REP6 - .
RHS/RMCo/5

M25 JUNCTION 10/A3 WISLEY INTERCHANGE IMPROVEMENT SCHEME

PROPOSED M25 JUNCTION 10/A3 WISLEY INTERCHANGE DEVELOPMENT CONSENT ORDER ("DCO")

ROYAL HORTICULTURAL SOCIETY ("RHS") – REGISTRATION NUMBER 20022900

COMMENTS ON ANY FURTHER INFORMATION REQUESTED BY THE ExA RECEIVED BY DEADLINE 5

These comments are submitted on behalf of the RHS. Richard Max & Co LLP are the duly appointed solicitors to the RHS and are authorised to submit these comments and other documents on its behalf.

OVERVIEW

1. These comments:

    - address matters arising on further information requested by the ExA received by Deadline 5;
    - summarise the position of the RHS following Deadline 5; and
    - enclose various additional documents.

2. The RHS's case is fully set out in the evidence it has already submitted to the Examination and is not undermined by any of the information submitted by the Applicant at Deadline 5.

3. The additional documentation comprises:

    - ***REP6-xxx – Appendix 1 - Highways and Transport comments from TTHC on Deadline 5 Submissions.***
    - ***REP6-xxx – Appendix 2 - Copy of a letter dated 13 April 2020 from the RHS to Natural England ("NE"); Annex prepared by Penny Simpson of Freeths LLP, Solicitors on Air Quality and Biodiversity Issues which attaches a paper prepared by Baker Consultants***

"Review of Impact pathway of Nitrogen Deposition on Invertebrates".

- ***REP6-xxx – Appendix 3 - Further Representations of Jon Bunney of Hatch Regeneris on Economic Impact.***
- ***Current Draft AQ/Biodiversity SoCG.***
- ***Current Draft Traffic and Highways SoCG.***

Highways and traffic impacts

4. Attached as Appendix 1 are brief comments on Deadline 5 material prepared by Mike Hibbert of TTHC.

5. The RHS's case remains that the DCO Scheme would result in the significant worsening of access to and from the RHS Garden. Each visitor would have to drive further (round trip) when visiting the RHS Garden and the new route, whether via the signposted A3 or via local villages, would be significantly less attractive. Cumulatively, when compared with the RHS Alternative Scheme, the DCO Scheme would result in an additional 1.6 million miles (2.6 million additional kilometres) to the road network each year via the signposted route.

6. In comparison, the RHS Alternative Scheme would result in much improved access arrangements; reduced journey times and less vehicular mileage (and therefore less pollution). It would achieve the stated aim of the DCO Scheme of "improved access to RHS Wisley".

7. Some areas of agreement (in full or part) are set out in the SoCG. However, there remain fundamental issues in respect of the traffic modelling which has been undertaken to support the DCO Scheme which primarily relate to a lack of validation of existing conditions within Ripley and the lack of a modelled assessment of the RHS Alternative. The RHS has consistently stated that neither the ExA nor the Secretary of State can rely on the modelling put forward by HE. The RHS notes that in ExQ3 the ExA has required HE and SCC to "extend the traffic modelling that has already been undertaken to date to include model runs that incorporate south facing slips at the Ockham Park junction".

The RHS welcomes this requirement and will request access to the full model.

8. Although HE's position is that "some" traffic to/from the south will use the DCO signposted route, its modelling is suggesting that as a consequence of the Scheme all of this traffic will transfer away from Strategic Road Network A3 Ripley Bypass route in favour of routeing via the Local Road Network through Ripley and Send. For RHS traffic alone this represents an overall switch of 30% of traffic away from the Strategic Road Network and onto the Local Road Network. This in itself demonstrates a fundamental flaw in the lack of suitable provision and replacement of the current Wisley Lane connections with the A3. This appears to be counterintuitive given that this is a national infrastructure project seeking to improve traffic conditions.

9. The RHS Alternative Scheme has never been modelled by HE. If HE had modelled the RHS Alternative Scheme, it would have been possible to directly compare the benefits of the simpler, more direct routeing in terms of its overall operational and safety performance against that of the DCO Scheme rather than speculate based on selective commentary of assumed locally-focused effects. The failure of HE to do this means that the ExA and the Secretary of State cannot make a decision on the DCO Scheme because impacts on the local road network have not been properly assessed.

Air Quality and Biodiversity; Letters to NE and Freeths LLP's Annex;

10. Attached as Appendix 2 is a letter written by the RHS to NE dated 3 April 2020 to the Casework Officer dealing with the DCO Scheme and the NE SoCG with HE.

11. Referred to in that letter (and also forming part of Appendix 2) is the Annex prepared by Penny Simpson of Freeths LLP setting out the RHS objections to the position taken by HE on air quality and biodiversity issues.

LEGAL SUBMISSIONS ON AIR QUALITY AND BIODIVERSITY ISSUES

12. The RHS's case remains that on the information currently before the ExA it would be unlawful pursuant to the Conservation of Habitats and Species Regulations 2017 ("the Regulations") for the DCO Scheme to be confirmed.

13. The RHS's detailed case is set out the legal analysis provided by Freeths LPP – see Appendix 2.

14. In summary:

    i. The evidence demonstrates that the DCO Scheme (either alone or in combination with other plans or projects) will give rise to increased nitrogen deposition within the SPA, including within the woodland that stands between the road network and the heathland of the SPA;

    ii. There is a risk (alternatively it cannot be ruled out with the certainty required by the Regulations and caselaw) that the increased nitrogen deposition will adversely affect the invertebrates (for example moths and beetles) within the SPA, including within the woodland.

    iii. There is a risk (alternatively it cannot be ruled out with certainty) that the impact on the invertebrates will in turn adversely affect the SPA qualifying bird species which feed upon those invertebrates. It is important in this regard to note that HE and NE have already accepted that the loss of woodland as a result of the DCO Scheme will have an adverse impact on the integrity of the SPA due to the consequential reduction in invertebrate availability for the SPA qualifying species. The same pathway of impact on the integrity of the SPA exists in relation to the effects of nitrogen deposition on invertebrates within the remaining woodlands. It is also important to note that HE's bird and air quality data is inadequate / insufficient.

    iv. There is therefore a risk (alternatively it cannot be ruled out with certainty) that the DCO scheme will have an adverse effect on the integrity of the SPA via the air quality impact pathway.

v. It is therefore necessary for HE to undertake an assessment of alternative solutions to see whether there exists any alternative solution that would better protect the integrity of the SPA, including with regard to the air quality impact pathway on the SPA.

vi. HE has not assessed the RHS Alternative Scheme or any other alternative in order to see whether it would have a less harmful impact on the integrity of the SPA than the DCO Scheme.

vii. On the information currently before the ExA it would therefore be unlawful for the Secretary of State to confirm the DCO.

15. For the avoidance of doubt the RHS's full case remains as set out in its wider submissions on this issue.

16. The RHS respectfully repeats its request for the ExA to require HE to undertake an assessment of the RHS Alternative Scheme in accordance with the requirements of the Regulations.

Economic Impact

17. Attached at Appendix 4 is a copy of further Representations prepared by Jon Bunney of Hatch Regeneris.

18. HE sought to undermine the RHS case by questioning its assumptions on the:
    - distribution of traffic travelling to the Garden;
    - impact of the DCO Scheme upon journey distances and times; and
    - validity of the visitor survey and hence the impact the DCO Scheme will have upon behavioural responses of visitors, in terms of reduced visits to the Garden.

19. The RHS has undertaken new surveys – see the Appendices to Jon Bunney's further Representations. This work has addressed all the criticisms raised by HE in relation to the original survey work and, by association, the conclusions reached in relation to the impact of the DCO Scheme upon behaviour responses of visitors. The new survey work also supports the RHS assumptions on the distribution of traffic travelling to the Garden.

20. The DCO Scheme will generate significant economic costs to individuals travelling to the Garden (direct transport impacts) and will affect the attractiveness of visiting the Garden, resulting in a reduction in visitor numbers and wider loss of economic activity in terms of spend, direct employment, and supply chain impacts (wider economic impacts).

21. The updated RHS economic impact assessment demonstrates the economic cost during the construction phase is substantially higher than previously estimated, with a potential reduction of 450,000 visits to the RHS Garden over a 3-year period. The on-going impacts, when the DCO Scheme is operational, will be marginally lower, on an annual basis, than previously estimated. The RHS's estimated range of impacts, of £60 million to £100 million, in 2020 prices, remains very significant.

22. Furthermore, the RHS evidence continues to demonstrate that the RHS Alternative Scheme (that is with both south facing slips at the Ockham Roundabout and left out at Wisley Lane components) negates all of the negative operational impacts of the DCO scheme and delivers many positive transport user benefits.

23. There is also strong evidence that delivering the south-facing slips at the Ockham Roundabout alone will deliver 'high', if not 'very high' value for money.

SUMMARY OF POSITION ON AGREEMENT OF SoCG

24. The RHS has borne in mind the advice of the ExA in its procedural decision of 18 March 2020:

"The ExA urges the Applicant and the relevant Interested Parties to press ahead with the work necessary to prepare these statements narrowing areas that are 'under discussion' or 'not agreed' as far as possible, and the position statements on those matters that will not be agreed."

25. Attached are the current versions of:

- Transport and Highways; and

- Air Quality/Biodiversity

sections of the SoCG.

26. There is no agreed position on Economic Impact matters and the matter is to be recorded in the SoCG as follows:

*The parties **DO NOT AGREE**:*

- *on the extent to which visitors to RHS Wisley Garden will reduce the frequency of their visits as a result of disruption caused during the construction and operational phases of the DCO scheme;*
- *upon the level of disruption and delay caused by the DCO Scheme Construction Phase; and*
- *as to the scale of the economic impacts of the DCO Scheme on RHS Wisley Gardens, either during the construction of the DCO Scheme or once the DCO Scheme has been completed.*

27. The Record of Engagement and Minutes of Meetings are currently being reviewed by the RHS.

28. It is hoped that a final version of the SoCG agreed by the parties will be available in advance of Deadline 7.

CPO

29. The position of the RHS in relation to CPO issues is as set out at Deadline 5 namely:

- The RHS has decided not to maintain its CPO objections save in respect of Plots 2/27, 2/27(a) and 2/30; and
- The RHS's position in respect of these Plots and its concerns relating to access to the RHS Garden during the construction period are set out in its response to ExQ2 2.16.5.

LAND AND WORKS AGREEMENT (LWA), TEMPORARY WORKS, CONSTRUCTION PERIOD AND DCO REQUIREMENTS

30. The RHS has been in discussions with HE to enter into a LWA that will cover Construction Impacts and Temporary Works. At present the RHS reserves its position on such matters.

31. The RHS reserves its position to comment on the Requirements contained in the emerging draft DCO once the ExA has published its Schedule of Changes on 9 April 2020.

UNRESOLVED DESIGN ISSUES LEADING TO ROOT IMPACTS ON RHS REDWOOD TREES

32. The RHS continues to reserve its position in relation to these concerns, pending receipt of further details from HE.

33. The RHS notes the proposed Requirement 18 concerning the protection of tree roots and reserves its position to comment on the Requirements contained in the emerging draft DCO once the ExA has published its Schedule of Changes on 9 April 2020.

COVID-19 AND ITS IMPACT ON THE DCO PROCESS

34. The RHS is like many other organisations drastically affected by the Covid-19 Crisis. All its Gardens have been shut in response to the Government's requirements.

35. The RHS notes the Procedural Decision of the ExA issued on 18 March 2020 in relation to the postponement of the ISH; OFH and CAH. It also notes the issue by the ExA of ExQ3 which it will endeavour to respond to by Deadline 7.

36. Whilst the RHS awaits further directions from the ExA into the conduct of the remaining Examination period, it would like to assure the ExA and PINs that it will seek to be as flexible as possible - for example using

new technology to hold meetings or changing meetings, where appropriate, into written format.

CONCLUSIONS

37. The RHS welcomes ExQ3 published on 3rd April 2020, in particular the requirement for HE to model the south facing slips. It is highly regrettable that HE has refused to this to date, despite RHS's repeated requests for the work to be undertaken. It is unreasonable for a charity such as the RHS to have had to spend its valuable resources in this way.

38. For the reasons summarised above and as set out in detail in its written submissions, the RHS reiterates its view is that the DCO scheme is flawed and should be refused.

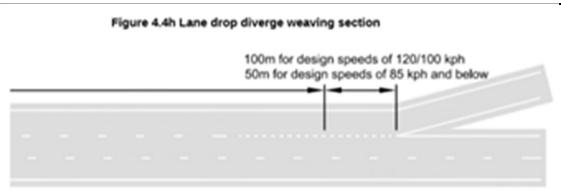
Richard Max & Co LLP for and on behalf of the RHS

03 April 2020

RHS Comments on Deadline 5 Submissions (Highway Matters)

Comments on REP5-014 – Applicant Response to ExA's Second Written Questions			
Ref	**Question**	**Highways England Response**	**RHS Response to specific HE Comments**
2.13.10	Given the assessment of the side road options, which includes 'the RHS Alternative' under the headings of 'WIS12+WIS-10+OCK04' (section 2.2.5), 'Ockham south facing slip roads' (section 4.2), 'Ockham Interchange: South-Facing Slip Roads' (section 5.3.3) and 'Amendments to WIS12' (section 6.1.2) in the Applicant's 'Scheme Assessment Report Side Roads Addendum of November 2017 [REP3-017], a document which was contemporaneous with the making of the Preferred Route Announcement in November 2017, is it reasonable or unreasonable to say that the alternative access arrangements for RHS Wisley promoted by the RHS is an 'option' that was or was not assessed prior to the submission of the application for the Proposed Development?	It is reasonable to say that the alternative access arrangements for RHS Wisley promoted by the RHS was assessed prior to the submission of the DCO application. The Side Roads Addendum [REP3-017] explains that the RHS Alternative was assessed prior to the submission of the DCO application. It is described in Section 2.2.5 and assessed in Chapters 3, 4 and 5 and summarised in the conclusion. To note that: • WIS12 refers to direct access to the A3 carriageway • WIS10 entails an overbridge from Wisley Lane over to the southeast side of the A3 and a two-way link road broadly parallel to the A3 southbound carriageway to Ockham Junction and is similar to the Wisley Lane diversion element of the Scheme. As such it is not referred to below. • OCK04 refers to south-facing slip roads at Ockham Junction In traffic terms Section 3 of the Side Roads Addendum [REP3-017] states that: • In reference to WIS12 - this side road option has not been explicitly modelled, it is not clear how this would affect performance of the network. The additional merge point onto the A3 is considered likely to have a negative impact on both safety and operation in comparison to the other WIS side road options although it would reduce pressure on Ockham interchange. • In reference to OCK04, it was not evident that there are sufficient benefits to these road users to justify extending the scope of this project to include	Whilst HE state that the RHS Alternative was assessed prior to the submission of the DCO, it is clear that it has never been modelled. This is despite requests also from the local highway authority, Surrey County Council (SCC). If HE had modelled the RHS Alternative, it would have been possible to directly compare the benefits of the simpler, shorter, more direct routeing in terms of its overall operational and safety performance against the DCO Scheme rather than speculate based on selective commentary of locally-focused effects. It should also be noted that at the time the Side Road Addendum report [REP3-017] was prepared, HE was suggesting that its model showed all traffic to/from the south would route via the signposted Strategic A3, whereas the DCO Scheme modelling is suggesting that none of this traffic would take this route; the model suggesting that all would now favour routeing via the local road network through Ripley and Send. The claimed safety issues associated with the existing Wisley Lane connection to the A3 have been dealt with in REP5-053 (item 4).

