.g. routes associated with tourist destinations;
- 3) the potential for future growth and the need for greater provision at a later date; and/or
- 4) environmental constraints.

4.7.3 Where there are 5 lanes or more, non-weaving traffic may be excluded from the weaving section lanes calculation if it travels in a reserved lane.

NOTE A reserved lane is a lane carrying traffic that is segregated from weaving traffic.

5. Connector roads

Full grade separated connector road geometry

- 5.1 Two way slip roads shall be in the form of a dual carriageway with opposing traffic separated by a physical central reserve with vehicle restraint system.
- 5.2 Direct accesses and priority junctions shall not be provided on connector roads.
- 5.3 Single lane interchange links shall only be provided:
 - 1) where their length does not exceed 1 km and they are on an average uphill gradient of up to 3%, are level or on a downhill gradient; and
 - 2) where their length does not exceed 0.5 km and they are on an average uphill gradient of 3% or steeper.

Design speed, horizontal and vertical geometry and superelevation

- 5.4 The minimum design speeds for connector roads shall be in accordance with Table 5.4.

Table 5.4 Connector road design speed

		Mainline design speed			
		Urban 100 kph	Urban 85 kph	Rural 120 kph	Rural 100A kph
Connector road design speed (kph)	Interchange link	70	70	85	85
	Slip road	60	60	70	70
	Link road	100 or 85 see 5.4.1	85 or 70 see 5.4.1	120 or 100A see 5.4.1	100A or 85 see 5.4.1
	Dumb-bell link road	70	70	70	70

NOTE TD 9 [Ref 3.N] provides the base geometric parameters for the design speeds.

- 5.4.1 On link roads the lower design speed in Table 5.4 should only be used where an appropriate mandatory or advisory speed limit is signed.
- 5.5 A slip road longer than 0.75 km shall be designed as an interchange link.
- 5.6 Any transition curves at locations where the design speed changes shall be designed to the higher design speed value.
- 5.7 On connector roads linking to motorways the longitudinal gradient shall not exceed 6%.
- 5.7.1 Diverge and merge slip roads should be on uphill and downhill gradients respectively.

NOTE Uphill diverges help diverging traffic reduce their speeds on the approach to the end of the slip road and downhill merges help merging traffic accelerate to the mainline speed.

- 5.8 Connector roads shall include a near straight at the back of nose, at least equal in length to the nose.

NOTE 1 Nose lengths are given in Table 3.21 and Table 3.31 for merges and diverges, respectively.

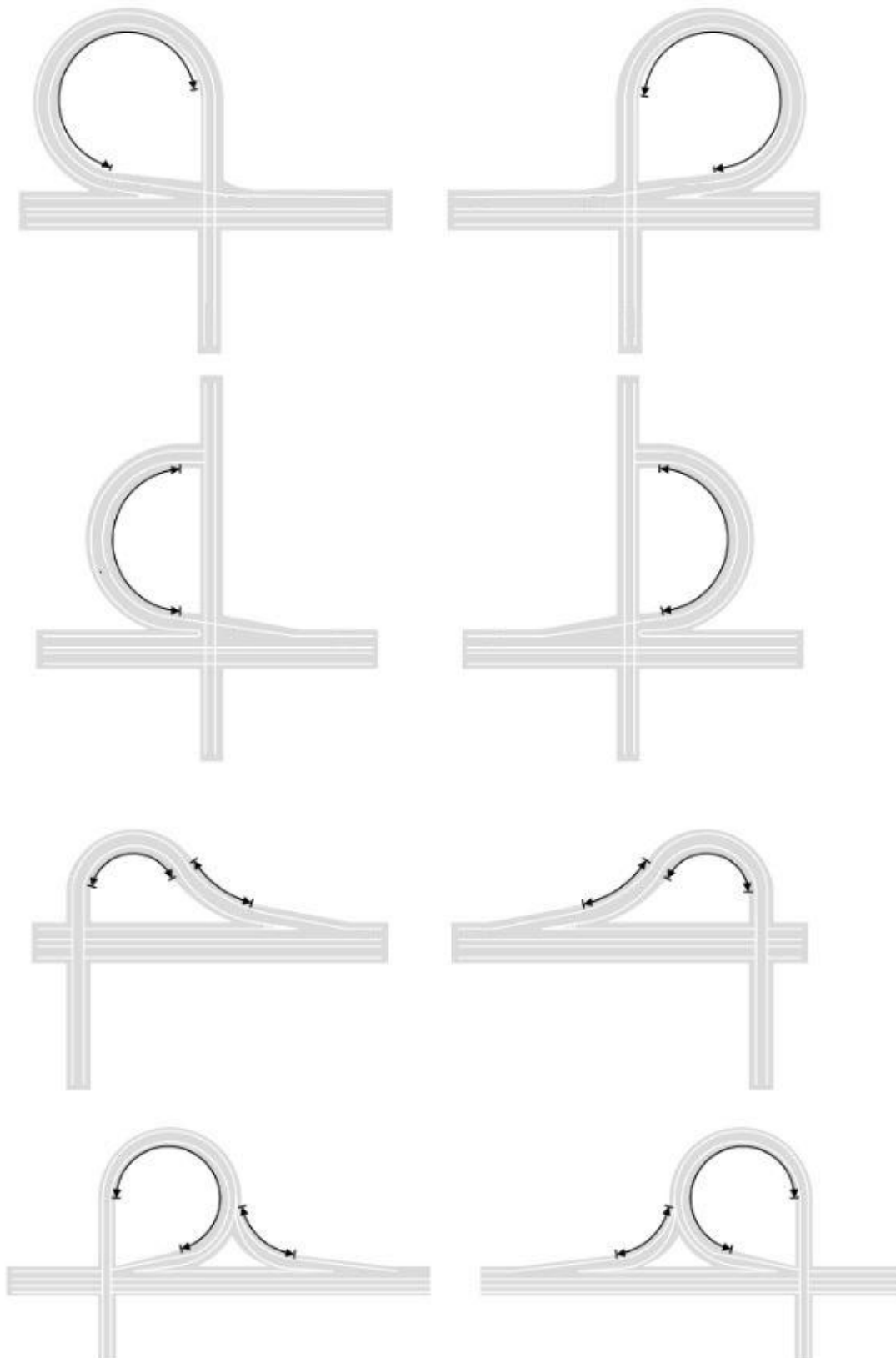
NOTE 2 Near straights allow drivers to better match their speed to the mainline when merging, and assist drivers to comprehend the layout ahead and adjust their speed accordingly.

- 5.9 Connector road loops shall only be provided where they connect to the start/end of the near straight, as illustrated in Figure 5.10N.
- 5.10 The minimum radii that shall be provided for connector road loops are:

- 1) 75 metres for loops on to or off a motorway;
- 2) 30 metres for loops on to an all-purpose carriageway;
- 3) 50 metres for loops off an all-purpose carriageway.

NOTE *In the case of the horizontal curvature and super elevation for loops, there is evidence to suggest that the radii of loops (Figure 5.10N) can safely be much less than for curves turning through lesser angles, provided that adequate warning is given to drivers and clear sight lines are maintained.*

Figure 5.10N Loop layouts (extent of loops indicated by arrows)



5.11 On connector road loops, successively reducing radii of the same direction shall not be used.

- 5.12 On connector road loops, superelevation shall not exceed 10%.
- 5.12.1 On connector road loops, superelevation should not exceed 7% where there is a risk of prolonged icy conditions.

NOTE Further requirements and guidance on superelevation are provided in TD 9 [Ref 3.N].

Stopping sight distance/visibility

- 5.13 Minimum SSD shall be provided in accordance with the connector road design speed.
- NOTE The minimum connector road SSD is determined by the SSD requirements on the merge or diverge as outlined in Section 3.*
- 5.14 For loops there shall be no obstruction to sight lines across the full extent of loops, including where they connect to the main carriageway, except where a vehicle restraint system obstructs the view to the 0.26 metre object height
- NOTE A clear view across the extent of the loop ensures that drivers are able to perceive the whole of the loop layout on their approach to it and adjust their speed accordingly.*
- 5.15 For loops, where a vehicle restraint system obstructs the view to the 0.26 metre object height, a low object height of 1.05m shall be used.
- 5.16 At a dumb-bell junction, where the distance between the two roundabouts is less than the desirable minimum SSD for the design speed of the connecting link road, a low (0.26 metre) object at the give way line of the next roundabout shall be visible from a vehicle as it leaves the circulatory carriageway of the previous roundabout.

Cross-sections

- 5.17 The minimum connector road cross section based on the design traffic flow ranges shall be in accordance with Tables 5.17a and 5.17b.

Table 5.17a Cross-sections for connector roads to/from mainline all-purpose roads

	Adjusted connector road flow (vph)			
	0-800	801-1200	1201-2400	2401-3200
Merge (rural)	MG1C		MG2E	
Merge (urban)	MG1D		MG2F	
Diverge (rural)	DG1C	DG2E		
Diverge (urban)	DG1D	DG2F		
Interchange link/loop (rural)	IL1C or IL2C (see clause 5.3)		IL2C	
Interchange link/loop (urban)	IL1D or IL2D (see clause 5.3)		IL2D	

Table 5.17b Cross-sections for connector roads to/from mainline motorways

	Adjusted connector road flow (vph)			
	0-900	901-1350	1351-2700	2701-3600
Merge (rural)	MG1A		MG2C	
Merge (urban)	MG1B		MG2D	
Diverge (rural)	DG1A	DG2A		DG2C
Diverge (urban)	DG1B	DG2B		DG2D
Interchange link/loop (rural)	IL1A or IL2A (see clause 5.3)		IL2A	
Interchange link/loop (urban)	IL1B or IL2B (see clause 5.3)		IL2B	

NOTE 1 Cross sectional layouts are given in TD 27 [Ref 1.N] for each connector road type.