		south facing slips for this reason alone. In terms of the environmental appraisal in Section 4 of the Side Road Addendum: • WIS12 would be least preferred due to the impact on SPA/SSSI. • OCK04 was assessed against nine environmental criteria and was presented in Table 4-2 of the Side Roads Addendum [REP3-017]. The RHS Alternative was also assessed in policy terms and it was concluded that Option WIS11 is therefore considered to offer a lower legal and policy accordance risk than Option WIS10 and WIS12 (Side Roads Addendum [REP3017]). Accordingly, the WIS12 and OCK04 elements were rejected.	
2.13.18	With respect to the RHS alternative scheme [REP1-044] if a left turn from Wisley Lane onto the A3 was to be retained: b) Are weaving lengths affected by the speed limit applying to an all-purpose dual carriageway?	The weaving lengths do not relate to the speed limit. The measurement of the weaving length is affected by the design speed. The calculation of the weaving length (Lact) turns upon the types of merge and diverge that are proposed. For example, the measurement is taken from the end of the merge taper (where merging traffic joins the mainline carriageway through an area forming a funnel to or flare from the mainline carriageway) and in the case of a lane drop the measurement is taken to 100 m from the tip of the nose (a paved area, approximately triangular in shape, between a connector road and the mainline diverge, suitably marked to discourage drivers from crossing it) for a design speed of 120/100 kph road or 50 m from the tip of the nose for design speeds of 85 kph and below (See CD122 (TR0130030/EXAM/Volume 9.67), Figure 4.4h).	A full response to Question 2.13.18 was provided by RHS in REP5-054 which confirms that a Departure from Standard is not required in respect of weaving length. For clarity, in respect of how Lact has been measured, it should be noted that the 100m adjustment to allow for the lane drop, as set out in Figure 4.4h, has been allowed for. This is demonstrated by reference to Drawing M16114-A-032 (Appendix J) of Appendix A of document REP1-044.

			
Comments on REP5-014 – Applicant Response to ExA's Second Written Questions			
Ref	**RHS Comment**	**Highways England Response**	**RHS Response to specific HE Comments**
12	As shown (Table in REP4-049), despite the addition of background traffic growth, all 2015 Baseline flows are higher than the 2022 DoMin equivalents and, in some cases, they are also higher than the 2037 DoMin equivalents. There are some 2037 flows which are lower than the equivalent 2022 and 2015 values. These changes in traffic flow are counter-intuitive and, where DoSom flows (with the DCO improvements) are lower than the equivalent DoMin flows (without the DCO improvements), it suggests that the introduction of the Scheme will divert traffic away from J10. There is no evidence submitted to the DCO which explains these issues which undermine the credibility of HE's traffic modelling.	The table presented by RHS contains information already provided by Highways England in REP2-011. It shows traffic flows on the M25 J10 onslips in the morning and evening peaks for each of the modelled years and the do-minimum and do-something scenarios. The point made by RHS is that the base year flows are generally higher than the do-minimum flows in the 2022 and 2037 forecast years. It should be noted that in many cases the reduction is small and whilst any reduction may appear to be counter-intuitive the reasons for the reductions are: • Levels of congestion at the junction by 2022 in the do-minimum scenario have the effect of causing vehicles to avoid using the junction and seeking alternative routes instead. • The movement from the A3 southbound to M25 clockwise, in the 2022 and 2037 do-minimum scenarios, are forecast to be very congested. As such, signal timings for this movement around J10 were altered in the models to stop queues blocking the circulatory carriageway. It is usual for Highways England to manage their network in this way. This does not indicate any flaw in the modelling.	HE's suggestion that the levels of congestion by 2022 in the DoMin scenario have the effect of causing traffic to avoid using the junction and seeking alternative routes does not explain why future year flows are lower than observed in 2015 Base. This effect might explain a plateauing of growth or even very limited growth from 2015 but not a transfer of traffic away from the junction. With regard to HE's explanation that signal timings have been altered within the model to stop the A3 southbound to M25 clockwise movement blocking the circulatory carriageway, the 12.5% reduction in traffic between the 2015 Base and the 2037 **DoMin scenarios** suggests that the adjustments haven't just capped the demand, they've removed traffic from the junction.

RHS Gardens Wisley
Wisley Lane
Woking
Surrey GU23 6QB

Inspiring everyone to grow

Marc Tuner
English Nature

3rd April 2020
BY EMAIL

Dear Mr Turner

NATURAL ENGLAND'S INCORRECT STATUTORY ADVICE RELATING TO HIGHWAYS ENGLAND'S M25 JUNCTION 10/A3 WISLEY INTERCHANGE IMPROVEMENT SCHEME

You will be aware that the Royal Horticultural Society (**"RHS"**) is objecting to the application made by the Government-owned Strategic Highways Company (formerly Highways England) (**"HE"**) for a Development Consent Order under s37 of the Planning Act 2008 in relation to the M25 junction 10/A3 Wisley interchange improvement scheme (**"DCO Scheme"**).

In that context the RHS is very concerned about Natural England's statutory advice to the Secretary of State (who must determine this application) in relation to the assessment of impacts of the DCO Scheme on the Thames Basin Heaths Special Protection Area (**"SPA"**).

RHS has taken legal advice on this issue. This concludes that, if the Secretary of State follows the current statutory advice from NE (in relation to the assessment of impacts from the DCO Scheme on the SPA undertaken to date by HE), then any resulting Development Consent Order will be unlawful due to a failure to apply correctly the requirements of the European Habitats Directive (as it applies to the SPA) and the Conservation of Habitats and Species Regulations 2017. Full details are in the Annex attached.

Based on the evidence presented by HE to date, the *correct* conclusion, which NE ought to be advising, is that the Secretary of State is required to (I) consider the alternative road layout put forward by the RHS (the **"RHS Alternative Scheme"**) which reduces the number of kilometres driven (compared with the DCO Scheme) by 2.6 million per year; and (ii) only grant development consent for the DCO Scheme if it can be shown that the DCO Scheme is the solution which (amongst the alternatives including the RHS Alternative Scheme) best respects the integrity of the SPA. This is an essential analysis so far ignored by both NE and HE.

The RHS has requested NE to engage with the RHS in relation to its concerns. However NE has refused to do on the grounds that NE has a 'very heavy work load' (this is stated in an application document REP5-003 p148).

I do appreciate that NE is under work load pressure. It is however critical that this matter is properly addressed. I have written to your Chief Executive giving notice of our position and we are keen to engage with you, so look forward to your considered response and contact.

Yours sincerely

David Alexander
Principal Surveyor

FREETHS

ANNEX

NATURAL ENGLAND'S INCORRECT STATUTORY ADVICE ON HIGHWAY ENGLAND'S STATEMENT TO INFORM A HABITATS REGULATIONS ASSESSMENT OF THE DCO SCHEME

SUMMARY

1. The Government-owned Strategic Highways Company (formerly Highways England) (**"HE"**) has made an application for a Development Consent Order under s37 of the Planning Act 2008 in relation to the M25 junction 10/A3 Wisley interchange improvement scheme (the **"DCO Scheme"**).

2. HE, with Natural England's (**"NE's"**) support, has concluded in its "Statement to Inform an Appropriate Assessment" (**"SIAA"**) of the DCO Scheme dated 3 March 2020 (APP-043), that there will be no adverse effect on the integrity of the Thames Basin Heaths Special Protection Area as a result of changes in air quality linked to traffic from the DCO Scheme. This has been confirmed in a further HE document (REP5-024 dated 3 March 2020) and in the HE / NE Statement of Common Ground dated 3 March 2020 (**"SoCG"**) (REP5-003).

3. This conclusion has been reached on the basis that, although HE and NE acknowledge that there will be "significant increases" in air pollutants on *woodland* within the SPA from the DCO Scheme, the levels of air pollutants at the location of the *heathland* within the SPA (located 150m from the A3 road at its nearest point) will be negligible and hence the pollutant increases are not a cause for concern and allow a conclusion of "no adverse effect on SPA site integrity" from the air quality impact pathway.

4. Based on the information presented by HE, this conclusion is incorrect and does not accord with the strict legal protection afforded to European sites as set out in legislation and caselaw. This is fully explained in the detail below.

5. NE and HE have acknowledged that the DCO Scheme *will* give rise to an adverse effect on integrity of the SPA through woodland "land take" from the SPA (3.2.12 of SoCG). On that basis NE and HE has acknowledged that the Secretary of State must consider how the Habitats Directive "derogation tests" are met, which includes a requirement to examine any "alternative solutions" ie any alternative solution which would better respect the integrity of the SPA than the DCO Scheme.

6. Since, however, NE and HE have (wrongly) concluded that there will be no adverse impact on the SPA via an air quality impact pathway, HE has not provided to the Secretary of State any analysis of whether any alternative solution might better respect the integrity of the SPA in terms of air pollutant impacts. Similarly, NE has (wrongly) failed to request such information.

7. Based on HE's *own* evidence to date, the correct conclusion is that an adverse impact on the SPA from air emissions from DCO Scheme cannot be ruled out. As such the Secretary of State's consideration of alternative solutions must include consideration of any alternative solution that would better respect the integrity of the SPA in terms of air quality impact.

8. RHS has proposed an alternative layout (the "**RHS Alternative Scheme**") incorporating additional components to the DCO Scheme which would significantly reduce the emissions to air from traffic since it would lead to a reduction of 2.6 million kilometres per annum (via the DCO signposted route) compared with the DCO Scheme. Based on HE's present evidence, this alternative must therefore be considered and a judgment made by the Secretary of State

(and so it follows by HE so as to inform the Secretary of State) as to whether the RHS Alternative is an alternative solution that better respects the integrity of the SPA.

DETAIL

Key European Court caselaw and guidance

9. The Court of Justice of the European Union (**"CJEU"**) caselaw makes clear that consideration of "alternative solutions" under Article 6(4) of the Habitats Directive (implemented by regulation 64(1) of the Conservation of Habitats and Species Regulations 2017) must be informed by a robust assessment under Article 6(3) of the Habitats Directive.

10. In its ruling in case C-304/05 *Commission of the European Communities v Italian Republic*, paragraph 83, the Court stated that:

Article 6(4) of Directive 92/43 can apply only after the implications of a plan or project have been studied in accordance with Article 6(3) of that directive. Knowledge of those implications in the light of the conservation objectives relating to the site in question is a necessary prerequisite for application of Article 6(4) since, in the absence thereof, no condition for application of that derogating provision can be assessed. The assessment of any imperative reasons of overriding public interest and that of the existence of less harmful alternatives require a weighing up against the damage caused to the site by the plan or project under consideration. In addition, in order to determine the nature of any compensatory measures, the damage to the site must be precisely identified' (see also C-399/14, C-387&388/15, C-142/16).

11. The CJEU has been clear as to the robust manner in which an appropriate assessment under Article 6(3) must be conducted:

11.1. An appropriate assessment must precede the DCO Scheme's approval and take into account the cumulative effects which result from the combination of that plan or project with other plans or projects *in view of the site's conservation objectives*[1].

11.2. An appropriate assessment must ensure that *all aspects* of the DCO Scheme which can, either individually or in combination with other plans or projects, affect the conservation objectives of any European site *are identified in the light of the best scientific knowledge in the field*[2].

11.3. An appropriate assessment *may not have lacunae and must contain complete, precise, and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposals on the protected site(s) concerned*[3].

[1] Paragraph 53 of the judgment in *Landelijke Vereniging tot Behoud van de Waddenzee v Staatssecretaris van Landbouw, Natuurbeheer en Visserij* (C-127/02) http://curia.europa.eu/juris/showPdf.jsf;jsessionid=9A8BC9FFD4CD3D767F9B47A756DD06FA?text=&docid=49452&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=2229622

[2] Paragraph 54 of the judgement in *Landelijke Vereniging tot Behoud van de Waddenzee v Staatssecretaris van Landbouw, Natuurbeheer en Visserij* (C-127/02)- http://curia.europa.eu/juris/showPdf.jsf?text=&docid=49452&pageIndex=0&doclang=en&mode=lst&dir=&occ=first&part=1&cid=646546

[3] Paragraph 44 of the judgement in *Sweetman v An Bord Pleanala* (C-258/11) - http://curia.europa.eu/juris/document/document.jsf?text=&docid=136145&pageIndex=0&doclang=en&mode=lst&dir=&occ=first&part=1&cid=645773

12. The CJEU has also been clear as to the strictness of the "no adverse effect on site integrity" test:

12.1. As to the meaning of the "integrity" of the site, the Court stated in its ruling in case C-258/11, paragraph 48:

Article 6(3) of the Habitats Directive must be interpreted as meaning that a plan or project not directly connected with or necessary to the management of a site will adversely affect the integrity of that site if it is liable to prevent the lasting preservation of the constitutive characteristics of the site that are connected to the presence of a priority natural habitat whose conservation was the objective justifying the designation of the site in the list of SCIs, in accordance with the directive. The precautionary principle should be applied for the purposes of that appraisal.

12.2. The European Commission Guidance on Managing Natura 2000 dated 21 November 2018[4] states with reference to the paragraph above (on page 50) "*The logic of such an interpretation would also be relevant to ….habitats of species*".

12.3. Managing Natura 2000 also states (page 50):

As regards the connotation or meaning of 'integrity', this clearly relates to ecological integrity. This can be considered as a quality or condition of being whole or complete. In a dynamic ecological context, it can also be considered as having the sense of resilience and ability to evolve in ways that are favourable to conservation.

And

The 'integrity of the site' can be usefully defined as the coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated.

12.4. As regards a conclusion of "no adverse effect on integrity on a European site":

12.4.1. this test is only reached where the competent authority is *certain* (through the HRA assessment process) that there will be no resulting adverse effect on the integrity of any European site(s) either alone or in combination with any other plan or project[5]; and

12.4.2. certainty arises where the competent authority (through the HRA process) *has no reasonable scientific doubt as to the absence of such effects*[6].

Application of the CJEU caselaw and guidance to NE's and HE's assessment of air quality impacts on the "Ockham and Wisley Common" component of the Thames Basin Heaths SPA

[4] The European Commission Guidance on Managing Natura 2000 dated 21 November 2018- https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/Provisions_Art_6_nov_2018_en.pdf

[5] Paragraph 40 of the judgement in *Sweetman v An Bord Pleanala* (C-258/11) - http://curia.europa.eu/juris/document/document.jsf?text=&docid=136145&pageIndex=0&doclang=en&mode=lst&dir=&occ=first&part=1&cid=645773

[6] Paragraph 40 of the judgement in *Sweetman v An Bord Pleanala* (C-258/11) - http://curia.europa.eu/juris/document/document.jsf?text=&docid=136145&pageIndex=0&doclang=en&mode=lst&dir=&occ=first&part=1&cid=645773

13. NE and HE acknowledge that there *will* be "*significant increases*" in nitrogen deposition rates within the "Ockham and Wisley Common" component of the Thames Basin Heaths SPA (3.2.13 SoCG, see also paragraph 16 below).

14. However, NE and HE say that these significant increases are confined to the part of the SPA they describe as the woodland buffer aligning the A3 and M25 (3.3.1 SoCG makes clear that this is the area 150m or less from the road) and that these increases are negligible where the *heathland* within the SPA occurs (SoCG 3.2.13). Paragraph 3.2.6 SoCG also states "*the SIAA determined that the spatial extent of the air pollution impact is confined to the established woodland that separates the heathland from the roads*".

15. On this basis NE and HE wrongly conclude that there is no reasonable scientific doubt as to the absence of adverse effects to the integrity of the SPA (from the DCO Scheme alone or in combination with other plans and projects) from changes in air quality (SoCG 3.2.13).

16. For completeness SoCG 3.2.13 states:

    Taking into account the updated calculations [ie those in Appendix B to the SoCG]*, the changes in nitrogen deposition rates are negligible at the distance that the heathland occurs, and therefore all significant increases are confined within the woodland buffer that aligns the A3 and M25.*

    Therefore, even when taking into account updated velocities and RHS Wisley traffic following the signed route along the A3, it is clear that no reasonable scientific doubt remains as to the absence of adverse effects to the integrity of the SPA in the SIAA, and that Highways England are certain that the changes in air quality as a result of the Scheme (alone or in combination with other plans and projects) will lead to no adverse effects on the Thames Basin Heaths SPA as a result of changes in air quality.

    Therefore, adverse effects to the integrity of the SPA from changes in air quality can be ruled out and there is no requirement to consider alternatives in respect of air quality.

    Refer to Appendix B for a technical note on the SIAA findings after the updated calculations.

17. The same explanation is given in HE's document REP5-024 (dated 3 March 2020) which, after providing new data in a Table 8, states:

    1.1.4 As explained in paragraph 7.2.51 of the SIAA [APP-043] and again in Point 11 of REP4-005 (pages 10-16), the established woodland that separates the A3 and M25 from the heathland habitats of the SPA acts as a buffer and does not support the qualifying SPA species. For each of the transects within the SPA, the heathland habitats occur at a distance of 150 m or greater, and therefore, any points closer than 150 m fall within the woodland buffer. For completeness, nitrogen deposition rates have been added to this version of the table for transect distances of 150 m and 200 m in the table below, in order to enable a full understanding of the changes in nitrogen deposition at the distances at which the heathland occurs.

    1.1.5 It can clearly be seen in the table that the revised nitrogen deposition rates at the distance at which the habitat that supports the qualifying SPA species occurs (150 m at the closest point), fall well below 1% of the lower range of the critical load for heathland. Therefore, even after taking into account the revised nitrogen deposition rates, the Scheme will still not lead to an adverse effect on the SPA as a result of air quality impacts."

18. Clearly, from the above, HE's / NE's conclusion that the DCO Scheme will lead to "no adverse effect on SPA site integrity from an air quality pathway" is based on an assumption – namely that the woodland (within the Ockham and Wisley Common component of the SPA), which they acknowledge will be subject to "significant increases" in nitrogen deposition from the DCO Scheme (SoCG 3.2.13), has no relevance to the integrity of the SPA.

19. However, this conclusion is directly contradicted by HE's *own assessment* of woodland land-take impacts of the DCO Scheme which is supported by NE; and also by NE's / HE's *own statements* in the SoCG relating to air quality impacts. This conclusion is therefore simply wrong.

20. HE's SIAA (APP-043) clearly acknowledges that there *is* a pathway of impact between woodland in the SPA and the integrity of the SPA, based on the potential for the woodland to provide invertebrate prey items for the SPA's qualifying features, particularly nightjar. HE's SIAA states, when considering the loss of woodland caused by land-take of the DCO Scheme:

> *7.2.10 Whilst the mixed woodland to be lost as a result of the Scheme does not directly support the qualifying species as a nesting or foraging habitat, it does form a supporting habitat of the SPA and does contribute to the overall invertebrate resource within the wider SPA.*
>
> *7.2.17. The permanent loss of 5.9 ha of mixed woodland habitat, and temporary loss of 8.6 ha of mixed woodland habitat from the SPA equates to 10.1% of the total woodland within the Ockham and Wisley Commons SSSI component of the SPA (143 ha).*
>
> *7.2.20 The loss of invertebrate resources could have an impact on the following targets identified in the Natural England Supplementary Advice on Conserving and Restoring Features, and thus interrupt progress towards achieving the conservation objectives of the SPA, particularly with regards to nightjar.*
>
> *1. Food availability: Maintain or restore the distribution, abundance and availability of key prey items at prey sizes preferred by all three of the qualifying features;*
>
> *2. Extent and distribution of supporting habitat for the breeding season: Maintain the extent, distribution and availability of suitable breeding habitat which supports each of the three qualifying features for all necessary stages of their breeding cycle (courtship, nesting, feeding and roosting).*
>
> *7.2.23 When considering the appropriate assessment test, although the evidence provided clearly demonstrates that the qualifying species* [these are Woodlark, Dartford warbler and Nightjar] *are mainly reliant on the heathland habitats for their invertebrate resource, the loss of 10.1% of the total woodland within the Ockham and Wisley Commons SSSI component of the SPA will contribute to some reduction in the invertebrate food resource within the wider SPA and thus could have an indirect negative impact on the qualifying species (particularly nightjar).*
>
> *7.2.24. The loss of this land will represent a permanent and irreversible adverse effect on the integrity of the Thames Basin Heaths SPA, with respect to the conservation objectives to 'maintain the extent and distribution of the habitats of the qualifying features' and 'maintain or restore the distribution, abundance and availability of key prey items'. However, this loss of land would not cause any reductions in the abundance and/ or distribution of populations of any of the three qualifying species,*

as the heathland habitats within which they occur will remain untouched by the Scheme.

21. In support of this conclusion the SIAA also states that:

    21.1. As regards woodlark:

    4.7.15 ….. the adjacent woodland areas within the SPA may contribute to the invertebrate resource of woodlarks, by increasing the abundance of invertebrates such as moths and associated caterpillars within the heathland areas.

    21.2. As regards nightjar:

    4.7.12 ….. the adjacent woodland areas within the SPA may contribute to the invertebrate resource of nightjars, by increasing the abundance of moths and beetles within the heathland areas, especially at the woodland edges.

22. HE's comments at Point 11 of the Table at Section 2 (pages 8-20) of REP4-005 (Comments on RHS's overview letter) says the same:

    …..it has already been accepted by Highways England that it is not possible to conclude no adverse effect to site integrity. The adverse effect to site integrity follows a precautionary approach and is based on land take from the SPA and the potential for the woodland being lost to provide an invertebrate resource, even though it does not physically support the qualifying species.

23. Furthermore, even in the context of air quality impacts (instead of land-take impacts), the NE / HE SoCG (paragraph 3.2.6) acknowledges the same pathway / link between the woodland buffer and the invertebrate source for the wider SPA:

    3.2.6 …….Whilst this woodland buffer may also provide an invertebrate source for the wider SPA, it does not itself support any of the qualifying species as a foraging or nesting habitat…..

24. Further references to this pathway/ link are found in the correspondence between NE and HE and their advisors at Appendix A to the SoCG (eg pages 48, 51 and 68).

25. We see this acknowledged again in the context of HE's proposals for the provision of compensatory habitat under Article 6(4) Habitats Directive (as applied to the SPA). HE and NE in this context state (3.2.17 of the SoCG) that "*the primary purpose of the compensation land is to provide invertebrate resource for the SPA qualifying features, as opposed to providing foraging or nesting habitat*". Hence again here HE and NE are demonstrating that they believe that there is an important role for land in terms of the qualifying SPA species even where they believe that that land is not used by foraging or nesting birds of the SPA's qualifying species (a point with which RHS's ecologist takes issue, see paragraphs 41-45 below).

26. It could not be clearer from the above that both NE and HE acknowledge that a reduction in invertebrates from the woodland within this component of the SPA "*could have an indirect negative impact on the qualifying species (particularly nightjar)*" (see in particular 7.2.23 from the SIAA above)[7].

[7] This is an appropriate conclusion to draw, particularly in light of the European case of *Brian Holohan and Others v An Bord Pleanala* (C-461/17 of 7 November 2018)[7]. At paragraph 40 of this judgment the CJEU rules:

27. Indeed it is *because* of the accepted link between invertebrates in the SPA's woodland and the qualifying features of the SPA that NE / HE have concluded that the SPA woodland land-take resulting from the DCO Scheme *will* adversely affect the integrity of the SPA (see for example SoCG 3.2.12 and SIAA 7.2.24 and paragraph 22 above).

28. On that basis, it cannot logically be concluded by NE or HE that, because they believe that the woodland does not support foraging or nesting habitat for the qualifying bird species (as to which see paragraphs 41-45 below), the acknowledged significant air quality deterioration from the DCO Scheme in the woodland of the SPA within 150m from the road has no relevance to the integrity of the SPA.

29. This fails to take account of the very impact pathway (ie reduction in invertebrates in the woodland) which has lead NE and HE to conclude that there will be an adverse effect from the land-take associated with the DCO Scheme. It also fails to meet the robust standards required for appropriate assessment under the caselaw set out at paragraph 12 above.

30. It is also directly contradicted by HE's SIAA which states at 7.2.33:

    significant increases in nitrogen deposition resulting from the Scheme …could lead to a reduction in ….their [ie the SPA qualifying species'] *invertebrate resource*

    As already noted above, both NE and HE have acknowledged at SoCG at 3.2.13 that there *are* to be significant increases in nitrogen deposition from the DCO Scheme in the woodland <150m from the road.

31. HE states in point 11 of the Table at Section 2 of REP4-005 (pages 8-20) (HE comments on RHS's overview letter) (and this is repeated at 3.2.6 SoCG) that:

    Whilst this woodland buffer may also provide an invertebrate source for the wider SPA, it does not itself support any of the qualifying species as a foraging or nesting habitat. It is important to recognise that, in the case of a classified SPA, the ecological interest is the bird species which occur within the site. The classification of the site as an SPA recognises the importance of the habitats within the site, but only so far as they support the populations of SPA species for which the site has been classified. The habitats are not protected in their own right as would be the case for a designated SAC.

32. The above statement is however irrelevant. This is because NE and HE have already acknowledged the role played by the invertebrates in the woodland to the integrity of the SPA in view of the SPA's conservation objectives. NE and HE have concluded that loss of invertebrates from the woodland will lead to an adverse effect on integrity. Since that is the case it is irrelevant that "the habitats" of a SPA "are not protected in their own right".

33. The conclusion reached by NE and HE (summarised at paragraph 28 above) could only be sustained if NE and HE were *certain, based on the best scientific knowledge in the field,* that invertebrates in the woodland would in no way be affected by the acknowledged significant air quality deterioration in the woodland and where this were based on *correct and robust air*

"*In the light of the foregoing, the answer to the first three questions is that Article 6(3) of the Habitats Directive must be interpreted as meaning that an 'appropriate assessment' must, on the one hand, catalogue the entirety of habitat types and species for which a site is protected,* ***and, on the other, identify and examine both the implications of the proposed project for the species present on that site, and for which that site has not been listed****, and the implications for habitat types and species to be found outside the boundaries of that site,* ***provided that those implications are liable to affect the conservation objectives of the site."***

quality data (as to the air quality date, see "Further comments on the HE air quality evidence" below). No or insufficient evidence on this has as yet been presented by HE or requested by NE.

34. However, Baker Consultants Ltd, ecologists on behalf of RHS, have researched the scientific literature. This demonstrates a clear link between nitrogen deposition and potential adverse impacts upon invertebrate populations. Andrew Baker's summary is contained at the Appendix to this Annex.

35. Based on the assessment considered by NE and HE to date, therefore, the only possible logical conclusion is that an adverse effect on integrity of the SPA through air quality impacts of the DCO Scheme (either alone or in combination with other plans or projects) cannot be ruled out. Thus, the adverse effect on SPA integrity test is failed in relation to air quality impacts.

36. This is particularly the case given that (as explained in the caselaw see paragraph 12 above) in order to rule out any adverse effect on site integrity from the air quality pathway, the Secretary of State must be *certain* (through the HRA assessment process) that there will be no resulting adverse effect on the integrity of any European site(s) either alone or in combination with any other plan or project. This means that the Secretary of State must have *no reasonable scientific doubt as to the absence of such effects*.

37. The RHS is well aware of the recent High Court case of *Compton Parish Council v Guildford Borough Council* [2019] EWHC 3242 (Admin) (**"Guildford case"**). This does not alter the position set out above.

38. The key differences between the Guildford case and the DCO Scheme, as made clear by the judgment, are that:

    38.1. In the present case HE and NE have simply taken the view that all land within the SPA between 0m and 150m from the road can be disregarded for air quality impact assessment purposes since only air quality impacts on heathland are relevant and the nearest heathland is at 150m from the road. This approach finds no support whatsoever in the Guildford case. The approach adopted in the Guildford case was instead (as one would expect) to consider at what distance from the roads the air pollutant increases would be significant and then consider how those significant increases might affect the qualifying features of the SPA.