NOTE 2 Design flow (vehicles per hour) are adjusted for gradients and HGVs, see Section 3.

5.18 Lane widening on curves shall be applied to connector road curves with radii of 400 metres or less.

NOTE 1 Lane widening on curves requirements for radii greater than 100 metres up to 400 metres are given in TD 9 [Ref 3.N].

NOTE 2 Lane widening on requirements for radii of 100 metres or less are given in CD 123 [Ref 2.N].

Compact connector road geometry

Design speed, horizontal and vertical geometry and superelevation

5.19 The design of compact connector roads shall meet or exceed the minimum geometrical parameter values given in Table 5.19.

Table 5.19 Compact connector road geometrical parameters

Parameter	Minimum value
Horizontal curvature	32 metres
Crest curve (k)	2.3
Sag curve (k) with road lighting	2.3
Sag curve (k) without road lighting	3.2

NOTE The geometrical parameters for compact connector road broadly align with a design speed of 30 kph.

5.19.1 The minimum horizontal curvature of a compact connector road should be 40 metres.

5.19.2 The minimum crest curve (k) of a compact connector road should be 3.3.

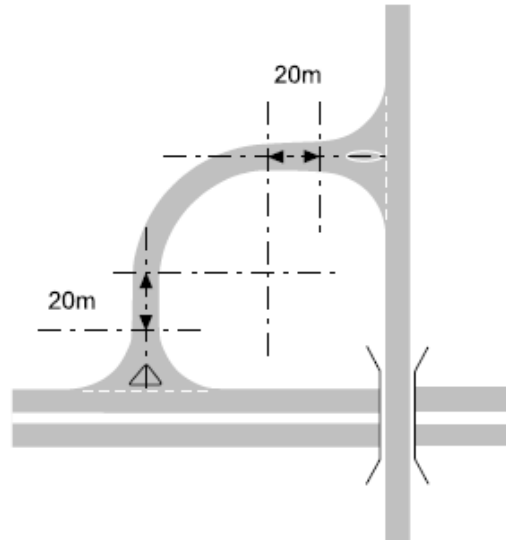
5.20 The maximum vertical gradient of a compact connector road shall be 10%.

5.20.1 The maximum vertical gradient of a compact connector road should be 8%.

5.20.2 Where cyclists are being catered for, the maximum vertical gradient of a compact connector road should be 5%.

5.21 A minimum 20 metres straight section shall be provided at the start and end of compact connector roads prior to formation of the priority junctions, as illustrated in Figure 5.21.

Figure 5.21 Compact connector road start and end straight sections



5.22 Straight sections longer than the 100m within the compact connector road shall not be used, except where they form the connector road linking two minor roads across the mainline (as illustrated on Figure 5.24.1Nb).

NOTE The inclusion of long straight sections can lead to increased speed of vehicles through the compact connector road.

5.22.1 Transition curves may be omitted on compact connector roads due to their low speed nature.

5.22.2 The design of a compact grade separated junction should avoid rapid changes in crossfall (through the combined effect of the gradient and superelevation), as this can result in sudden shifts in high loads.

NOTE The geometric layout of the compact connector road requires successive application and removal of the superelevation between the connector road and the junction mouths.

5.23 The maximum superelevation on a compact connector road shall be 5%.

Stopping sight distance/visibility

5.24 The minimum SSD that shall be provided on a compact connector road is:

- 1) 50 metres on a compact connector road linking the mainline and minor road; or
- 2) 26 metres on a compact connector road linking two minor roads.

5.24.1 The minimum SSD that should be provided on a compact connector road is:

- 1) 70 metres on a compact connector road linking the mainline and minor road; or
- 2) 33 metres on a compact connector road linking two minor roads.

NOTE The extents of a compact connector road linking the mainline and minor road is illustrated in Figure 5.24.1Na, and the extents of a compact connector road linking two minor roads is illustrated in Figure 5.24.1Nb.

**Figure 5.24.1Na Compact connector road linking the mainline and minor road
(extent of compact connector roads illustrated by arrows)**

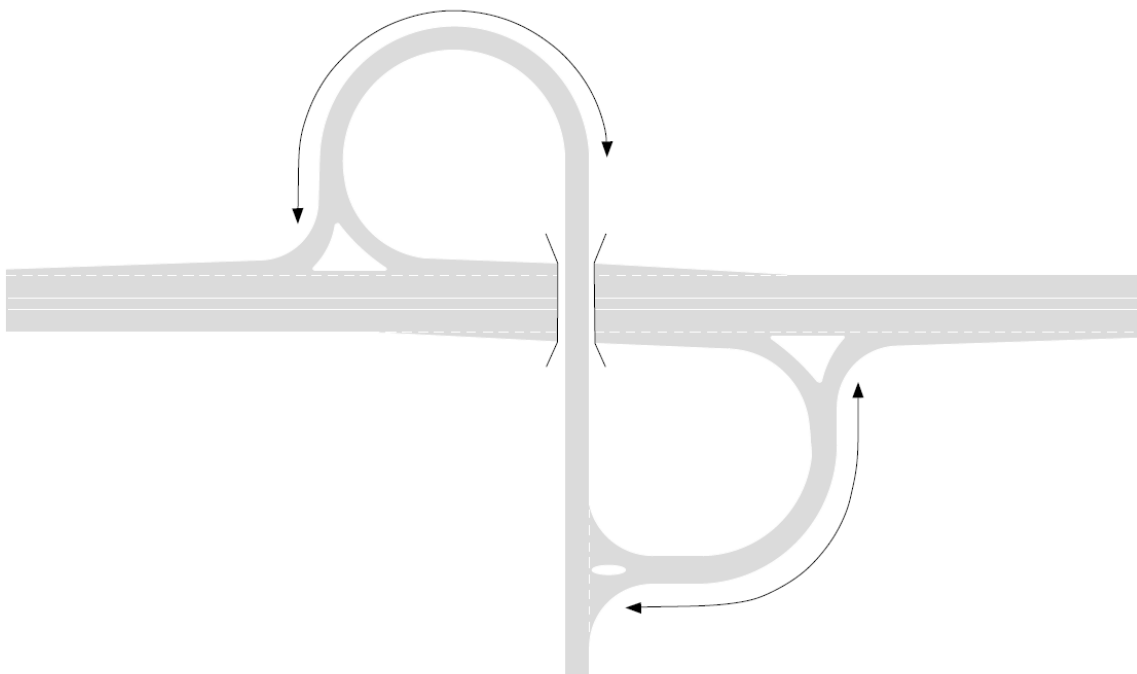
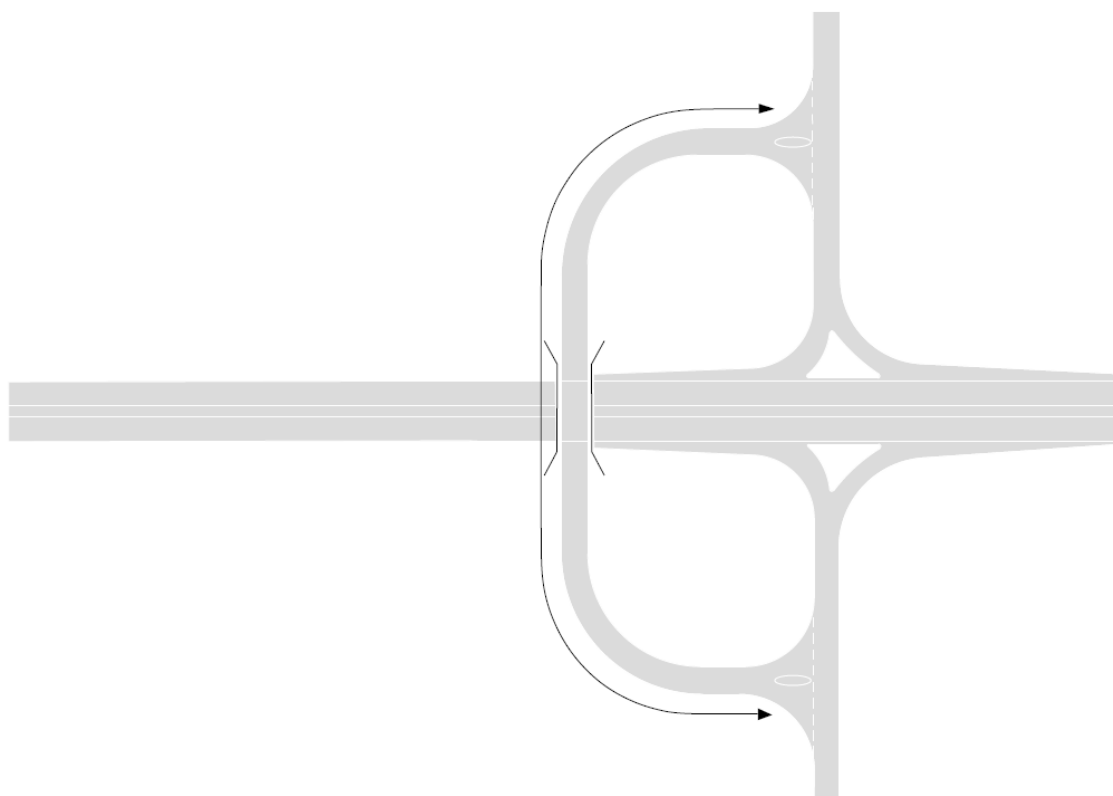


Figure 5.24.1Nb Compact connector road linking two minor roads (extent of compact connector road illustrated by arrows)



Cross-section and widening

5.25 Compact connector roads lane widths, excluding any carriageway widening, shall be in accordance with Table 5.25 based on the minor carriageway width.