    38.2. In the Guildford case there was no acknowledgement in the appropriate assessment that loss of invertebrates in the woodland within the SPA between the road and the heathland *will* amount to an adverse effect on SPA site integrity. A crucial difference in this case is that NE and HE *have* acknowledged this impact pathway, by concluding that there *will be* an adverse effect on integrity on the SPA from the woodland land-take necessitated by the DCO Scheme (SoCG, 3.2.12 and SIAA 7.2.24). Having presented this impact pathway, NE / HE cannot logically then conclude that acknowledged "significant increases" in air pollutants from the DCO Scheme within the SPA's woodland (this being NE / HE's own words, 3.2.13 SoCG) have no relevance to the integrity of the SPA and can be dismissed as an impact pathway. This is particularly when the HE's SIAA states (7.2.33) (see above) that "*significant increases in nitrogen deposition resulting from the Scheme …could lead to a reduction in ….their* [ie the SPA qualifying species'] *invertebrate resource".*

39. As explained above, based on present information provided by HE, the "adverse effect on SPA integrity test" is failed in this case in relation to air quality impacts.

40. As such the statement in 3.2.13 SoCG that "*there is no requirement to consider alternatives in respect of air quality*" is incorrect. Instead the Secretary of State must satisfy himself that there is no alternative solution to the DCO Scheme which better respects the integrity of the SPA in terms of the air quality impact pathway. The alternative solutions section of the HRA as contained in APP-044 must be updated by HE and NE must request that additional information.

41. Although NE and HE appear to be of the view that birds of the SPA qualifying species do not nest or forage in, and are not present in, the woodland up to 150m from the road, RHS's ecologist, Andrew Baker, has noted that this has not been demonstrated by the data. HE has not in fact comprehensively surveyed these areas for breeding activity and has carried out no surveys of foraging activity.

42. The nightjar and woodlark surveys carried out by HE to inform the SIAA (and the ES) employed the method set out in Gilbert et al 1998 (ES Appendix 7.15 Breeding Bird Surveys para 7.1.3.3). The transects walked during these surveys are shown in 7.21, 7.22 and 7.23 (Chapter 7 Biodiversity Figures 3 of 3[8]). Woodland areas of the SPA within 150m of the roads were only surveyed in 2016 when the nightjar and woodlark surveys appear to have been combined with the general breeding bird surveys (Figure 7.21). During the surveys of 2017 and 2018 the nightjar and woodlark surveys did *not* cover areas within the woodland (Figure 7.22 and 7.23).

43. Consequently, with only 1 year of *woodland* nightjar and woodlark surveys, NE and HE cannot be remotely certain of the level of nightjar or woodlark activity in the woodland areas of the SPA.

44. Furthermore, the method set out in Gilbert et al 1998 can only be used to establish the location of *breeding territories* of Nightjar and woodlark. Since Nightjar often forage some distance away from their nesting territories, no assumption can be made (on the basis of the Gilbert et al technique) as regards this species' foraging locations. Therefore HE in fact has no data whatsoever on the foraging behaviour of Nightjar and therefore cannot conclude, as is claimed, that the woodland does not support foraging Nightjar foraging birds.

45. It should also be noted that the survey method employed by HE had been shown, several years before the HE surveys began, to be unreliable at detecting presence/absence of the birds. Peer reviewed research carried out by Baker Consultants Ltd along with the University of Newcastle[9] clearly demonstrated that, compared with conventional survey methods, bioacoustics surveys were three times more effective than human surveyors. The research found that human surveyors only detected nightjar on 6 out of 22 surveys whereas bioacoustic recorders detected activity in 19 out of 22 survey periods. The HE surveys therefore did not employ the best available techniques to gather the survey data.

Further comments on the HE air quality evidence

46. When considering impacts of traffic related air pollutants on the SPA (via the woodland invertebrate pathway as is required above), the Secretary of State must take into account appropriately robust modelled levels of air pollutants.

47. The following comments demonstrate that, to date, robust data has not been considered by NE or HE.

[8] These figures are incorrectly referenced in Appendix 7.15 at paragraph 7.1.3.6.
[9] Zwart MC, Baker A, McGowan PJ, Whittingham MJ 2014 The use of automated bioacoustic recorders to replace human wildlife surveys: an example using nightjars PLoS One.

Ammonia

48. RHS has made clear to the inquiry that ammonia levels and impacts from the predicted traffic (from the DCO Scheme alone and in combination with other plans or projects) have not been taken into account in HE's assessment. RHS's evidence is presented in REP1-041 para 3.12 and Appendix A4; REP3-044 page 13; REP3-050 section 2.7 page 5; REP5-49; REP 5-054, Question 2.3.2 page 1; REP5-054 section 2.4.8 page 2.

49. RHS remains of the view that ammonia impacts must be taken into account as, without this, the appropriate assessment cannot be robust ie it will not be based on best scientific knowledge in the field and will be incomplete.

50. In response to this, NE and HE state in 3.3.1 of the SoCG that:

The air quality assessment has been carried out in accordance with the Department for Transport's National Policy Statement for National Networks which requires consistency with Defra's published future national projections based on future emissions, traffic, and vehicle fleet, known as the Emissions Factors Toolkit (EFT). Ammonia is not included within this EFT, and hence there is no requirement for assessment.

Highways England initially adopted a precautionary approach to double the changes in nitrogen deposition rates with the Scheme to demonstrate that there would be no material change in nitrogen deposition rates at the location of the heathland in the SPA (at 150 metres from the road). This approach was also considered to be precautionary by Natural England.

Upon further analysis of the measured ammonia data provided by RHS Wisley within REP1-041 at Appendix A4, it could be seen that the concentrations decreased rapidly away from the road, such that concentrations could be considered to be at background levels by 30 metres from the road centre.

Hence any changes from road traffic would not affect the nitrogen deposition rates at the distance at the location of the heathland in the SPA.

51. The first key point is that it is irrelevant that "*ammonia is not included within this EFT".* Based on the CJEU caselaw, the absence of a requirement for assessing ammonia in the EFT is no proper basis for its exclusion from analysis. As the CJEU caselaw at paragraphs 12.2 and 12.3 of this Annex state, the SIAA must ensure that *all aspects* of the DCO Scheme which can, either individually or in combination with other plans or projects, affect the conservation objectives of any European site *are identified in the light of the best scientific knowledge in the field*. Furthermore an appropriate assessment *may not have lacunae and must contain complete, precise, and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the proposals on the protected site(s) concerned.* The CJEU caselaw does not say "if a guidance note does not require it, it can be ignored".

52. In any event it is already commonplace for consideration of ammonia emissions from traffic to be included in appropriate assessments. Three different air quality consultancy companies (Air Quality Consultants, AECOM and Ricardo Energy & Environment) have recently addressed this very issue in recent Local Plan HRAs for Wealden District Council, Epping Forest District Council and Havant Borough Council. Hence consideration of ammonia is plainly accepted as required for appropriate assessments within the air quality consultancy industry, and presumably also by NE who was the statutory consultee for those local plans, notwithstanding the fact that relevant guidance does not include a requirement for this. The CJEU caselaw requirements of appropriate assessment above cannot be met without inclusion of an assessment of traffic-based ammonia.

53. The second point is that it is incorrect for the SoCG to state that: "*Upon further analysis of the measured ammonia data provided by RHS Wisley within REP1-041 at Appendix A4, it could be seen that the concentrations decreased rapidly away from the road, such that concentrations could be considered to be at background levels by 30 metres from the road centre*[10]. It is not correct that concentrations of ammonia are 'at background levels' at 30m from the road and hence by implication their contribution to nitrogen deposition beyond that distance can be ignored. HE has reached this conclusion by reference to Figure 1 in Appendix 4 to REP1-041. Had HE considered Figure 2 (just beneath Figure 1), which also includes NOx concentrations, it is clear that both pollutants follow a broadly exponential decline with distance. This decline will go beyond the 100m shown – essentially out to an infinite distance - as is well recognised by all air quality experts. It is thus the case that both ammonia and NOx will be making contributions to nitrogen deposition at all distances and there is not a cut-off at 30m from the road. It is necessary to include the contribution of ammonia to nitrogen deposition at all distances.

54. The third point is that it is essential for the appropriate assessment to consider HE's deposition data taking into account ammonia, in line with the NE / HE-acknowledged "precautionary approach" (see paragraph 50 above). The following addresses this point:

    54.1. HE has provided a response in Appendix B to the SoCG with NE that deals, amongst other matters, with in-combination impacts of nitrogen deposition from the DCO Scheme (REP5-003). It sets out, for the first time, the in-combination impacts of nitrogen deposition associated with the DCO Scheme calculated in accordance with the correct methodology described by RHS in REP4-005 at point 2.9.1 on page 56. The results of these in-combination calculations are set out in Table 4, page 163, in Appendix B to REP5-003.

    54.2. The first point to make is that Table 4 is clearly deficient in that it does not set out the in-combination impacts of nitrogen deposition for the all of the receptors, just those 150 m and 200 m from the road (it is believed that the distances in column B should be labelled 'Distance from edge of the road'). Hence, HE has still not provided correct in-combination figures for nitrogen deposition for the land of the SPA between 0 and 150 m.

    54.3. Furthermore, Table 4 does not take into account ammonia. RHS' air quality consultants have therefore reproduced in Table 1 below the results from HE's Table 4 (in columns A to J (the transect numbers have also been added to the first column)). RHS' air quality consultants have then added columns K to N to provide additional information, in particular an assessment of the likely increases in Nitrogen deposition if ammonia is taken into account based on HE / NE's assumption that ammonia would double the nitrogen deposition due to NOx emissions (this is the "precautionary" approach described by NE / HE at 3.3.1 of the SoCG).

    54.4. Column K of Table 1 is the same as column G, but with a header that makes clear that this is the in-combination impact (the DCO Scheme together with other plans and

[10] We see this conclusion also in REP5-014 paragraph 2.3.3 "*Figure 1 in REP1-041 shows that concentrations of ammonia in the Ashdown Forest SAC decrease rapidly from the edge of the road, such that by 30 metres they are at background levels*". And in REP4-005 2.7.1 p52 "*In any case, the monitoring data for ammonia in the Ashdown Forest SAC to which RHS refer shows that in Figure 1 of REP1-041 concentrations of ammonia decrease rapidly from the edge of the kerb such that by 30 metres they are at background levels*".

projects) in terms of Nitrogen deposition (units for Nitrogen deposition are all kgN/ha/yr).

54.5. Column L is column K expressed as a percentage of the critical load (which is 10 kgN/ha/yr for both the heathland and the woodland – see REP4-005 RHS Response on page 37, para beginning "APIS presents critical loads …").

54.6. Column M is included to show the impact of including ammonia into the nitrogen deposition calculations, based on HE / NE's assumption that it would double the nitrogen deposition due to NOx emissions (this is the "precautionary" approach described by NE / HE at 3.3.1 of the SoCG). In practice, RHS' REP5-049 makes clear that this doubling is likely to be an underestimate, and the contribution is likely to be more than double, and hence it should not be considered precautionary.

54.7. It can be seen from Table 1 below that, even at a 150m distance from the road, the increases in nitrogen deposition arising from the DCO Scheme in combination with other plans or projects (when doubled to account for ammonia in the manner suggested by HE / NE) are significant, reaching up to 6% of the critical load in one case. These figures only reflect the area of the SPA beyond 150m from the road. Obviously if Table 1 were to show (as it needs to) figures for the area of the SPA between 0m and 150m from the road then much bigger increases in nitrogen deposition. This additional information is required urgently from HE in order for complete assessment to be carried out in accordance with the legal requirements.

55. Table 1:

	Receptor ID	Distance from road centre (m)	2015 Base N Dep	2022 Future base 'do nothing' (DN) N Dep	2022 'do minimum' (DM) N Dep	2022 'do something' (DS) N Dep	2022 Change DS-DN (a)	2022 Change DM-DN (b)	Scheme Alone Difference (a) - (b)	In-Combination Difference	In-combination Impact (% of CL)	In-combination Impact with Ammonia (% of CL)
	A	B	C	D	E	F	G	H	J	K	L	M
Transect 5: West of A3	R132	150	16.32	13.69	13.88	13.85	0.16	0.19	-0.03	0.16	**1.6%**	**3.2%**
(north of Wisley Lane)	R133	200	16.01	13.45	13.59	13.56	0.11	0.14	-0.03	0.11	**1.1%**	**2.2%**
Transect 6: East of A3	R139	150	16.8	14.06	14.35	14.29	0.23	0.29	-0.06	0.23	**2.3%**	**4.6%**
(near Bolder Mere)	R140	200	16.33	13.69	13.91	13.85	0.16	0.22	-0.06	0.16	**1.6%**	**3.2%**
Transect 3: West of A3	R147	150	17.34	14.47	14.64	14.64	0.17	0.17	<0.01	0.17	**1.7%**	**3.4%**
(close to junction 10)	R148	200	17.05	14.24	14.4	14.4	0.16	0.16	<0.01	0.16	**1.6%**	**3.2%**
Transect 4: East of A3	R155	150	17.77	14.8	14.84	14.81	0.01	0.04	-0.03	0.01	0.1%	0.2%
(close to junction 10)	R156	200	17.23	14.38	14.46	14.46	0.08	0.08	<0.01	0.08	0.8%	**1.6%**
Transect 1: South of M25	R163	150	17.51	14.6	14.9	14.9	0.3	0.3	<0.01	0.3	**3.0%**	**6.0%**
(west of junction 10)	R164	200	17.05	14.24	14.49	14.49	0.25	0.25	<0.01	0.25	**2.5%**	**5.0%**
Transect 2: South of M25	R193	150	17.69	14.73	14.93	14.9	0.17	0.2	-0.03	0.17	**1.7%**	**3.4%**
(east of junction 10)	R194	200	17.27	14.41	14.58	14.55	0.14	0.17	-0.03	0.14	**1.4%**	**2.8%**

56. <u>Future predictions of nitrogen deposition falling below the current baseline</u>

57. Paragraph 3.2.8 of the SoCG states that:

For every point of all the transects within the SPA including both the open heathland and the established woodland buffer the predicted operational nitrogen deposition levels (even when taking into account updated velocities, RHS Wisley traffic along the A3 and ammonia) fall below the current baseline. This is due to predicted reductions in future emissions

58. The same point is made in Appendix B of SoCG on page 164:

In addition, it can be seen in Table 3 that nitrogen deposition rates for all points of each transect within the SPA (as a result of the scheme, in combination with other plans and projects) fall below the existing baseline, ensuring that the woodland buffer will continue to exist in its current state and will continue to provide the same buffer function as it currently does.