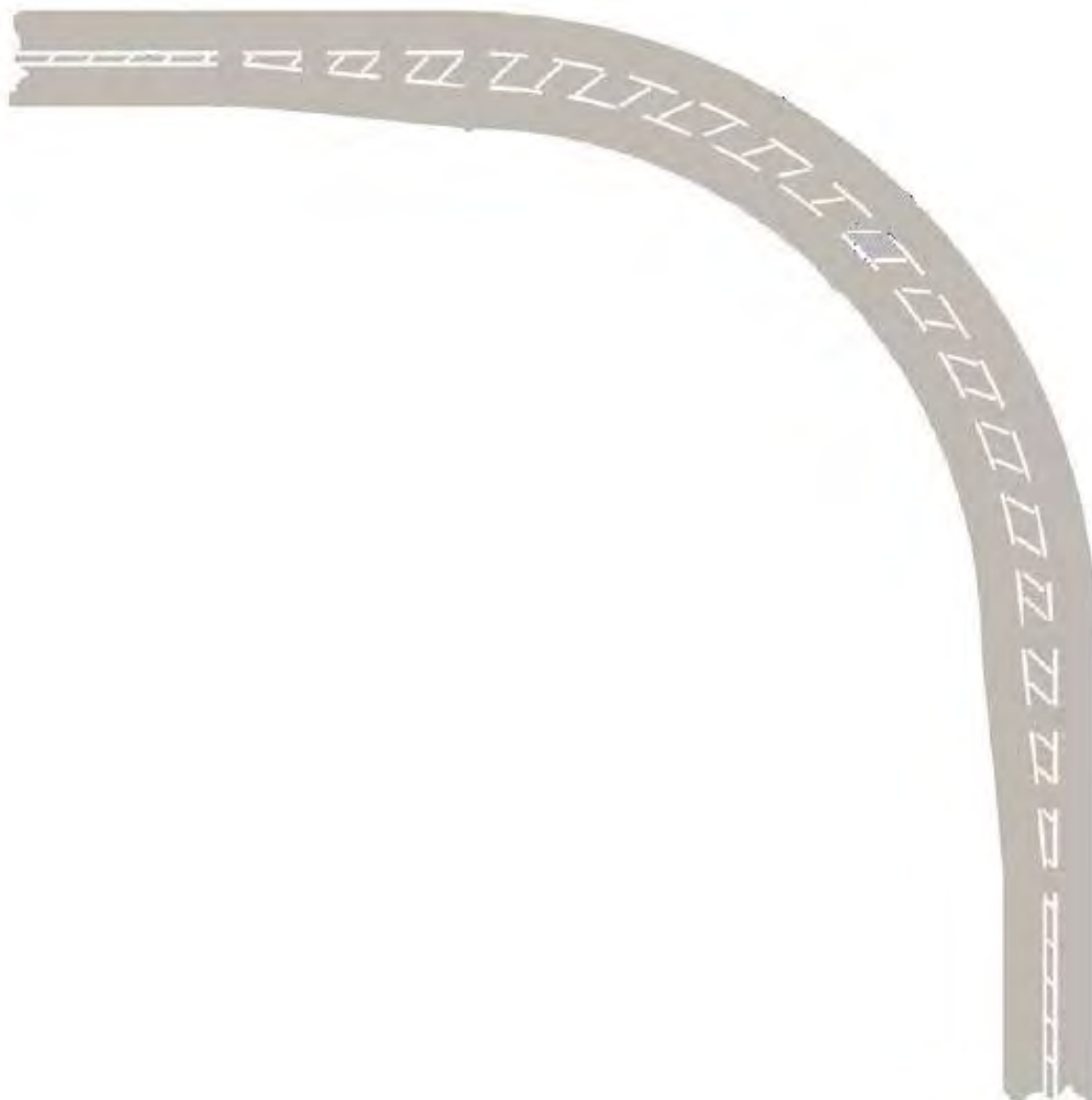
Table 5.25 Compact connector road widths

		Compact connector road lane width (metres)
Minor carriageway width (metres)	3.0 or less	3.0
	Between 3.0 and 3.65	3.3
	3.65 or greater	3.65

NOTE Carriageway widths for the compact connector road provide a change in standards from the major carriageway width to the minor carriageway width.

5.26 Where two-way compact connector roads have a horizontal radius they shall include a minimum 0.6 metre central hatching.

5.27 Widening of compact connector roads shall be applied within the central hatching as illustrated in Figure 5.27.

Figure 5.27 Central hatching curve widening

- 5.27.1 Compact connector roads should be widened in accordance with lane widening on curves within CD 123 [Ref 2.N].
- 5.28 Hard strips shall not be provided within a compact connector road.

6. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref 1.N	Highways England. TD 27, 'Cross-Sections and Headrooms'
Ref 2.N	Highways England. CD 123, 'Geometric design of at-grade priority and signal-controlled junctions'
Ref 3.N	Highways England. TD 9, 'Highway Link Design'
Ref 4.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'
Ref 5.N	The Stationery Office. TSM Chapter 5, 'Traffic Signs Manual Chapter 5 - Road Markings'

7. Informative references

The following documents are informative references for this document and provide supporting information.

Ref 1.l	Highways England. CD 195, 'Designing for cycle traffic'
Ref 2.l	Highways England. CD 116, 'Geometric design of roundabouts'
Ref 3.l	Highways England. TA 91, 'Provision for Non-Motorised Users'
Ref 4.l	Highways England. TD 36, 'Subways for Pedestrians and Pedal Cyclists. Layout and Dimensions '
Ref 5.l	Highways England. TA 68, 'The Assessment and Design of Pedestrian Crossings'
Ref 6.l	Highways England. TA 90, 'The Geometric Design of Pedestrian, Cycle and Equestrian Routes'

Appendix A. Examples of full grade separated junction layouts

A1 Diamond

A diamond layout includes slip roads leading to/from two staggered priority junctions. The advantages of this layout are minimised land from certain quadrants of the junction, conventional slip roads (rather than loops which are necessary with half-cloverleaf layouts) and the requirement for only one bridge.

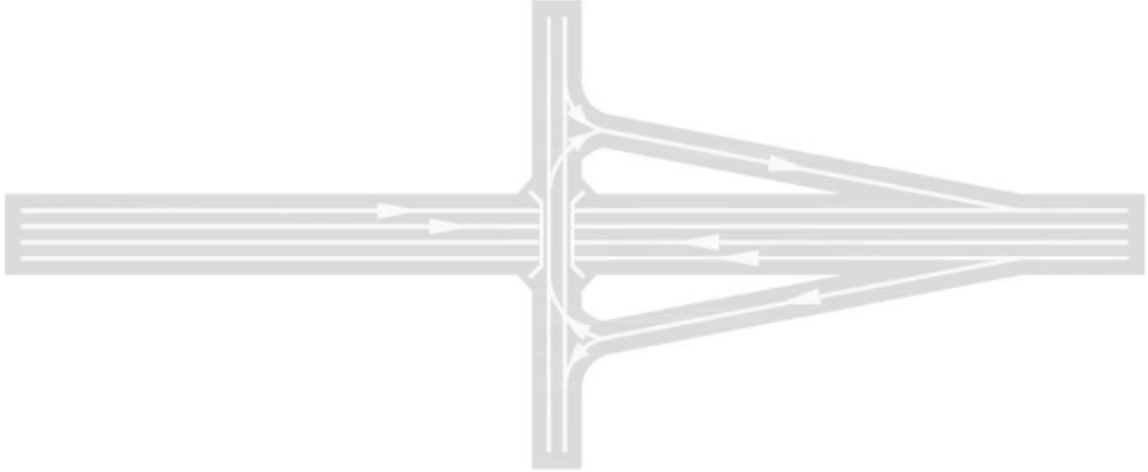
The disadvantage is that there are a number of conflict points on the minor road resulting from the staggered junctions. It is also necessary to evaluate the risk of road users turning into an off-slip from the minor road when considering a diamond layout.

Due to the staggered priority junctions, diamond layouts are unsuitable to cater for high mainline merging and diverging flows and can also be unsuitable where there are high ahead flows on the minor road.

Figure A.1 and Figure A.2 illustrate a diamond layout and a half-diamond layout and the traffic flow movements they cater for.

Figure A.1 Typical layouts of grade separated junctions - diamond



Figure A.2 Typical layouts of grade separated junctions - half diamond**A2 Half-cloverleaf**

A half-cloverleaf layout includes two-way slip roads leading to/from two priority junctions on the minor road. They can be useful at locations where it is not practical to provide slip roads in all four quadrants of the junction.

An advantage of a half-cloverleaf layout is that they include less conflict points compared to a diamond layout; however, a higher concentration of the turning movements occurring at the same point. A disadvantage of half-cloverleaf layouts is that they necessitate greater slip road curvature and loops compared to diamond layouts.

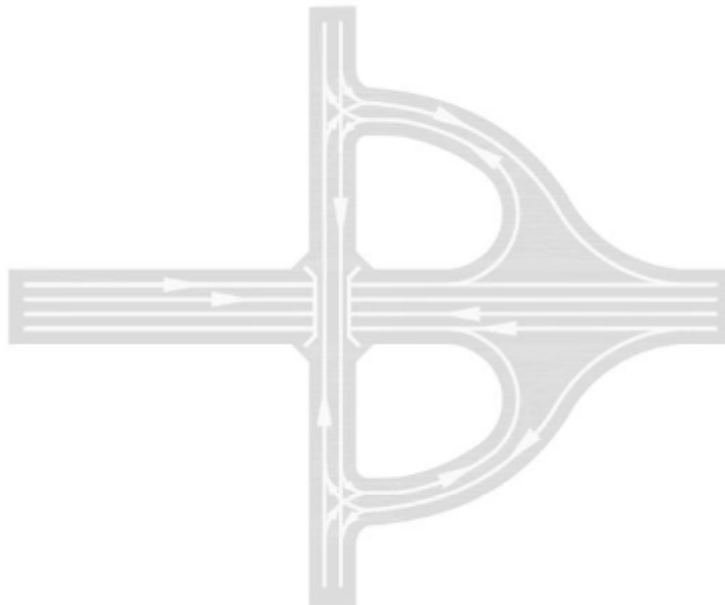
A half-cloverleaf layout caters for similar flow levels to a diamond layout and they are therefore unsuitable for high mainline merging and diverging flows. They can also be unsuitable where there are high ahead flows on the minor road.

Figure A.3 and Figure A.4 illustrate half-cloverleaf layouts with the slip roads provided in alternative quadrants and the traffic flow movements they cater for.

Figure A.3 Typical layout of grade separated junction - half-cloverleaf quadrants 1 and 3



Figure A.4 Typical layout of grade separated junction - half-cloverleaf quadrants 2 and 3



A3 Dumbbell roundabout

A dumbbell roundabout layout includes slip roads leading to/from two roundabouts. In relation to traffic flow capacity, a dumbbell roundabout layout can be considered an intermediate between the diamond/half-cloverleaf and the two bridge roundabout layouts.

The dumb-bell roundabout has the advantage of requiring less land than both the diamond and the two bridge roundabout layouts. It also requires only one bridge.

It is important to ensure that the link road between the two roundabouts can provide queuing storage capacity otherwise queuing could extend back onto the roundabouts.

Requirements and advice on the geometric design of the roundabout elements of this layout are provided in CD 116 [Ref 2.I].

Figure A.5 illustrates a dumbbell roundabout layout.

Figure A.5 Roundabout - dumbbell configuration (one bridge & two roundabouts)

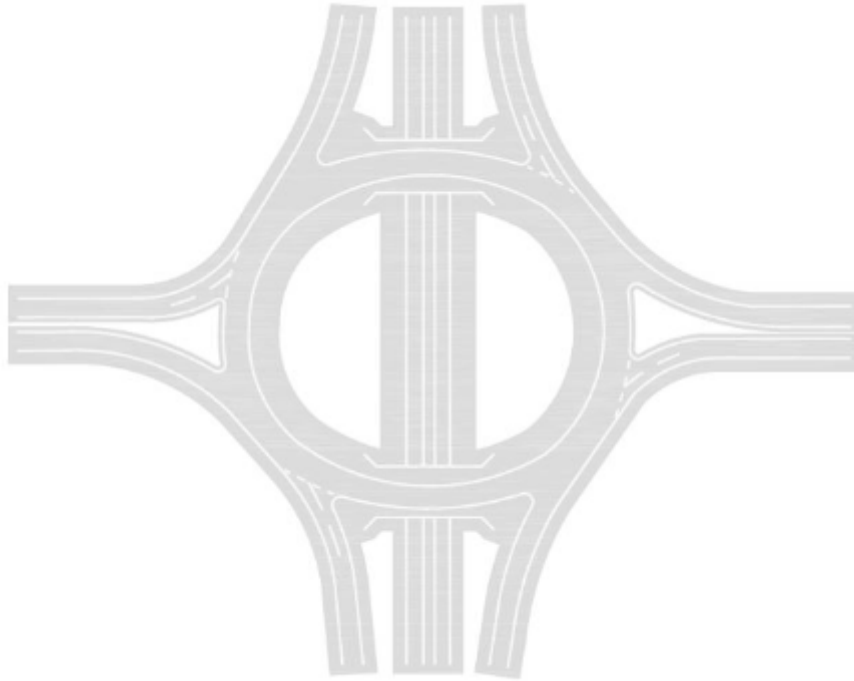


A4 Two bridge roundabout

The most common grade separated junction layout is the the two bridge roundabout. They provide greater traffic flow capacity than the dumbbell roundabout layout and are less complex from a road user perspective. They do however require two bridges and have a greater footprint.

Requirements and advice on the geometric design of the roundabout elements of this layout are provided in CD 116 [Ref 2.I].

Figure A.6 illustrates a two bridge roundabout layout.

Figure A.6 Roundabout - 2 bridge configuration

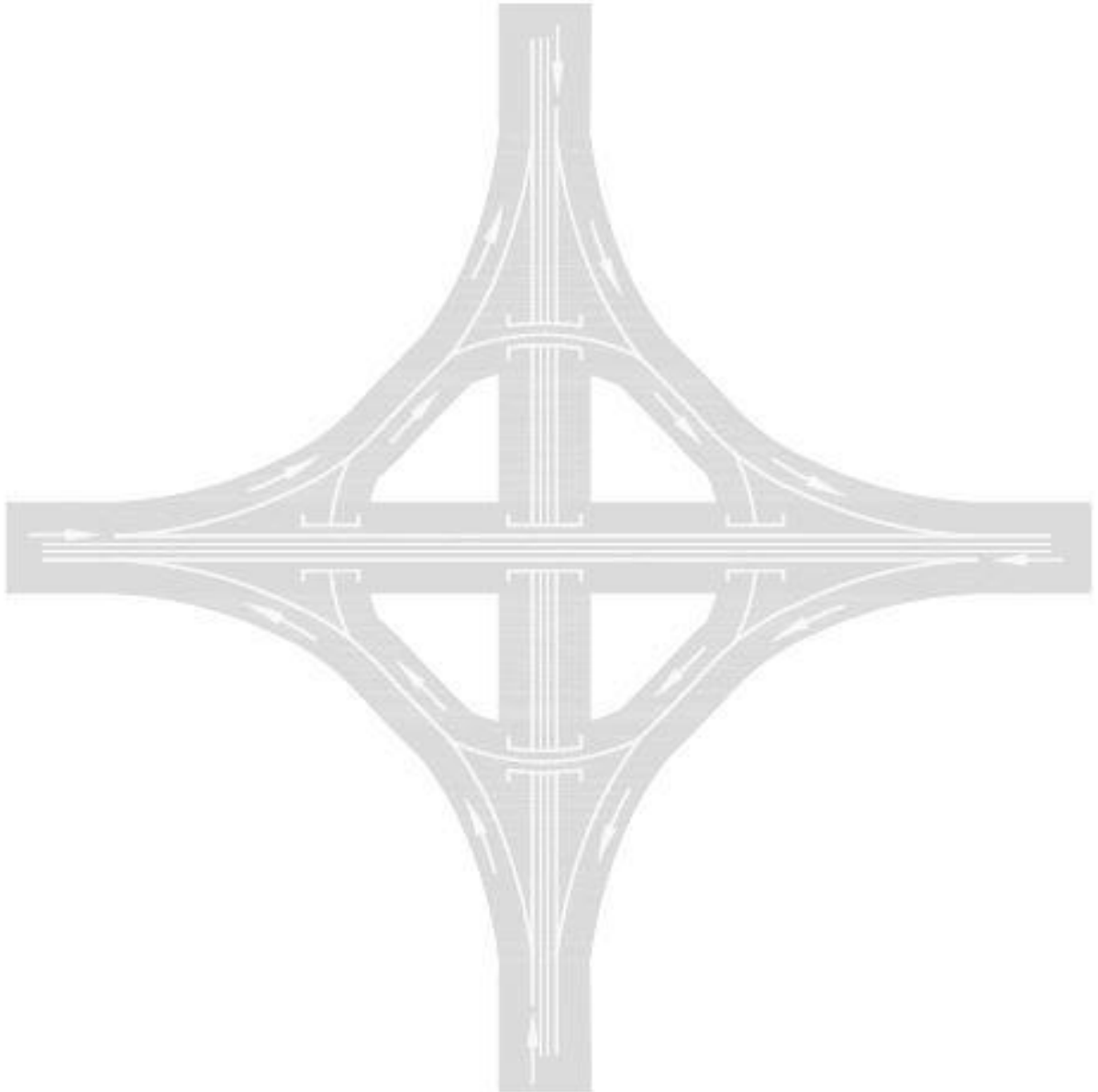
A5 Interchanges

A5.1 4 way, 3 level interchange

Where two major roads cross, a 3 level arrangement with a roundabout can be provided as an alternative to a full interchange where volumes of turning traffic allow. Its advantages are that both the overall land take and the carriageway area are reduced when compared to a full interchange with entirely free flow link roads.

The disadvantages are this layout requires a relatively high number of structures and if the turning movements exceed capacity, operational problems such as queuing on the roundabout entries can occur. If queuing does become a problem, segregated left turn lanes and restricted circulatory carriageway width could be provided or signalisation if the aforementioned would not suffice.