59. However these comments do not address the key point, which is the extent to which the DCO Scheme, either alone or in-combination, will slow down, and possibly prevent the conservation objective target for this component of the SPA to meet / fall under the relevant critical load for nitrogen deposition.

60. The following explains this in more detail.

61. Table 3 in Appendix B in REP5-003 sets out the nitrogen deposition rates for all the receptors on the six transects (ie including those at 0m-150m from the road) for 2015, and for one scenario in 2022, incorporating traffic associated with the DCO Scheme together with that from other plans and projects.

62. Table 3 shows that the nitrogen deposition rates will be lower in 2022 than in 2015, which is due to a declining regional background contribution of nitrogen deposition and to a declining NOx contribution from the local roads. Note, however, that the absolute nitrogen deposition rates would be higher if ammonia had been taken into account (as they should be).

63. Table 3 does not however include the do nothing and do-minimum nitrogen deposition rates. Hence it cannot be seen in Table 3 by how much the DCO Scheme, either alone or in-combination, will slow down this downward trend (ie slow down this improvement).

64. It is nevertheless clearly the case from the results in Table 3 that the nitrogen deposition rates in 2022 will remain well *above* the critical load of 10 kgN/ha/yr for heathland and woodland at all receptors, with no analysis provided of when the levels may meet or fall below the critical load, which is unlikely to be in the foreseeable future.

65. Furthermore it is also clear that the DCO Scheme both alone (see REP5-024) and in-combination (see Table 4 in Appendix B in REP5-003) will increase Nitrogen deposition at some receptors alone and all receptors in-combination, although, as already noted in the paragraph above, this is not shown in Table 3.

66. These increases from the DCO Scheme, both alone and in-combination, will represent a "slowing down" of the downward trend. The DCO Scheme, alone and in combination with other plans or projects, will therefore make it harder to achieve the conservation objective target in the SPA's Supplementary Advice to (for nightjar) "*Restore as necessary the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)*" (there are similar targets for the other two qualifying species). The slowing down would be worse if ammonia were also taken into account.

67. Attainment of this target is already challenging, given the current considerable exceedances of the critical load – for example, at receptor R149 (5 m from the road) the nitrogen deposition is 24.38 kgN/ha/yr in 2022, which is 2.4 times the critical load (and this would be much higher had ammonia been included).

68. Furthermore it is clear from the Guildford case that it is not acceptable, when considering whether there might be an adverse effect on SPA site integrity from a plan or project, merely to rely on reductions in baseline emissions or the fact that with the development, emissions would still be much lower than at present. At paragraph 207 of the judgment, Sir Duncan Ouseley states:

    That [ie the question of whether there would be no adverse effect] *could not be answered, one way or the other, by simply considering whether there were exceedances of critical loads or*

levels, albeit rather lower than currently. What was required was an assessment of the significance of the exceedances for the SPA birds and their habitats. Guildford BC did not just treat reductions in the baseline emissions or the fact that with Plan development, emissions would still be much lower than at present, as showing that there would be no adverse effect from the Plan development…..

69. In this case, there has to date been:

69.1. no assessment by NE / HE of the air quality impacts on the NE- and HE-acknowledged role of the woodland invertebrates to the integrity of the SPA;

69.2. no assessment in that context of the nitrogen deposition, both for the DCO Scheme alone and in-combination with other plans and projects, that includes the contribution of ammonia from road traffic;

69.3. no assessment in that context of nitrogen deposition levels within the woodland <150m from the road;

69.4. no assessment in that context of the fact that the critical load of nitrogen deposition (10kgN/ha/yr for heathland and woodland) at this SPA is already exceeded for both woodland and heathland and will remain exceeded for the foreseeable future (see paragraph 64 above);

69.5. no consideration of the fact that the DCO Scheme will slow down the downward trend in nitrogen deposition;

69.6. no consideration of robust air quality data in relation to relevant nightjar (or other qualifying species') targets in the "European Site Conservation Objectives: Supplementary Advice on Conserving and Restoring Site Features for the Thames Basin Heaths Special Protection Area (SPA)" dated 9 May 2016 (nightjar is the qualifying species for which, according to HE, the concern regarding woodland invertebrates is greatest, SIAA paragraph 7.2.23):

Restore as necessary the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)

as well as

Maintain or restore the distribution, abundance and availability of key prey items (e.g. moths, beetles) at prey sizes preferred by Nightjar.

Penny Simpson
Partner
Freeths LLP
3 April 2020

FREETHS

APPENDIX

baker consultants
ECOLOGY DESIGN INNOVATION

Review of impact pathway of Nitrogen Deposition on invertebrates.

Andrew Baker FCIEEM
March 31st 2020

1. The RHS has already presented evidence to the inquiry on the deleterious effects of Nitrogen deposition- see 'Nitrogen as a threat to European terrestrial biodiversity' reproduced in Appendix 2 of Mr Baker's written representation (RHS/AB/1) (e.g. paras 12-14). This peer reviewed literature is comprehensive and incontrovertible, amassed over the last 40 years.

2. Nitrogen pollution can directly damage plants, but also acts as a fertilizer resulting in fundamental changes to habitats, changed species composition and a reduction in species diversity. It is for this reason that Natural England has, for the Thames Basin Heaths SPA, a specific conservation objective target for nightjar which is to 'Restore as necessary the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk)'11 and similar conservation objective targets for woodlark and Dartford warbler12.

3. It is therefore clear that nitrogen deposition from the DCO Scheme, either alone or in combination with other plans or projects, may adversely affect the populations of the invertebrates in the woodlands of the Ockham and Wisley Commons component of the Thames Basin Heaths SPA.

4. The invertebrates in the woodland are likely to provide a key source of food for the SPA qualifying species Nightjar, Woodlark and Dartford Warbler.

5. Moths and beetles form a major part of Nightjar prey items. Woodlark also feed on invertebrates including beetles and favour low vegetation and bare ground, where invertebrates are accessible to the birds (Bowden 1990).

6. HE agrees that the woodland contributes to the invertebrate resource for nightjars and woodlarks – see paragraphs 4.7.12 and 4.7.15 of the SIAA:

   "4.7.12…. However, the adjacent woodland areas within the SPA may contribute to the invertebrate resource of nightjars, by increasing the abundance of moths and beetles within the heathland areas, especially at the woodland edges"

   4.7.15….. However, the adjacent woodland areas within the SPA may contribute to the invertebrate resource of woodlarks, by increasing the abundance of invertebrates such as moths and associated caterpillars within the heathland areas.

[11] Thames Basin Heaths SPA Conservation Objectives Supplementary Advice, page 2 of 21
[12] Thames Basin Heaths SPA Conservation Objectives Supplementary Advice, page 8 of 21 and page 13 of 21

7. It is therefore clearly important to assess the impact of nitrogen deposition on the woodland.

8. The woodlands are low nitrogen environments which, in the absence of pollution, receive very limited Nitrogen loading. These ecosystems are therefore adapted to low Nitrogen availability in the soil and Nitrogen is, therefore, the main limiting factor in overall biomass production Vitousek & Howarth (1991). Increased nitrogen loadings tend to benefit some species much more than others. Generalist species, which are often identified as being invasive or problematic, benefit the most from the influx of additional nutrients, Corbin & D'Antonio (2004). The species that suffer the most are those that are adapted to cope with low Nitrogen levels, which are unable to compete in high Nitrogen environments (Ceulemans, Hulsmans, Berwaers, VanAcker, & Honnay, 2017; Hautier, Niklaus & Hector, 2009). Ultimately high Nitrogen levels lead to increased homogeneity and, therefore, lower biodiversity. Such changes are often profound and can affect the entire ecosystem.

9. Higher trophic levels (species higher up the food chain) are likely to be adversely affected by elevated Nitrogen levels because of adverse changes to plant composition. For example, Fox, Oliver, Harrower, Parsons, Thomas & Roy (2014) analysed population trends for 673 moth species in Britain between 1970-2010 and revealed that species associated with low Nitrogen environments had declined more than any other group. The study supported the hypothesis that *'Moth occurrence trends will be associated with host plant attributes (Ellenberg indicator values); specifically, moths that use types of plant that are in decline, such as those associated with low nitrogen soil conditions, will also be in decline.'*

10. The effect on beetles is somewhat more complex but ultimately negative. For example, Power, Ashmore, Cousins & Shepard (1998) found higher growth and reproduction rates of Heather beetle on lowlands heaths with elevated Nitrogen levels. Heather beetle may be a prey item of heathland birds, but the beetle causes significant damage to heathlands ultimately damaging the habitat (Natural England 2016).

11. Crucially, Natural England and Highways England themselves acknowledge that increases of nitrogen deposition from the DCO Scheme in the woodland will be significant (see NE/ HE SoCG 3.2.13) and also acknowledge that loss of invertebrates from the woodland could have an adverse impact on integrity of the SPA:

12. HE's SIAA states at paragraph 7.2.33:

> significant increases in nitrogen deposition resulting from the Scheme …could lead to a reduction in ….their [i.e. the SPA qualifying species'] invertebrate resource

13. HE's SIAA states at paragraph 7.2.20:

> *The loss of invertebrate resources* [from the woodland within Wisley and Ockham Commons component] *could have an impact on the following targets identified in the Natural England Supplementary Advice on Conserving and Restoring Features, and thus interrupt progress towards achieving the conservation objectives of the SPA, particularly with regards to nightjar.*
>
> *1. Food availability: Maintain or restore the distribution, abundance and availability of key prey items at prey sizes preferred by all three of the qualifying features;*
>
> *2. Extent and distribution of supporting habitat for the breeding season: Maintain the extent, distribution and availability of suitable breeding habitat which supports each of the three*

qualifying features for all necessary stages of their breeding cycle (courtship, nesting, feeding and roosting).

14. As such, it cannot safely be concluded that there would not be an adverse impact on the integrity of the SPA through the air quality impact pathway.

Refs:

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Vitousek, P.M., Howarth, R. (1991) *Nitrogen limitations on land and sea – How can it occur?* Biogeochemistry, 13, 87-155.

Corbin, J., D'Antonio, C.M. (2004). *Competition between native perennial and exotic annual grasses: Implications for an historical invasion.* Ecology, 85, 1273-1283.

Ceulemans, T., Hulsmans, E., Berwaers, S., Van Acker, K., Honnay, O. (2017) *The role of above-ground competition and nitrogen vs. phosphorus enrichment in seedling survival of common European plant species of semi-natural grasslands.* PLoS ONE 12(3).

Hautier, Y., Niklaus, P.A., Hector, A. (2009) *Competition for light causes plant biodiversity loss after eutrophication*. Science. 324, 636-638.

Fox, R., Oliver, T., Harrower, C., Parsons, M.S., Thomas, C.D, Roy, D.B.(2014) *Long term changes to the frequency of occurrence of British moths are consistent with opposing and synergistic effects of climate and land-use changes.* Journal of Applied Ecology. 51, 949-957.

Power, S.A., Ashmore, M.R., Cousins, D.A., Sheppard, L.J. (1998) Effects of nitrogen addition on the stress sensitivity of Calluna vulgaris. New Phytologist. 138, 663-673.

Natural England 2016 A desk review of the ecology of heather beetle.

M25 Junction 10 / A3 Wisley Interchange Improvement

Development Consent Order (DCO) Application

Additional Written Representation by Jon Bunney (MA, BSc, CTTP) on behalf of the Royal Horticulatural Society (RHS/JB/2)

Hatch Regeneris
April 2020

M25 Junction 10 / A3 Wisley Interchange Improvement

Development Consent Order (DCO) Application

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April 2020

www.hatchregeneris.com

Contents Page

1. Executive Summary

1.1 The RHS previously submitted evidence (*REP1-039*) setting out the economic costs that could result from the 'M25 Junction 10 / A3 Interchange' (the DCO Scheme) in relation to the RHS operations at its flagship Garden at Wisley and the visitors, employees and volunteers travelling to and from the Garden.

1.2 The evidence presented with *REP1-039* has been subject to rigorous review by both the Examining Authority and Highways England. The Examining Authority has sought clarification within a range of areas, including, but notwithstanding:

- The statistical robustness of the original visitor survey
- The interpretation of the visitor survey outputs and their application within the economic analysis
- The underlying travel patterns and behaviours of visitor to the Garden

1.3 The RHS has identified two specific areas where it can supplement its analysis and provide additional assurance to the analysis of economic impacts. These include:

1) Conduct further survey work with visitors to the Garden
2) Examine the relative impact of the DCO Scheme during the Construction and On-going Operational Phase in greater detail

1.4 The RHS has commissioned two additional visitor surveys to provide supplementary data on the travel patterns and likely behavioural responses to the impact of the DCO Scheme. One examines the potential impact during the operational phase of the DCO Scheme, the other during the construction phase. Over 10,000 responses have been received in total, fully addressing any concerns around the statistical robustness of data.

1.5 The new data has been used to update, refine, and provide additional rigour and robustness to the original analysis presented in *REP1-039*. The outcomes reinforce the findings from *REP1-039* submission and reiterate that the DCO Scheme will have a significant detrimental impact upon the operation of the Garden.

1.6 The estimated economic cost impacts remain highly significant, within an estimated range of impacts of between £60 million to £100 million. The updated analysis specifically indicates that the construction phase of the DCO Scheme could result in a significant reduction in visitor numbers (up to 450,000 over 3 years), with associated loss in on-site employment (45 jobs). This will coincide with the completion of the RHS programme of investment at the Garden and the need to expand visitor numbers, and so will be particularly detrimental. The effects of the construction disruption could extend into the operational phase of the DCO Scheme, compiling negative impacts for a number of years thereafter.

1.7 The impacts under the operational phase of the DCO Scheme, whilst not as significant on an annual basis as during the construction phase, will create a new underlying visitor trend with an estimated 54,000 fewer visits each year. Over a 10-year period this equates to a loss of economic value of around £31 million, as well as on-going transport user impacts equivalent to a loss of £26 million over 60 years.

1.8 The proposed RHS Alternative Scheme, with south-facing slips at the Ockham Roundabout and retention of the left-turn egress from Wisley Lane onto the A3, would eliminate the negative economic impacts during the operational phase and generate positive direct transport user benefits for visitors, workers, and volunteers to the Garden of nearly £9m over 60 years.