Figure A.7 illustrates a 4 way, 3 level interchange layout

Figure A.7 3 level roundabout**A5.2 4 way, 2 level 'cyclic' interchange**

A 2 level 'cyclic' interchange utilises reverse curves. The land take is extensive however and it requires a relatively high number of structures. One particular disadvantage is that it requires separate diverge points for left and right movements from both mainlines, which can be complex to sign. The illustration in Figure A.8 shows two successive diverges off and one merge on to the mainline. A variant of this uses one diverge and two merges but the distance between the merges needs to be as great as possible to avoid potential conflicts. One principal connection on the mainline for the diverge, and one for the merge, is the preferred option with the final route selection occurring on the slip road as this reduces weaving on the mainline.

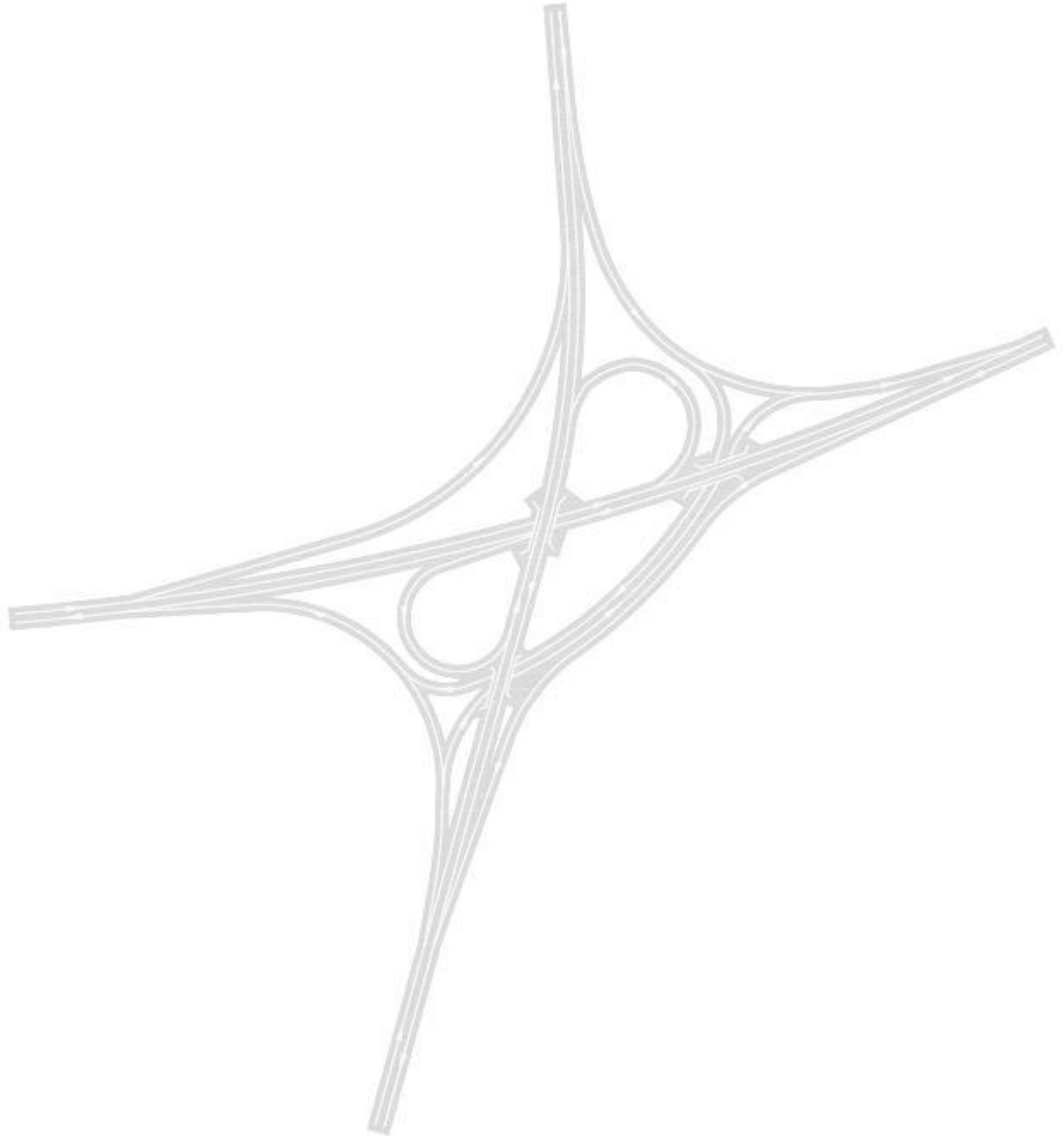
Figure A.8 4 way, 2 level cyclic interchange**A5.3 4 way, 4 level interchange**

A 4 level interchange layout has the advantages of reduced land take, absence of loops and low number of structures; however, it can be visually intrusive due to its overall height.

Figure A.9 illustrates a 4 way, 4 level interchange layout.

Figure A.9 4 way 4 level interchange layout**A5.4 4 way, 2 level interchange**

A 4 way, 2 level interchange layout, as illustrated in Figure A.10, is an alternative to the 4 level option shown in Figure A.8. It is less visually intrusive, but has a larger land take and larger carriageway area. Another disadvantage is that it includes loops.

Figure A.10 4 way restricted height interchange**A5.5 3 way interchanges****A5.5.1 3 way, 2 level 'trumpet'**

A 3 way, 2 level 'trumpet' interchange has 2 way slip roads. It is not suitable for motorway to motorway links or generally high speed approaches to the loop from the minor road. As the minor road could be of a lesser standard to the major road, careful consideration is needed in relation to signing and preventing unauthorised users (in the case of the major road being a motorway) from entering the major road.

A 3 way, 2 level 'trumpet' is illustrated in Figure A.11.

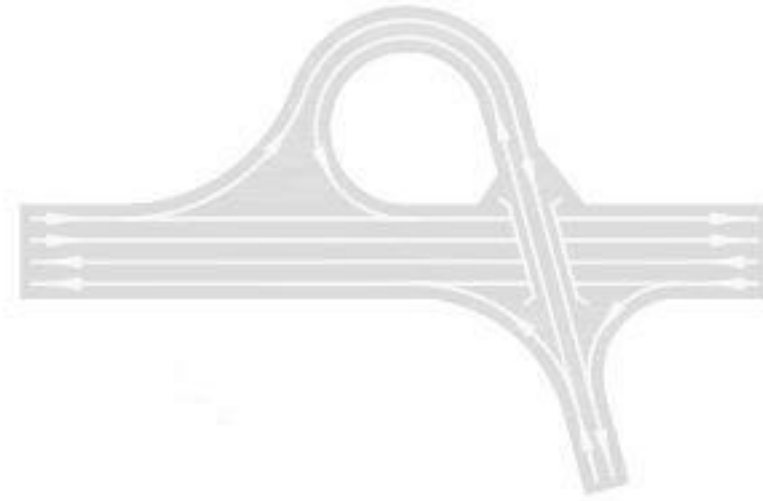
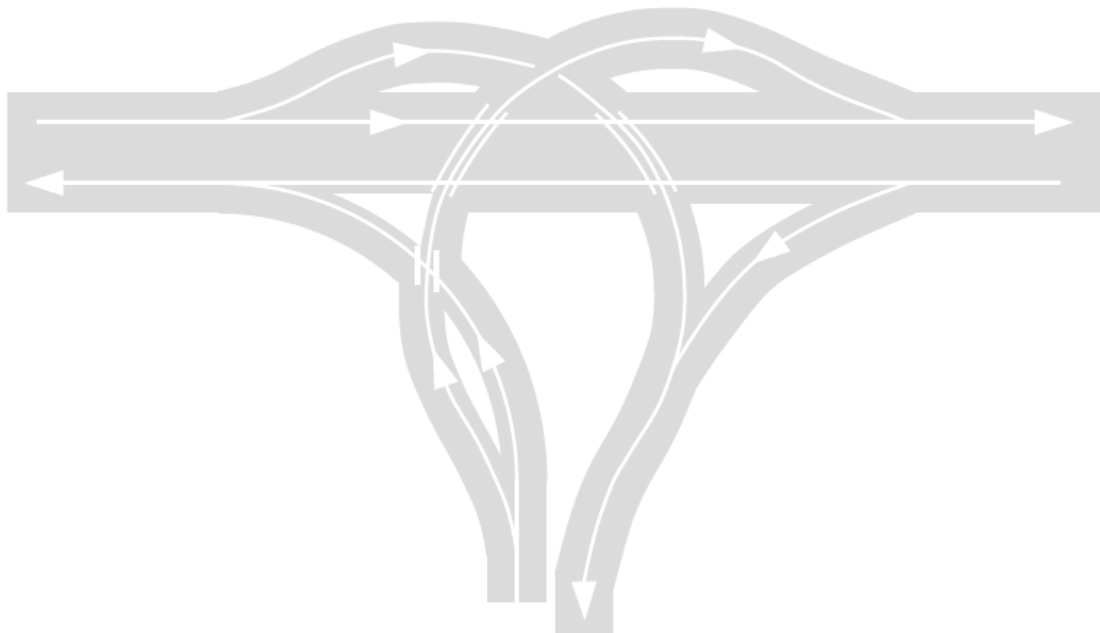
Figure A.11 3 way 2 level 'Trumpet' interchange**A5.5.2 3 way, 2 level restricted movement 'trumpet'**

Figure A.12 shows a 3 way, 2 level 'trumpet' interchange with restricted movement. It has one way slip roads and enables higher vehicle speeds to be maintained with low land take. With the correct horizontal curvature and merge/diverge arrangement this can be suitable for motorway to motorway links.

Figure A.12 3 way, 2 level restricted movement 'Trumpet' interchange**A5.5.3 3 way, 2 level unrestricted 'T'**

The 3 way, 2 level unrestricted 'T' layout, as illustrated in Figure A.13 caters for all movements in free flow conditions.

Figure A.13 3 way free flow 'T' layout



A5.5.4 3 leg 'Y' interchange with link roads

Figure A.14 illustrates a potential solution for an interchange where the roads join at a acute angle and there is a need to incorporate link roads.

Figure A.14 3 leg 'Y' interchange of 2 motorways with mainline motorway and link roads



© Crown copyright 2019.

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence:

visit www.nationalarchives.gov.uk/doc/open-government-licence/,
write to the **Information Policy Team, The National Archives, Kew, London TW9 4DU**,
or email psi@nationalarchives.gsi.gov.uk.



Road Layout
Design

CD 122

England National Application Annex to CD 122 Geometric design of grade separated junctions

(formerly IAN 149/17, IAN 161/15 and IAN 198/17)

Revision 0

Summary

This National Application Annex sets out the Highways England specific requirements for the geometric design of grade separated junctions.

Feedback and Enquiries

Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Highways England team. The email address for all enquiries and feedback is: Standards_Enquiries@highwaysengland.co.uk

This is a controlled document.

Contents

Release notes	2
Foreword	3
Publishing information	3
Contractual and legal considerations	3
Introduction	4
Background	4
Assumptions made in the preparation of this document	4
Abbreviations	5
Terms and definitions	6
E/1. Modifying existing motorways	7
Scope	7
Geometric parameters	7
Merge layouts (CD 122 3.12 and 3.21)	7
Merge datum points (CD 122 3.5)	7
Diverge layouts (CD 122 3.26 and 3.31)	7
Stopping sight distance (CD 122 3.23, 3.24, 3.25, 3.33, 3.34, 5.13 and 5.14)	7
Near straights (CD 122 5.8)	8
Weaving lengths (CD 122 4.2, 4.3 and 4.5)	8
E/2. Modifying existing dual carriageways	9
Scope	9
Geometric parameters	9
Merge layouts (CD 122 3.12 and 3.21)	9
Merge datum points (CD 122 3.5)	9
Diverge layouts (CD 122 3.26 and 3.31)	9
Stopping sight distances (CD 122 3.23, 3.24, 3.25, 3.33, 3.34, 5.13 and 5.14)	10
Near straights (CD 122 5.8)	10
Weaving lengths (CD 122 4.2, 4.3 and 4.5)	10
E/3. Smart motorways	11
Scope	11
Geometric parameters	11
Merge layout (CD 122 3.12 and 3.21)	11
Merge datum points (CD 122 3.5)	11
Merge over-run	11
Diverge layout (CD 122 3.26 and 3.31)	11
Stopping sight distance (CD 122 3.23, 3.24, 3.25, 3.33, 3.34, 5.13 and 5.14)	12
Near straights (CD 122 5.8)	12
Weaving lengths (CD 122 4.2, 4.3 and 4.5)	12
E/4. 3 lane diverges	13
Diverge layout (CD 122 3.27)	13
Datum points (additional to CD 122)	13
Measurement of weaving sections (additional to CD 122)	13
E/5. Normative references	14

Release notes

Version	Date	Details of amendments
0	Sep 2019	Highways England National Application Annex to CD 122.

Foreword

Publishing information

This document is published by Highways England.

This document supersedes those parts of IAN 149/17, IAN 161/15 and IAN 198/17 relating to the geometric design of grade separated junctions.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

Introduction

Background

This National Application Annex (NAA) gives the Highways England specific requirements and additional relaxations relating to the geometric design of grade separated junctions for:

- 1) modifying existing motorways where motorway regulations apply (herein referred to as 'existing motorways');
- 2) modifying existing all-purpose dual carriageways;
- 3) smart motorway; and
- 4) 3 lane diverges.

The additional relaxations included in this NAA allow greater flexibility when dealing with the constraints associated with enhancing elements of existing motorways and all-purpose dual carriageways in England.

This National Application Annex is to be used in conjunction with CD 122 [Ref 1.N] and GD 301 [Ref 3.N].

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 2.N] apply to this document.

Abbreviations

Abbreviations

Abbreviation	Definition
SM	Smart motorway

Terms and definitions

Terms

Term	Definition
Expressway	A high speed dual carriageway that has at least two lanes in each direction, grade separated junctions and uses technology to support operational regimes.

E/1. Modifying existing motorways

Scope

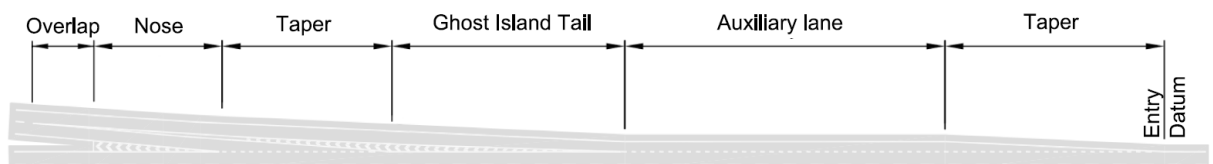
- E/1.1 The requirements and advice in section E/1 shall only be used when modifying existing motorways, with the exception of smart motorway and expressway schemes.
- E/1.1.1 The parameters in section E/1 should only be used where it is not practicable to comply with the requirements of CD 122.
- E/1.2 The parameters in section E/1 shall not be used for new motorway elements e.g. the construction of a new slip road.

Geometric parameters

Merge layouts (CD 122 3.12 and 3.21)

- E/1.3 CD 122 3.12 shall be used to derive the appropriate merge layout; however, for existing motorways, the derived merge layout can be amended by only one of the following options:
 - 1) the road class in CD 122 Table 3.21 can be relaxed to 'rural all-purpose 120kph'; or
 - 2) the CD 122 layout can be substituted as described below:
 - a) Layout D can be used instead of Layout E1 and E2;
 - b) Layout B or A1 can be used instead of Layout C;
 - c) Layout A1 can be used instead of Layout B; or
 - 3) where no lane gains are to be introduced the CD 122 layout can be substituted as described below:
 - a) Layout B can be used instead of Layout D;
 - b) Layout C or Layout E3 (see Figure E/1.3) can be used instead of Layout E1 and E2.

Figure E/1.3 Layout E Option 3 - ghost island merge with auxiliary lane



NOTE The combination of a reduction in road class and a substitute layout is not permitted.

- E/1.3.1 Where the road class is reduced, the design parameters may be a combination of 'rural all-purpose 120kph' and 'rural motorway' standard to maximise the capacity of the merge layout.

Merge datum points (CD 122 3.5)

- E/1.4 The merge datum point for Layout E option 3 shall be the end of the downstream taper, as illustrated in Figure E/1.3.

Diverge layouts (CD 122 3.26 and 3.31)

- E/1.5 CD 122 3.26 shall be used to derive the appropriate diverge layout; however, for existing motorways, the derived diverge layout can be amended by relaxing the road class in CD 122 Table 3.31 to 'rural all-purpose 120kph'.

- E/1.5.1 Where the road class is reduced, the design parameters may be a combination of 'rural all-purpose 120kph' and 'rural motorway' standard to maximise the capacity of the diverge layout.

Stopping sight distance (CD 122 3.23, 3.24, 3.25, 3.33, 3.34, 5.13 and 5.14)

- E/1.6 The minimum stopping sight distance to be provided on existing motorway connector roads shall be equal to or greater than the existing provision.

- E/1.6.1 The stopping sight distance to be provided on existing motorway connector roads should be as close as practicable to the requirements of CD 122.
- E/1.6.2 Where the stopping sight distance on an existing motorway connector road is less than the minimum required for that class of road, the existing provision should only be retained if a review of the operational performance does not highlight a problem with it.

Near straights (CD 122 5.8)

- E/1.7 The near straight length to be provided at an existing motorway slip road shall be equal to or greater than the existing provision.

NOTE The existing near straight provision could be no near straight at all.

- E/1.7.1 Adjoining near straight and nose lengths to be provided at an existing motorway slip road may be different.
- E/1.7.2 The near straight length to be provided at an existing motorway slip road should be as close as practicable to the requirements of CD 122.
- E/1.7.3 Where the length of near straight at an existing motorway slip road is less than the minimum required for that class of road, the existing provision should only be retained if a review of the operational performance does not highlight a problem with it.

Weaving lengths (CD 122 4.2, 4.3 and 4.5)

- E/1.8 The minimum weaving length to be provided on an existing motorway shall be equal to or greater than the existing provision.
- E/1.8.1 The weaving length to be provided on an existing motorway should be as close as practicable to the requirements of CD 122.
- E/1.8.2 Where the weaving length on an existing motorway is less than the length derived from CD 122 Figure 4.6b, options for reducing weaving should be assessed and implemented where practicable.
- NOTE One option for reducing weaving length is introducing dedicated lanes between junctions.*

E/2. Modifying existing dual carriageways

Scope

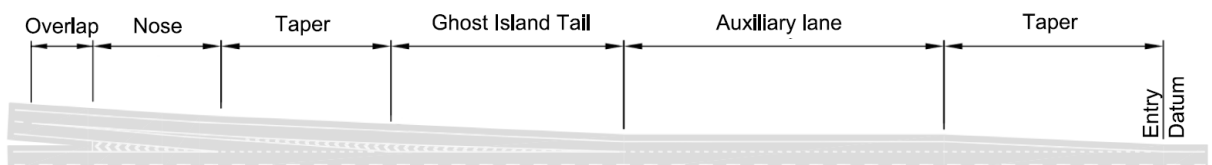
- E/2.1 The requirements and advice in section E/2 shall only be used when modifying existing all-purpose dual carriageways, with the exception of expressways.
- E/2.1.1 The parameters in section E/2 should only be used where it is not practicable to comply with the requirements of CD 122.
- E/2.2 The parameters in section E/2 shall not be used for new all-purpose dual carriageway elements e.g. the construction of a new slip road.