2. Introduction and Background

Qualifications

2.1 My name is Jon Bunney and my evidence covers the Economic Cost Impacts of the DCO Scheme in relation to RHS Garden Wisley and in relation to the defined aim of the DCO Scheme of '*improving access to RHS Wisley*'. I have a Master of Arts Degree in Transport Economics from University of Leeds and a Batchelor of Science Degree in Economics from Southampton University. I am a Chartered Transport Planning Professional and Member of the Transport Planning Society.

2.2 I am an Associate Director of Hatch Regeneris, a specialist economic research consultancy within the Hatch Group of companies. Prior to that I was an Associate Director at SYSTRA Ltd and JMP Consultants Ltd, both specialist transport planning and engineering consultancies.

2.3 I have over 21 years' experience within transport economics and transportation planning. My experience has been gained working on an extensive range of transport business cases and economic impact assessments throughout the United Kingdom. I am currently retained by a number of public sector clients to conduct independent assessments of major transport business case funding submissions and to provide advice on the economic impact of transport infrastructure investment.

2.4 In 2018, I was invited by the Royal Horticultural Society (RHS) to provide advice on the potential economic implications of the DCO Scheme upon the RHS and, more recently in 2019, to conduct an economic impact assessment. I have subsequently been working with the RHS in support of this matter.

Declaration

2.5 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.

Background

2.6 The Royal Horticultural Society (the **RHS**) submitted evidence prepared by Hatch Regeneris at Deadline 1 (*REP1-039*) that set out the economic costs that could result from the 'M25 Junction 10 / A3 Interchange' (the **DCO Scheme**) in relation to the RHS operations at its flagship Garden at Wisley (the **Garden**) and the visitors, employees and volunteers travelling to and from the Garden. This was in the absence of any analysis being conducted by Highways England, which continues to remain the case.

2.7 *REP1-039* demonstrated that the Garden is a major focus of economic activity, both as a premium visitor attractor, but additionally through its global role in scientific research and development. It acts as a major employer, with 420 FTE on-site and supports a major local, regional and national supply chain. Visitors to the Garden not only generate economic activity for the Garden but bring significant external spend to the wider economy.

2.8 *REP1-039* also highlighted that the Garden is currently subject to a major £65m programme of investment, as part of its wider vision[1]. The economic impacts associated with this investment are set out within an Economic Impact Report for the RHS completed by Counterculture in November 2017, submitted at Deadline 3 (*REP3-052*).

2.9 As part of its evidence base, the RHS commissioned Plus Four Market Research to conduct a two-day visitor survey on 29th October and 1st November 2019 to assess the potential impact the DCO Scheme could have upon visitor behaviours to the Garden. The results were presented, and applied, within *REP1-039*.

Update and Refinement

2.10 The evidence presented within *REP1-039* has been subject to rigorous review by both the Examining Authority and Highways England. The RHS welcomes this review as an indication of the seriousness with which all parties are taking of the potential threat of the DCO Scheme upon RHS operations at the Garden. It is important that the applicant fully understands the unique nature of the RHS activity at Wisley Garden and Wisley Village. In the absence of any economic impact assessment work by Highways England, the RHS analysis represents the only credible insight into this matter.

2.11 The Examining Authority has sought clarification within a range of areas, including, but notwithstanding:

- The statistical robustness of the original visitor survey
- The interpretation of the visitor survey outputs and their application within the economic analysis
- The underlying travel patterns and behaviours of visitor to the Garden

2.12 The RHS considers it has provided a rigorous defence of the approach and assumptions adopted within its analysis, as well as highlighting the limitations in the subsequent response of Highways England, including the absence of any alternative assessment of the economic impacts upon the Garden.

2.13 The RHS remains highly concerned about the impact of the DCO Scheme upon the future viability of the garden economically, and as a cultural site, and so has been examining mechanisms to reinforce its own analysis. It has identified two specific areas where it can supplement its analysis and provide additional assurance to the analysis of economic impacts. These include:

1) Conduct further survey work with visitors to the Garden
2) Examine the relative impact of the DCO Scheme during the Construction and On-going Operational Phase in greater detail

2.14 To encompass both elements, the RHS has designed and administered additional questionnaire surveys with visitors to the Garden.

[1] *RHS Vision document 2015* https://www.rhs.org.uk/about-the-rhs/pdfs/about-the-rhs/mission-and-strategy/vision-document/rhs-vision.pdf

3. Additional Visitor Surveys

3.1 The RHS has commissioned two additional visitor surveys by Hatch Regeneris to provide supplementary data on the travel patterns and likely behavioural responses to the impact of the DCO Scheme. Both surveys are based upon the fundamental principles on the initial survey work, conducted in October/November 2019, but have been refined to provide additional insight and to address concerns raised by Highways England in relation to the original survey work.

3.2 Both new surveys follow the same structure, but one has a series of questions focussed upon providing insight into the potential impact of the construction phase of the DCO Scheme, whilst the other considers the on-going operational phase. Each set of survey questionnaires are presented within Appendix A.

3.3 Questions 1 to 7 are uniform across both surveys and so the results can be analysed as a single sample. Questions 8 to 11 focus specifically upon providing insight into the potential behavioural responses of visitors under the construction and operational phase impacts.

3.4 In respect to the original survey work, the new visitor surveys were subject to refinement in language and amended in the following ways:

- Respondents were asked to indicate if they ever visit the Garden site solely for the purpose of visiting the RHS Café or Shop, without entering the main Garden itself;
- Respondents were asked to indicate which route they use to access the Garden;
- Respondents were asked whether a stated increase in journey time and distance to the Garden, and a stated increase in journey time and distance from the Garden, would affect them; and
- If respondents indicated that stated increased journey times and distances would frustrate them, they were asked to indicate their level of frustration.

Survey Sample

3.5 Each questionnaire was sent to two randomly selected sample groups of 12,500 RHS visitors who had been to the Garden at least once during the last year. It incorporates RHS members, non-members who purchased on-line tickets, and non-members who purchased tickets at the Garden.

3.6 The following levels of responses were received:

- Survey 1 (Operational Phase): 5,025 responses (40.2% response rate)
- Survey 2 (Construction Phase): 4,981 response (39.8% response rate)

3.7 The response rates received are extremely high for this type of self-completion survey, demonstrating a high level of interest in the subject matter amongst members and non-members alike.

3.8 The sample size represents a significant increase upon the original survey work and provides an unquestionable level of statistical robustness from the data provided.

3.9 Table A1 below provides a comparative summary of the confidence intervals for the relative sample sizes from the original sample survey data and the new survey sample data. Whilst the original survey had a statistical error rate of between +/-3.4% to +/- 5.7% at the 95% confidence interval, this reduces to between +/-0.8% to +/- 1.4% for the individual survey samples, and between +/-0.6% to +/- 1.0% for the combined sample of 10,006. The new survey samples are, therefore, highly representative of the behaviours and views of overall population of visitors to the Garden.

Table A1 Comparative Survey Sample Confidence Intervals and Levels of Statistical Error

Survey	Distribution of Responses	Statistical Error Rate at 95% *(Standard)*	Statistical Error Rate at 90%	Statistical Error Rate at 99%
Original Survey Sample	***Sample Size***	***293***		
	10% or 90%	+/- 3.4 %	+/- 2.9 %	+/- 4.5 %
	20% or 80%	+/- 4.6 %	+/- 3.9 %	+/- 6.0 %
	30% or 70%	+/- 5.2 %	+/- 4.4 %	+/- 6.9 %
	40% or 60%	+/- 5.6 %	+/- 4.7%	+/- 7.3 %
	50%	+/- 5.7 %	+/- 4.8%	+/- 7.5 %
New Individual Surveys *(Q8 to Q11)*	***Sample Size***	***4,981 / 5,025***		
	10% or 90%	+/- 0.8 %	+/- 0.7 %	+/- 1.1 %
	20% or 80%	+/- 1.1 %	+/- 0.9%	+/- 1.4 %
	30% or 70%	+/- 1.3 %	+/- 1.1 %	+/- 1.7 %
	40% or 60%	+/- 1.4 %	+/- 1.1%	+/- 1.8 %
	50%	+/- 1.4 %	+/- 1.2%	+/- 1.8 %
New Surveys Combined *(Q1 to Q7)*	***Sample Size***	***10,006***		
	10% or 90%	+/- 0.6 %	+/- 0.5 %	+/- 0.8 %
	20% or 80%	+/- 0.8 %	+/- 0.7%	+/- 1.0 %
	30% or 70%	+/- 0.9 %	+/- 0.8 %	+/- 1.2 %
	40% or 60%	+/- 1.0 %	+/- 0.8%	+/- 1.3 %
	50%	+/- 1.0 %	+/- 0.8%	+/- 1.3 %

Core Responses

3.10 The responses to the new visitor surveys are presented within Appendix B.

3.11 Since questions 1 to 7 were uniform across both surveys the data can be assessed in combination across a total sample of 10,006 respondents.

3.12 Keys finding from this combined data set include:

- Average number of visits pa to the Garden = 8.3
- Proportion of trips by visitors to just the RHS Café or Shop (that exclude a visit into the main Garden) = 11%
- Proportion of visitors that travel from the South on the A3 = 31%
- Proportion of visitor trips that travel from the South on the A3 (taking into account frequency of trips) = 32.5%
- The average journey time for trips from the South on the A3 to the Garden = 33.5 minutes, with 26% of these visitors travelling less than 20 minutes.

3.13 The average number of visits pa to the Garden, at 8.3 trips, is only marginally different (6.4%) than the value recorded from the original survey (7.8) providing assurance over the robustness of the original survey work.

3.14 The proportion of trips to just the RHS Café or Shop indicates that there is a notable proportion of trips to the site that will be short in duration, when compared to an average visit

to the Garden itself. These trips could be considerably more susceptible to the impact of increased journey times and delays.

3.15 The distribution of trip origins, and the routes taken by visitors to reach the Garden, has been a matter of divergence between the RHS and Highways England. Whilst Highways England have relied upon a single day of Automatic Number Plate Recognition camera surveys on Tuesday with low visitor demand, the RHS has maintained that its database of visitor trip origins provides a more accurate source of data on visitor profiles. Highways England have maintained that 24% of trips will originate from the south on the A3. The RHS data indicates this figure was 33.9%. The combined data from the questionnaire survey indicates that 31% of visitors travelled from the south and, when this is weighted by the frequency of their trips, this increases to 32.5% of all trips to the Garden. Whilst not precisely replicating the original RHS data it is clearly considerably more representative than the Highways England data. The RHS will utilise this value in future analysis work and would advocate that Highways England do the same.

3.16 The average journey time for trips from the south on the A3 provides useful context with which to assess the impact of the DCO Scheme. The RHS estimate that journey times from the south to the Garden could increase by as much as 6 minutes, which would represent an increase in the average duration of trips of 18%. Some 26% of trips from the south are less than 20 minutes in duration and so a 6 minutes increase represents a 30% increase in journey time.

Operational Phase Survey Responses

3.17 As indicated within Appendix A, respondents to Survey 1 (Operational Phase) were asked a series of question around a scenario where there was an increase in journey time of 6 minutes and distance of 3.5 miles to the Garden, alongside an additional 2 minutes and 1.5 miles upon leaving the Garden. A full summary of the 5,025 responses are presented in full in Appendix B, with the key responses as follows:

- Whilst 38.8% of respondents indicated the changes to their journey would not affect them, 39.5% indicated they would find it frustrating, with 21.7% uncertain.
- Of those who stated it would be frustrating, over 88% rated their level of frustration as 5 or higher, and 58% as a level 7 or higher.
- Of those who stated it would be frustrating, over 62% indicated that their level of frustration was ‘probably’ or ‘definitely’ sufficient to have a negative impact upon the frequency of trips they make to the Garden. This represents nearly 25% of all 5,025 respondents.
- Of those respondents who stated they would ‘probably’ or ‘definitely’ visit less frequently, around 17.5% indicated they would visit between 60% to 100% less, including nearly 9.5% who may not visit at all. A further 53% would visit between 20% to 60% less frequently.

3.18 The results of Survey 1 continue to demonstrate the significant impact that outcomes of the DCO Scheme could have upon the frequency of visitor trips to the Garden. Nearly a quarter of all 5,025 respondents indicated they would consider the impacts to engender a high level of frustration[2] and they would change their behaviour as a result and visit the Garden less frequently. It is worth recognising that many visitors justify membership to the RHS upon the frequency of visits to the Garden and so if external factors make it less attractive to visit, then the benefits of membership may be significantly reduced.

[2] *Those who recorded their level of frustration would be 7 or higher on a scale of 0 to 10.*

Construction Phase Survey Responses

3.19 As indicated within Appendix A, respondents to Survey 2 (Construction Phase) were asked a series of question around a scenario where there was an increase in journey time of 3 to 4 minutes to the Garden, alongside an additional 2 to 3 minutes upon leaving the Garden. A full summary of 4,981 responses are presented in full in Appendix B, with the key responses as follows:

- Whilst 23.8% of respondents indicated the changes to their journey would not affect them, 55.2% indicated they would find it frustrating, with 21.0% uncertain.
- Of those who stated it would be frustrating, over 90% rated their level of frustration as 5 or higher, and 57% as a level 7 or higher.
- Of those who stated it would be frustrating, over 85% indicated that their level of frustration was 'probably' or 'definitely' sufficient to have a negative impact upon the frequency of trips they make to the Garden. This represents 47% of all 4,981 respondents.
- Of those respondents who stated they would 'probably' or 'definitely' visit less frequently, nearly 28% indicated they would visit between 60% to 100% less during the construction period, including 17.5% who may not visit at all. A further 51% would visit between 20% to 60% less every year.

3.20 The results of Survey 2 provide new insight into the potential impact that the outcomes of the construction of the DCO Scheme could have upon visitor trips to the Garden. Despite the 'construction' questionnaire stating a scenario with lower levels of potential travel delay than the 'operational' survey, a higher level of all respondents (over 30%) indicated they would consider the construction impacts to be very frustrating (a level of 7 or higher).

3.21 Close to 50% of all 4,981 respondents indicated they would be likely to change their behaviour as a result and visit the Garden less frequently. The fact that 17.5% of respondents indicated they may not visit the Garden at all during the construction phase is of particular concern to the RHS.