Geometric parameters

Merge layouts (CD 122 3.12 and 3.21)

- E/2.3 CD 122 3.12 shall be used to derive the appropriate merge layout; however, for existing dual carriageways, the derived merge layout can be amended by only one of the following options:
 - 1) the road class in CD 122 Table 3.21 can be relaxed to 'urban road speed limit 60 mph'; or
 - 2) the CD 122 layout can be substituted as described below:
 - a) Layout D can be used instead of Layout E1 and E2;
 - b) Layout B or A1 can be used instead of Layout C;
 - c) Layout A1 can be used instead of Layout B; or
 - 3) where no lane gains are to be introduced, the CD 122 layout can be substituted as described below:
 - a) Layout B can be used instead of Layout D;
 - b) Layout C or Layout E3 can be used instead of Layout E1 and E2.

Figure E/2.3 Layout E option 3 - ghost island merge with auxiliary lane



NOTE The combination of a reduction in road class and a substitute layout is not permitted.

- E/2.4 When reducing the merge parameters from 'rural all-purpose' to those of 'urban road speed limit 60 mph', the auxiliary lane length shall be reduced first before reducing the lengths of entry taper and nose length.
- E/2.4.1 Where the road class is reduced, the design parameters may be a combination of 'urban road speed limit 60 mph' and 'rural all-purpose' standard to maximise the capacity of the merge layout.

Merge datum points (CD 122 3.5)

- E/2.5 The merge datum point for Layout E option 3 shall be the end of the downstream taper, as illustrated in Figure E/2.3.

Diverge layouts (CD 122 3.26 and 3.31)

- E/2.6 CD 122 3.26 shall be used to derive the appropriate diverge layout; however, for existing dual carriageways, the derived diverge layout can be amended by relaxing the road class in CD 122 Table 3.31 to 'Urban Road Speed Limit 60mph'.
- E/2.7 When reducing the diverge parameters from 'rural all-purpose' to those of 'urban road speed limit 60 mph', the length of ghost island head shall be reduced first before reducing the lengths of the other parameters in the following order:

- 1) length of exit taper 1-lane and 2-lane;
- 2) length of auxiliary lane taper;
- 3) minimum auxiliary lane length;
- 4) nose length.

E/2.7.1 Where the road class is relaxed the design parameters may be a combination of 'urban road speed limit 60mph' and 'rural all-purpose' standard to maximise the capacity of the diverge layout.

Stopping sight distances (CD 122 3.23, 3.24, 3.25, 3.33, 3.34, 5.13 and 5.14)

E/2.8 The minimum stopping sight distance to be provided on existing dual carriageway connector roads shall be equal to or greater than the existing provision.

E/2.8.1 The stopping sight distance to be provided on existing dual carriageway connector roads should be as close as practicable to the requirements of CD 122.

E/2.8.2 Where the stopping sight distance on an existing dual carriageway connector road is less than the minimum required for that class of road, the existing provision should only be retained if a review of the operational performance does not highlight a problem with it.

Near straights (CD 122 5.8)

E/2.9 The near straight to be provided at an existing dual carriageway slip road shall be equal to or greater than the existing provision.

NOTE The existing near straight provision could be no near straight at all.

E/2.9.1 Adjoining near straight and nose lengths to be provided at an existing dual carriageway slip road may be different.

E/2.9.2 The near straight length to be provided at an existing dual carriageway slip road should be as close as practicable to the requirements of CD 122.

E/2.9.3 Where the length of near straight at an existing dual carriageway slip road is less than the minimum required for that class of road, the existing provision should only be retained if a review of the operational performance does not highlight a problem with it.

Weaving lengths (CD 122 4.2, 4.3 and 4.5)

E/2.10 The minimum weaving length provided on an existing dual carriageway shall be equal to or greater than the existing provision.

E/2.10.1 The weaving length to be provided on an existing dual carriageway should be as close as practicable to the requirements of CD 122.

E/2.10.2 Where the weaving length on an existing dual carriageway is less than the length derived from CD 122 Figure 4.6b, options for reducing weaving should be assessed and implemented where practicable.

NOTE One option for reducing weaving length is introducing dedicated lanes between junctions.

E/3. Smart motorways

Scope

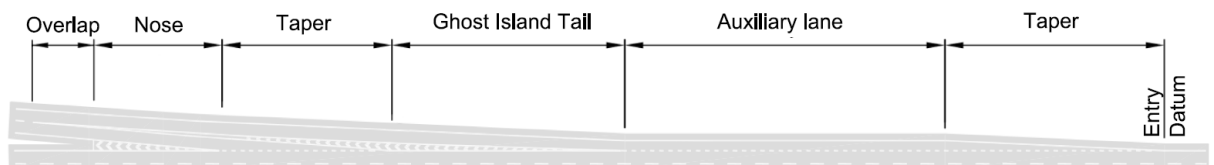
- E/3.1 The requirements and advice contained in section E/3 shall only be used to upgrade an existing motorway to a smart motorway (SM).
- E/3.2 Where a new junction is proposed as part of the upgrade of an existing motorway to a SM, the parameters in section E/3 shall not be used to design the new elements of that junction e.g. the slip roads, with the exception of the E/3 merge overrun section.

Geometric parameters

Merge layout (CD 122 3.12 and 3.21)

- E/3.3 CD 122 3.12 shall be used to derive the appropriate merge layout; however, for SM schemes, the derived merge layout can be amended by only one of the following options:
 - 1) the road class in CD 122 Table 3.21 can be relaxed to 'rural all-purpose 120kph'; or
 - 2) the CD 122 layout can be substituted as described below:
 - a) Layout D or E3 can be used instead of Layout E1 and E2; or
 - b) Layout B or A1 can be used instead of Layout C; or
 - c) Layout A1 can be used instead of Layout B;
 - 3) where no lane gains are to be introduced the CD 122 layout can be substituted as described below:
 - a) Layout B can be used instead of Layout D.
 - b) Layout C or Layout E3 can be used instead of Layout E1 and E2.

Figure E/3.3 Layout E option 3 - ghost island merge with auxiliary lane



NOTE The combination of a reduction in road class and a substitute layout is not permitted.

- E/3.3.1 Where the road class is reduced, the design parameters may be a combination of 'rural all-purpose 120kph' and 'rural motorway' standard to maximise the capacity of the merge layout.
- E/3.4 The merge nose width must accommodate the hatched road marking to TSRGD [Ref 4.N] diagram 1042 (Schedule 9 Part 6 Item 22); however, a ratio that differs from that defined in CD 122 Table 3.21 is permissible.

Merge datum points (CD 122 3.5)

- E/3.5 The merge datum point for Layout E option 3 shall be the end of the downstream taper, as illustrated in Figure E/3.3.

Merge over-run

- E/3.6 Where non-lane gain merges are to be provided, the need for merge overrun shall be assessed.
 - E/3.6.1 The merge over-run assessment should include monitoring of the existing non-lane gain merge (where applicable) and consultation with the relevant regional operations team to determine if there are any known merging issues with the existing layout.
 - E/3.6.2 Where the merge overrun assessment indicates the need for overrun provision, this should be provided.

Diverge layout (CD 122 3.26 and 3.31)

E/3.7 CD 122 3.26 shall be used to derive the appropriate diverge layout; however, for SM schemes, the derived diverge layout can be amended by either of the following methods:

- 1) the road class in CD 122 Table 3.31 can be relaxed to the 'Rural All-Purpose 120kph'; or
- 2) the CD 122 layout can be substituted for any other layout, with the exception of:
 - a) Layout A, B or C cannot be used instead of Layout E; and
 - b) Layout A cannot be used instead of Layout D.

NOTE The combination of a reduction in road class and a substitute layout is not permitted.

E/3.7.1 Where the road class is reduced, the design parameters may be a combination of 'rural all-purpose 120kph' and 'rural motorway' standard to maximise the capacity of the merge layout.

E/3.8 The diverge nose width must accommodate the hatched road marking to TSRGD [Ref 4.N] diagram 1042 (Schedule 9 Part 6 Item 22); however, a ratio that differs from that defined in CD 122 Table 3.31 is permissible.

Stopping sight distance (CD 122 3.23, 3.24, 3.25, 3.33, 3.34, 5.13 and 5.14)

E/3.9 The minimum stopping sight distance to be provided on a SM scheme connector road shall be equal to or greater than the existing provision.

E/3.9.1 The stopping sight distance to be provided on a SM scheme connector road should be as close as practicable to the requirements of CD 122.

E/3.9.2 Where the stopping sight distance on a SM scheme connector road is less than required for that class of road, the existing provision should only be retained if a review of the operational performance does not highlight a problem with it.

Near straights (CD 122 5.8)

E/3.10 The near straight length to be provided at a SM scheme slip road shall be equal to or greater than the existing provision.

NOTE The existing near straight provision could be no near straight at all.

E/3.10.1 Adjoining near straight and nose lengths to be provided at an existing motorway slip road may be different.

E/3.10.2 The near straight length to be provided at a SM scheme motorway slip road should be as close as practicable to the requirements of CD 122.

E/3.10.3 Where the length of near straight at an existing motorway slip road is less than the minimum required for that class of road, the existing provision should only be retained if a review of the operational performance does not highlight a problem with it.

Weaving lengths (CD 122 4.2, 4.3 and 4.5)

E/3.11 The minimum weaving length provided on a SM scheme shall be equal to or greater than the existing provision.

E/3.11.1 The weaving length to be provided on an SM scheme should be as close as practicable to the requirements of CD 122.

E/3.11.2 Where the weaving length on a SM scheme is less than the length derived from CD 122 Figure 4.6b, options for reducing weaving should be assessed and implemented where practicable.

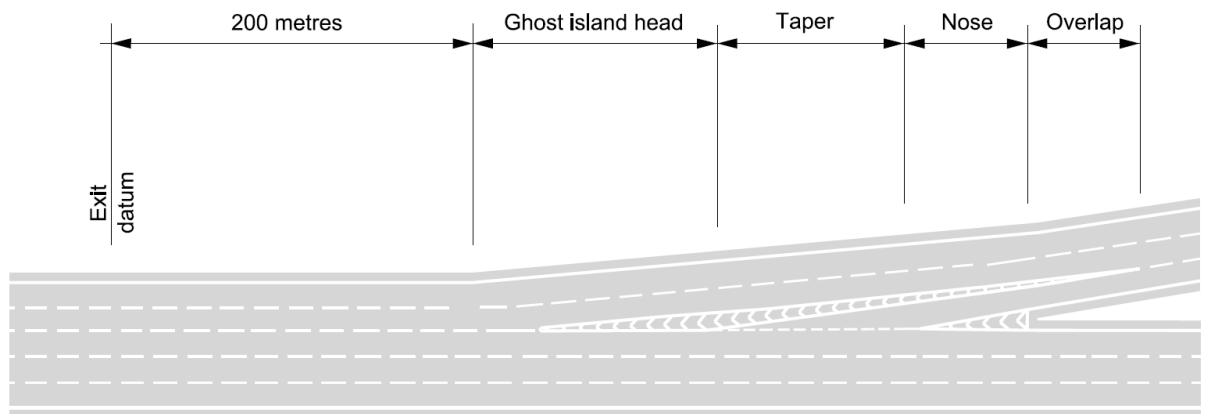
NOTE One option for reducing weaving length is introducing dedicated lanes between junctions.

E/4. 3 lane diverges

Diverge layout (CD 122 3.27)

- E/4.1 CD 122 3.27 shall not apply.
- E/4.2 For 3 lane diverges from the main carriageway, either Layouts F or G shall be used based on the number of downstream lanes to be provided.
- E/4.3 Layout G shall only be used with approval from the Overseeing Organisation.

Figure E/4.3 Layout G - mainline 2 lane drop and ghost island diverge



Datum points (additional to CD 122)

- E/4.4 The datum point for diverge Layout G shall be 200m upstream of tip of ghost island head, as illustrated on Figure E/4.3.

Measurement of weaving sections (additional to CD 122)

- E/4.5 Weaving sections for diverge Layout G shall be measured to the:
 - 1) exit datum point + 100 metres as defined in CD 122 Figure 4.4h for design speeds of $\geq 100\text{kph}$.
 - 2) exit datum point + 50 metres as defined in CD 122 Figure 4.4h for designs speeds of $\leq 85\text{kph}$.

E/5. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref 1.N	Highways England. CD 122, 'Geometric design of grade separated junctions'
Ref 2.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'
Ref 3.N	Highways England. GD 301, 'Smart motorways'
Ref 4.N	The Stationery Office. TSRGD, 'The Traffic Signs Regulations and General Directions 2016'

© Crown copyright 2019.

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence:

visit www.nationalarchives.gov.uk/doc/open-government-licence/,
write to the **Information Policy Team, The National Archives, Kew, London TW9 4DU**,
or email psi@nationalarchives.gsi.gov.uk.

Design Manual for Roads and Bridges



Road Layout
Design

CD 122

Northern Ireland National Application Annex to CD 122 Geometric design of grade separated junctions

Revision 0

Summary

There are no specific requirements for Department for Infrastructure Northern Ireland supplementary or alternative to those given in CD 122.

Feedback and Enquiries

Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated team in the Department for Infrastructure, Northern Ireland. The email address for all enquiries and feedback is: dcu@infrastructure-ni.gov.uk

This is a controlled document.

Contents

Release notes

2

Release notes

Version	Date	Details of amendments
0	Sep 2019	Department for Infrastructure Northern Ireland National Application Annex to CD 122.

© Crown copyright 2019.

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence:

visit www.nationalarchives.gov.uk/doc/open-government-licence/,
write to the **Information Policy Team, The National Archives, Kew, London TW9 4DU**,
or email psi@nationalarchives.gsi.gov.uk.



Road Layout
Design

CD 122

Scotland National Application Annex to CD 122 Geometric design of grade separated junctions

Revision 0

Summary

There are no specific requirements for Transport Scotland supplementary or alternative to those given in CD 122.

Feedback and Enquiries

Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Transport Scotland team. The email address for all enquiries and feedback is: TSSStandardsBranch@transport.gov.scot

This is a controlled document.

Contents

Release notes

2

Release notes

Version	Date	Details of amendments
0	Sep 2019	Transport Scotland National Application Annex to CD 122.

© Crown copyright 2019.

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence:

visit www.nationalarchives.gov.uk/doc/open-government-licence/,
write to the **Information Policy Team, The National Archives, Kew, London TW9 4DU**,
or email psi@nationalarchives.gsi.gov.uk.



Road Layout
Design

CD 122

Wales National Application Annex to CD 122 Geometric design of grade separated junctions

Revision 0

Summary

There are no specific requirements for Welsh Government supplementary or alternative to those given in CD 122.

Feedback and Enquiries

Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Welsh Government team. The email address for all enquiries and feedback is: Standards_Feedback_and_Enquiries@gov.wales

This is a controlled document.

Contents

Release notes

2

Release notes

Version	Date	Details of amendments
0	Sep 2019	Welsh Government National Application Annex to CD 122.

© Crown copyright 2019.

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence:

visit www.nationalarchives.gov.uk/doc/open-government-licence/,
write to the **Information Policy Team, The National Archives, Kew, London TW9 4DU**,
or email psi@nationalarchives.gsi.gov.uk.

APPENDIX E
Travel Calculation Comparisons

Appendix M

Calculation and Distribution of RHS Trips using the A3

		Value
A	Visitors per year	1494000
B	Visitors per Year to/from A3	1254960
C	Modal Split - Car	0.94
	Modal Split - Coach	0.05
	Car passengers	1179662
	Coach passengers	62748
D	Total Cars (Car Occupancy 2.25)	524294
	Total Coaches (Occupancy 30)	2092
Directional Flows		%
E*	Entry North	0.63
	Entry South	0.37
	Exit North	0.63
	Exit South	0.37
	63% Entry North Car	330305
	37% Entry South Car	193989
	63% Exit North Car**	330305
	37% Exit South Car	193989
	63% Entry North Coach	1318
	37% Entry South Coach	774
	63% Exit North Coach	1318
	37% Exit South Coach	774
Total Trips		
	Total Enter/Exit North (each way)	331623
	Total Enter/Exit South (each way)	194763

DATA SOURCES	
A	Motion TA (Final) - Appendix E
B	Motion TA (Final) - Figure 7.1
C	Motion TA (Final) - Paragraph 3.49
D	Motion TA (Final) - Paragraph 3.50
E	Motion TA (Final) - Figure 7.1



Appendix M

Summary of Distances Travelled per Trip by Scheme

Scenario	A - Existing	B - HE Scheme	C - RHS Scheme	D
	Existing (KM)	HE Accepted Distance Travelled per Car (WITHOUT Slips or Left Turn) (KM)	HE Accepted Distance Travelled per Car (WITH SLIPS and LEFT TURN) (KM)	Difference (C - A) (KM)
To Wisley Lane from A3 North	2.3	2.2	2.2	-0.1
To Wisley Lane from A3 South	1.7	7.6	2.0	0.3
From Wisley Lane to A3 North	0.5	2.9	0.5	0.0
From Wisley Lane to A3 South	5.2	7.8	1.6	-3.6

Summary Table of Total Distances Travelled per Annum by RHS Visitors

Scenario	A	B	(B - A)	C	(C - A)	(B-A)-(C-A)
Traffic Flow	Existing Distance Travelled (KM)	WITHOUT Slips or Left Turn Distance Travelled (KM)	Difference Between Proposals (KM)	WITH Slips and Left Turn Distance Travelled (KM)	Difference Between Proposals (KM)	Total Difference Between HE and RHS Scheme Proposals (KM)
To Wisley Lane from A3 North	769,366	729,571	- 39,795	39,795	- 809,161	769,366
To Wisley Lane from A3 South	325,254	1,480,197	1,154,944	60,376	- 264,877	1,419,821
From Wisley Lane to A3 North	179,077	961,707	782,631	-	- 179,077	961,707
From Wisley Lane to A3 South	1,008,871	1,519,150	510,279	697,251	- 1,706,122	2,216,401
ALL MOVEMENTS	2,282,568	4,690,626	2,408,058	676,669	- 2,959,237	5,367,295
ALL MOVEMENTS (Miles)	1,418,321	2,914,619	1,496,297	420,463	- 1,838,784	3,335,081