Conclusions

3.22 The additional visitor surveys provide a substantial and comprehensively statistically robust sample size with which to allay any concerns surrounding the original surveys. The language of the questionnaire has been refined to remove any reasonably challenge of bias and the sub-division into two separate questionnaires, addressing the impacts of the construction and operational phases in isolation, enables more refined assessment of impacts.

3.23 The results support the RHS position on the distribution of trips by route to the Garden. The responses highlight the proportion of journeys to the site to visit the RHS Shop or Café only, which will be more susceptible to increases in journey time. The results also continue to demonstrate the high level of projected frustration with additional journey distances and times and provide specific new evidence in regard to levels of frustration potentially associated with the construction phase.

3.24 The headline survey results (presented in Section 3.19 to 3.21) imply that the impact during the construction phrase will be considerably higher than previously forecast within *REP1-039*, albeit it is also recognised that the impacts during the operational phase may be lower than initially predicted. This is explored and set out further within Section 4 to 7 of this report.

4. Updated Economic Impact Assessment

4.1 The outputs from the additional survey work provides an extended evidence base upon which to assess the potential impact of the DCO Scheme. This enables an update and expansion of the economic impact assessment process.

4.2 At a structural level, it enables a more refined assessment of the potential impacts during the separate construction and operational phases, albeit some of the detailed understanding of the traffic impacts during the construction phase still remains unavailable from Highways England. The limitations of information provision by Highways England remains a major point of concern for the RHS as it restricts the understanding of potential impacts and considerably increases the associated levels of risk.

4.3 Other revisions to the analysis include:

- Refinement to the underling trip distribution assumptions for visitors to the Garden;
- Refinement to the impact of the DCO Scheme upon travel distances, as agreed with the Statement of Common Ground between the RHS and Highways England;
- Additional sensitivity testing to reflect uncertainties around the impact of the DCO Scheme upon journey times; and
- Updates to the estimated reduction in the frequency of visitor trips to the Garden resulting from the DCO Scheme resulting from the new survey data for both the operational and construction phases.

4.4 The overarching impact framework for the assessment remains consistent with the original assessment (*REP1-039*), with separate assessments of the 'direct transport user impacts' and the 'wider economic impacts'.

4.5 The underlying data applied within the original analysis (*REP1-039*) also remains constant, reflecting the economic impact of the RHS Garden at Wisley presented within the Counterculture Report (REP3-052). The only update is that the RHS now has actual outturn visitor numbers for the year 2019 and so this has been updated accordingly.

Updated Assessment of Economic Impacts of the DCO Scheme

4.6 As set out within *REP1-039*, to assess the direct Transport User and Wider Economic Impacts of the DCO Scheme requires a clear definition of a 'Reference Case' scenario. The impacts of the DCO Scheme, during both the construction phase of the project, and the subsequent operational phase, can then be considered.

Updated 'Reference Case' Scenario

4.7 As set out in *REP1-039*, the 'Reference Case' scenario represents the current operation and visitor profile of the Garden, along with the future projected operation and visitor profile resulting from the RHS investment programme. Since the production of REP1-039, annual visitor data for 2019 has become available and so the analysis has been updated accordingly.

4.8 Table A2 sets out the updated current and projected profiles of annual visitor numbers to the Garden.

Table A2 Current and Projects Annual Visits, (annual visitor numbers)

Year	Notes	Current and Projected Annual Visits to Garden
2019	*Latest outturn annual visitor data*	1,252,000
2021	Projected Construction Phase	1,349,000*
2022		1,397,000*
2023		1,446,000*
2024	Projected commencement of DCO Scheme Operation	1,494,000

Source of 2019 data: RHS Wisley entrance data into the main RHS Wisley Garden

Source of projections: RHS Wisley: Economic Impact Study 2015/16 - 2024/25 (Counterculture November 2017)

** re-based from 2019 outturn data*

Updated from Table 1 REP1-039

4.9 In addition to the visitor trips recorded entering the Garden itself, the visitor surveys conducted in March 2020 have provided additional insight into the proportion of trips to the RHS Wisley site that are only for the purpose of visiting the RHS Shop or Café. For every 8.2 trips to the Garden as a whole, the survey data indicates there is 1 trip to the RHS Shop or Café alone. In 2019, it is estimated that around a further 152,000 trips occurred to the RHS Shop or Café alone.

4.10 As described in Section 3.15 above, the new visitor survey data provides an updated assessment of routes used by visitors to access the Garden.

4.11 Table A3 provides an updated estimate of the proportion of visitor trips travelling along specific designated routes to and from the Garden.

Table A3 Estimated Proportion of Current Visitor Trips Utilising Designated Routes (% of trips)

Route *(to/from)*	Estimated Proportion of Current Trips Utilising Route
A3 South of Ockham Roundabout	32.5%
A3 North (via A3/M25 Junction)	52.7%
From Ockham Roundabout (Portsmouth Road / Ockham Road)	5.8%
Wisley Lane (east)	9.0%

Source: RHS Wisley Visitor Survey (2020), verified against RHS Wisley Visitor Postcode Data (2019)

Updated from Table 3 REP1-039

'DCO Scheme Construction Phase' Scenario

4.12 The 'DCO Scheme Construction Phase' scenario remains relatively undefined at this stage. Whilst Highways England have provided some overarching indication of construction plans, as well as completed some scenario modelling within the strategic traffic model, the impact upon journey times and delays across the network remain unknown. Highways England state within *REP2-011* that "*a full Construction Environmental Management Plan (CEMP) will be prepared by the Principal Contractor once in post*". Further information provided in *REP2-011 Figure 11.1* indicates the construction phase is scheduled to commence from October 2020 and continue through to December 2023, a period of 39 months. There is, however,

considerable uncertainty in relation to timings and the nature of work. A key example is in relation to the construction of the Wisley Lane overbridge for which there is currently no information and could have a substantial impact upon access to the Garden.

4.13 The limitations in data provided by Highways England on the construction phase scenario significantly restrict aspects of the assessment process. To partially overcome this issue, the assessment considers alternative scenarios for the extent of delays, including reductions in average speeds through roadworks to 30 mph and to 25 mph.

'DCO Scheme Operational Phase' Scenario

4.14 Since the production of *REP1-039*, the RHS and Highways England have provisionally agreed the impact of the completed DCO Scheme upon changes in journey distances for trips to and from the Garden. This is documented within *REP5-046*.

4.15 Table A4 provides an updated summary of the forecast impacts of the DCO Scheme upon the three different routes.

Table A4 Forecast Impact of DCO Scheme on Selected Routes to and from the Garden (increased miles / journey time)

Route *(to/from)*	**Increased Journey Distance** (miles)			**Increased Travel Time** (minutes)		
	Access	**Egress**	**Combined**	**Access**	**Egress**	**Combined**
A3 South	3.66	1.54	5.2	5.6	2.4	8.0
A3 North (via A3/M25 Junction)	-0.06	1.45	1.4	-0.1	2.2	2.1
Ockham Roundabout (from Portsmouth Road / Ockham Road)	0.28	-2.12	-1.8	0.6	-3.5	-3.0

Source: Agreed distances within the RHS and Highways England Draft Statement of Common Ground and average travel time data (2019)

Updated from Table 4 REP1-039

4.16 As the DCO process has progressed it has become increasingly apparent how important it is to understand what proportion of traffic travelling from the south on the A3 may divert onto the B2215 and travel through Ripley. Highways England have conceded that some traffic will divert from the A3, as a consequence of the significant additional travel which the DCO Scheme would result in via its signposted route, but they are unable to accurately forecast the actual proportion due to limitations with the traffic modelling tools. The level of diversion will affect both congestion within Ripley High Street and the impact upon visitors to the Garden.

4.17 The RHS has continuously highlighted the limitations in the Highways England traffic modelling along the local road network, and specifically within the area of Ripley (*REP5-050*). These limitations make the traffic model forecasts of journey time impacts through this area unreliable as they underestimate the extent of current and future traffic congestion. This limits the traffic models ability to generate accurate forecasts of route choice.

4.18 It is understood that Surrey County Council is seeking mitigation measures to be implemented along the B2215 route to restrict traffic through Ripley to present-day levels. These measures will, effectively, seek to manage capacity and so will slow vehicles and discourage traffic from using the route. This is a further reason why journey times along this route are likely to be significantly higher than indicated by the Highways England traffic model

4.19 Table A5 provides a summary of the RHS estimates of potential impacts for the two different route choices when travelling from the south on the A3. It incorporates the agreed impact of

the DCO Scheme on distances (as set out within *REP5-046*) but maintains the RHS estimates of increased journey times as a result of congestion and/or mitigation measures.

Table A5 Forecast Impact of DCO Scheme on Selected Routes to and from the Garden (increased miles / journey time)

Route from A3 South of Ockham Roundabout	Increased Journey Distance (miles)			Increased Travel Time (minutes)		
	Access	Egress	Combined	Access	Egress	Combined
Via A3 (A3/M25 Junction)	3.66	1.54	5.2	5.6	2.4	8.0
Via Ripley (B2215)	0.28	-1.49	-1.2	4.5	1.8	6.3

Source: Agreed distances within the RHS and Highways England Draft Statement of Common Ground and average travel time data (2019)

Updated from Table 5 REP1-039

5. Assessment of Direct Transport User Economic Impacts of the DCO Scheme

Operational Phase

5.1 The forecast of direct transport user economic impacts has been updated from the analysis presented within *REP1-039* to reflect the following variations in input data:

- The updated assessment of visitor numbers to the Garden, including those who only visit the RHS Shop or Café, as presented in Table A2 and Section 4.9;
- The updated assessment of trip distributions by route leading to and from the Garden, as presented in Table A3;
- The updated assessment of the impact of the DCO Scheme upon journey distances and times, as presented in Table A4 and A5; and
- The estimated average reduction in visitor trips as a result of increased journey distances and times under the DCO Scheme Operational Scenario (see below).

5.2 The outputs from the new Visitor Survey 1: Operational Phase (see Sections 3.17 to 3.18) have been applied under the same approach as outlined in *REP1-039, Section 4* to forecast the average reduction in visitor trips resulting from the DCO Scheme. This estimates an average reduction in visitor trips as a result of increased travel times and distances[3] was calculated as 0.7 trips pa. Applied to the average number of visits per individual/group across the whole data set of 8.3 trips pa (see Section 3.13), this represents an 8.3% reduction.

5.3 Table A6 presents an updated assessment of the forecast behavioural impacts resulting from the DCO Scheme.

[3] *6 minutes and 3.5 mile on trips to the Garden and 2 minutes and 1.5 miles upon departure*

Table A6 Estimated Proportion of Current Visitor Trips that will utilise route options under the DCO Scheme Operational Scenario (% of trips)

Route *(to/from)*	Behavioural Choice	Forecast Proportional Splits by Route	Forecast Proportion of Trips Utilising each Route
A3 South of Ockham Roundabout	Via M25 Jn10	45.4%	14.8%
	Via B2215	46.2%	15.0%
	Trip Reduction	8.3%	2.7%
A3 North (via A3/M25 Junction)	Maintain route	98.0%	51.7%
	Trip Reduction	2.0%	1.0%
Ockham Roundabout (B2215 / Ockham Road)	Maintain route	100%	5.8%
	Trip Reduction	0%	0%
Wisley Lane (east)	Maintain route	100%	9.0%
	Trip Reduction	0%	0%

Source: RHS Market Research (2020) and RHS Visitor Postcode Mapping Data (2019)

Updated from Table 6 REP1-039

5.4 Table A6 indicates that the analysis forecasts there will be a 3.7% reduction in person trips by car as a result of the DCO Scheme. It is recognised that this represents a lower impact, during the operational phase, than was forecast within the original analysis, presented within *REP1-039*. Whilst this is a positive finding for the RHS, the scale of the predicted loss of visitor numbers still remains highly significant, in economic terms[4], particularly when combined with the impacts during the construction phase, as demonstrated in Section 6 below. The direct transport user impacts (e.g. the economic impact to travellers from increased journey times and distances) remains at a scale consistent with the original *REP1-039* assessment, as demonstrated in Section 5.7 below.

Construction Phase

5.5 The new Visitor Survey 2: Construction Phase (see Sections 3.19 to 3.21) provides a data set with which to more accurately assess the potential impact of the DCO Scheme during the construction phase.

5.6 Section 3.20 has already demonstrated that visitors indicated they are more likely to restrict the number of visits they make to the Garden during the construction phase than the operational phase. The construction phase will coincide with the completion of the investment programme at the Garden and so this represents a major concern to the RHS. Applying the identical approach to forecasting the scale of potential reductions as utilised for the operational phase analysis, generates a forecast reduction in person trips by car to the Garden as a result of construction disruption of between 5.7% and 9.7%. The range in the forecasts reflects the uncertainty over the potential reductions in vehicles speeds resulting from the roadworks, as referenced in Section 4.13.

Transport User Impacts

5.7 Based upon the updated input parameters, described in Sections 5.1 to 5.6, Table A7 provides a revised assessment of the impact of the DCO scheme upon vehicle mileage and journey times during both the construction and operational phases.

[4] *The associated loss in direct, indirect, and induced economic activity at the Garden resulting from lower visitor spend*

Table A7 Projected additional visitor vehicle mileage and journey times resulting from DCO Scheme (additional miles / person hours)

Year	Phase	Additional Visitor Vehicle Mileage *(miles)*	Additional Visitor Journey Times *(person hours)*
2021	*Construction Phase*	0	61,000 - 101,000
2022		0	63,000 - 105,000
2023		0	66,000 - 108,000
2024	*Operational Phase*	871,000	80,000
+ Future Years		871,000*	80,000*

Source: Hatch Regeneris Analysis (2020)

** as a conservative assumption no additional growth in visitor numbers is assumed beyond 2024. In practice the RHS would anticipate, and are planning, for a continual period of growth through the current decade of up to 4.6% pa (as shown in Table A1).*

Updated from Table 7 REP1-039

5.8 This revised data in Table A7 has been used to update the assessment of direct transport user economic impacts of the DCO Scheme upon visitors to the Garden. This has applied the process described in Sections 3.19 to 3.25 within *REP1-039*.

5.9 Table A8 presents a summary of the revised assessment of the Present Value of the Direct Transport User Impacts of the DCO Scheme during the construction phase upon Visitors, Employees and Volunteers travelling to the Garden over a 3-year period, in 2020 prices. This takes into account the range of potential delay impacts and so values are presented as a range.

Table A8 Present value of Direct Transport User Impacts of the DCO Scheme upon Visitor, Employees and Volunteers travelling to the Garden during the Construction Phase (3-year appraisal, 2020 Prices)

Transport User	Journey Time Impacts *(PV £m)*	Fuel VOC *(PV £m)*	Non-fuel VOC *(PV £m)*	Total *(PV £m)*
Visitors to Garden	1.19 - 1.96	0.41 - 0.42	-	**1.60 - 2.39**
Employees on-site at Garden	0.20 - 0.34	0.07 - 0.08	-	**0.28 - 0.43**
Volunteers on-site at Garden	0.05 - 0.06	0.01 - 0.02	-	**0.06 - 0.08**
Total Transport User Impact	**1.4 - 2.4**	**0.5**	**-**	**1.9 - 2.9**

Source: Hatch Regeneris Analysis (2020)

Updated from Table 8 REP1-039

5.10 Table A9 presents a summary of the revised assessment of the Present Value of the Direct Transport User Impacts of the DCO Scheme during the operational phase upon Visitors, Employees and Volunteers travelling to the Garden over a 60-year period, in 2020 prices.

Table A9 Present value of Direct Transport User Impacts of the DCO Scheme upon Visitor, Employees and Volunteers travelling to the Garden during the Operational Phase (60-year appraisal, 2020 Prices)

Transport User	Journey Time Impacts *(PV £m)*	Fuel VOC *(PV £m)*	Non-fuel VOC *(PV £m)*	Total *(PV £m)*
Visitors to Garden	19.3	1.2	1.0	**21.4**
Employees on-site at Garden	3.4	0.1	0.0	**3.5**
Volunteers on-site at Garden	0.9	0.0	0.0	**0.9**
Total Transport User Impact	**23.5**	**1.4**	**1.0**	**25.9**

Source: Hatch Regeneris Analysis (2020)

Updated from Table 8 REP1-039

6. Assessment of Wider Economic Impacts of the DCO Scheme

6.1 The assessment of Wider Economic Impacts has been updated to reflect the new data on the forecast reduction in visitor trips to the Garden resulting from the DCO Scheme during the construction and operational phases (as set out in Sections 5.1 to 5.6)

6.2 Table A10 presents the updated projection in reduced Annual Visits and On-site Employees.

Table A10 Projected Reduction in Annual Visits to the Garden, On-site Employees resulting from the DCO Scheme (Annual visitor numbers / on-site employees)

Year		Reduction in Annual Visits to Garden	Reduction in On-Site Employees
2021	Construction Phase	145,000	45
2022		150,000	45
2023		155,000	45
2024	Operational Phase	54,000	17
Future Years		54,000*	17*

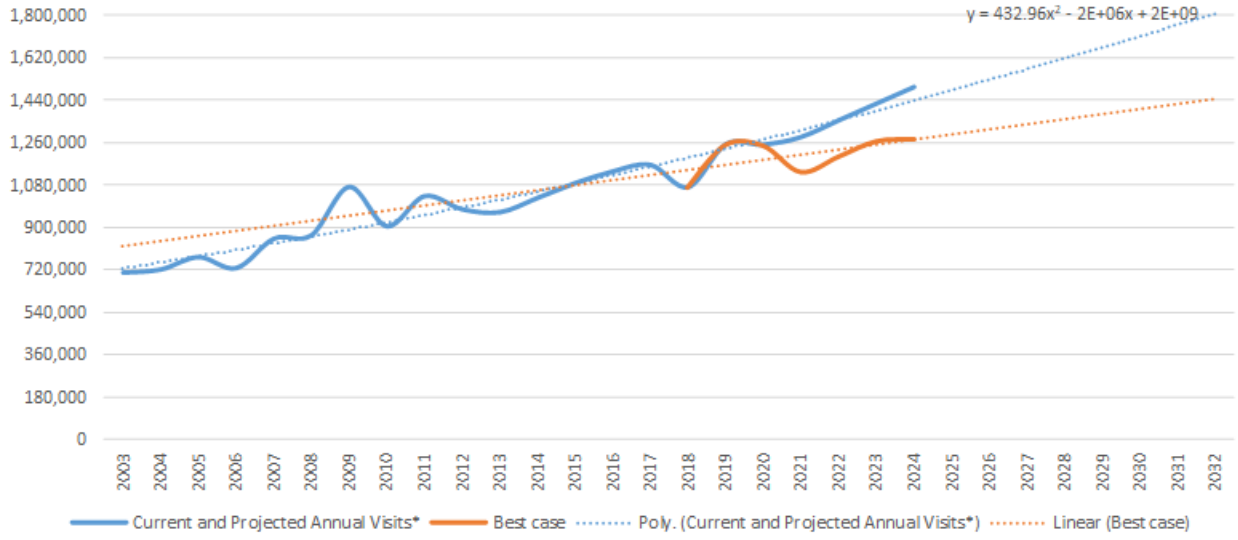
Source: Hatch Regeneris Analysis (2020)

** as a conservative assumption no additional growth in visitor numbers and employees is assumed beyond 2024. In practice the RHS would anticipate, and are planning, for a continual period of growth through the current decade of up to 4.6% pa (as shown in Table A1).*

Updated from Table 9 REP1-039

6.3 Figure A1 presents an updated assessment of the impact of these visitor reductions against the historical profile of visitor number to the Garden and the projected future impact

Figure A1 Trend Data for Annual Visits to the Garden and the Projected Impact under different Future Scenarios (annual visitor numbers)



Updated from Figure 1 REP1-039

6.4 The new data indicates that reduction in visits to the Garden is likely to be highest during the construction phase, with up to 450,000 reduced visits during this 3-year period. This could have a significant impact upon employment levels at the Garden. This would occur during the period the RHS had planned for significant growth in visits as a return on the current investment programme at the Garden. The construction of the DCO Scheme is projected to have a major negative impact upon the ability to expand visitor numbers. These construction impacts may well extend into the operational phase of the DCO Scheme as well, over and above the impacts presented for 2024 and future years in Table A10.

6.5 Table A11 presents the updated projected additional direct, indirect and induced economic impacts associated with the RHS investment programme, in terms of reduced Employee Spend, Other Operational Spend, and External Visitor Spend, resulting from the DCO Scheme.

Table A11 Projected Reduction in Employee Spend, Other Operational Spend, and External Visitor Spend resulting from the DCO Scheme (£)

Year		Projected Reduction in Employee Spend with 2nd and 3rd Tier Impacts *(£)*	Projected Reduction in Other Operational Spend with 2nd / 3rd Tier Impacts *(£)*	Projected Reduction in External Visitor Spend with 2nd and 3rd Tier Impacts *(£)*
2021	Construction Phase	2,759,000	4,033,000	2,629,000
2022		2,857,000	4,272,000	2,778,000
2023		2,953,000	4,498,000	2,932,000
2024	Operational Phase	1,161,000	1,782,000	1,169,000
Future Years		1,161,000*	1,782,000*	1,169,000*

Sources: Hatch Regeneris Analysis (2020); RHS Wisley: Economic Impact Study 2015/16 - 2024/25 (Counterculture, November 2017)

** as a conservative assumption no additional growth in visitor numbers and employees is assumed beyond 2024. In practice the RHS would anticipate, and are planning, for a continual period of growth through the current decade of up to 4.6% pa (as shown in Table A1)*

Updated from Table 10 REP1-039

6.6 Table A12 presents a revised summary of the Present Value of the Wider Economic Impacts of the DCO Scheme in relation to the operation of the Garden and induced wider external effect. The impacts for the construction phase and operational phase are now presented separately.

Table A12 Present value of Wider Economic Costs of the DCO Scheme in relation to the operation of the Garden and induced wider external effects (£m, 2020 Prices)

Phase	Appraisal Period	Scenario	Salaries Expenditure *(PV £m)*	Operational Expenditure *(PV £m)*	External Spend *(PV £m)*	Total *(PV £m)*
Construction Phase	3 years (2021 - 2023)	*High*	8.0	11.9	7.8	27.7
		Low	4.7	6.9	4.5	**16.1**
Operational Phase	+5 years (2024 - 2028)		4.7	7.3	4.7	**16.7**
	+10 years (2024 - 2033)		8.7	13.4	8.7	**30.8**
	+15 years (2024 - 2038)		12.1	18.5	12.2	**42.7**

Sources: Hatch Regeneris Analysis (2020); RHS Wisley: Economic Impact Study 2015/16 - 2024/25 (Counterculture, November 2017)
Values discounted to 2020 prices applying 3.5% discount rate (source: TAG Data Book May 2019 v1.12)

7. Summary of Economic Impact of DCO Scheme in relation to the Garden

7.1 Table A13 presents the revised overall summary of the key forecast economic costs of the DCO Scheme in relation to the Garden, as presented in Table A9 and A12.

Table A13 Summary of the Overall Estimated Economic Cost of the DCO Scheme in relation to the Garden (PV £m, 2020 prices)

Impact	Present Value of Economic Costs *(£m) (2020 prices)*				
	Construction (3yrs)		*Operational (+60 yrs)*		
	Low	*High*			
Visitors to Garden*	1.60	2.39	21.4		
Employees on-site at Garden*	0.28	0.43	3.5		
Volunteers on-site at Garden*	0.06	0.08	0.9		
Total Transport User Impact*	**1.9**	**2.9**	25.9		
	Construction (3yrs)		*Operational*		
	Low	*High*	*+5 yrs*	***+ 10 yrs***	*+15 yrs*
Salaries Expenditure[#]	4.7	8.0	4.7	8.7	12.1
Operational Expenditure[#]	6.9	11.9	7.3	13.4	18.5
External Spend[#]	4.5	7.8	4.7	8.7	12.2
Total Wider Economic Impacts[#]	**16.1**	**27.7**	**16.7**	**30.8**	**42.7**

Source: Hatch Regeneris (2020)

7.2 Table A13 indicates that the overall impact upon transport user benefits for trips to and from the Garden, during both the construction and operational phases, is estimated at between £27.8 - 28.9 million in lost economic value[5].

7.3 The wider economic impact[6] across the 3-year construction phase and a 10-year operational period is estimated at between £46.9 million and £58.5 million.

7.4 Even if the most optimistic set of outcomes are combined, with a 'low' construction impact and operational impacts only extending to 5 years, then the combined loss of economic value would equate to around £60 million. Conversely, a worst-case scenario, with 'high' construction impact and the operational impacts extending to 15 years, would equate to just under £100 million.

8. Alternative Options

8.1 The range of negative economic impacts identified with the assessment of the DCO Scheme emphasises the importance of exploring alternative solutions to the access arrangements for the Garden. The RHS has proposed alternative arrangements (the **RHS Alternative Scheme**) to better address the issues of access and egress to the Garden.

8.2 The key components of the RHS Alternative Scheme relate to;

1) the addition of south facing slips at the Ockham Roundabout; and

2) the retention of an improved Wisley Lane entry to A3 Northbound carriageway

8.3 The inclusion of both these elements will significantly off-set the negative travel impacts that have been outlined within this report, and the associated economic costs, as explained below.

Impact of RHS Alternative Scheme

8.4 Table A14 provides an updated summary of the comparative economic impacts of the DCO Scheme and RHS Alternative Scheme options.

[5] *This represents the lost economic value associated with additional travel time and vehicle operating costs, as defined by the Department for Transport with the Transport Analysis Guidance, that will be incurred by those travelling to and from the Garden.*

[6] *The associated loss in direct, indirect, and induced economic activity at the Garden resulting from lower visitor spend*

Table A14 Summary of Economic Impacts of DCO Scheme and RHS Alternative Scheme in relation to the Garden (PV £m, 2020 prices)

Impact	PV˜ of Impacts# of DCO Scheme* (£m) (2020 prices)	PV˜ of Impacts# of RHS Alternative Scheme* (£m) (2020 prices)	Difference between DCO and RHS Alternative Impacts# (£m) (2020 prices)
Construction Phase	-2.9	-2.9	-
Operational Phase	25.9	+8.7	+34.6
Transport User Impact	**-28.8**	**+5.8**	**+34.6**
Construction Phase	-27.7	-27.7	-
Operational Phase	-30.8	-	+30.8
Wider Economic Impacts	**-58.6**	**-27.7**	**+30.8**

Source: Hatch Regeneris *˜ PV = Present Value*

 # all figures in this table are presented a net impacts and so negative figures represent a loss of economic benefit

** impacts are shown for the 'high' construction impact scenario and the +10 years of operational phase*

8.5 Table A14 indicates that the RHS Alternative Scheme is still forecast to result in some wider economic costs when compared to the current do-nothing 'Reference Case' scenario. This is mainly due to the negative impacts that will occur during the construction phase of the scheme. It does, however, generate positive transport user benefits of £8.7 million during the operational phase, in comparison to the 'Reference Case' scenario.

8.6 More importantly, the RHS Alternative Scheme will clearly result in a significant improvement in comparison to the impacts of the DCO Scheme, eliminating the negative transport user and wider economic impacts during the operational phase.

Impact of South-Facing Slips at Ockham Roundabout

8.7 Table A15 provides an updated summary of the comparative economic impacts of the DCO Scheme and the option of the DCO Scheme with South-facing Slips at the Ockham Roundabout.

Table A15 Summary of Economic Impacts of DCO Scheme and DCO Scheme with South-Facing Slips at Ockham Roundabout in relation to the Garden (PV £m, 2020 prices)

Impact	PV˜ of Impacts# of DCO Scheme* (£m) (2020 prices)	PV˜ of Impacts# of South-Facing Slips Scheme* (£m) (2020 prices)	Difference between DCO and RHS Alternative Impacts# (£m) (2020 prices)
Transport User Impact	**-28.8**	**-6.4**	**+22.4**
Wider Economic Impacts	**-58.6**	**-36.6**	**+22.3**

Source: Hatch Regeneris *˜ PV = Present Value*

 # all figures in this table are presented a net impacts and so negative figures represent a loss of economic benefit

** impacts are shown for the 'high' construction impact scenario and the +10 years of operational phase*

8.8 Table A13 indicates that the addition of South-Facing Slips to the DCO Scheme is forecast to generate significant additional economic benefits, when simply considering trips to and from the Garden. When considering all of the potential appraisal scenarios (as outlined in Table A11), the range of potential benefits is estimated at between £30 million to £55 million.

9. Summary and Conclusions

9.1 The updated analysis within this addendum report not only provides additional rigor, robustness, and adds detail to the assessment but it clearly reinforces the outcomes from *REP1-039* submission and reiterates that the impact upon the operation of the Garden, during a period of significant expansion, will be extremely detrimental.

9.2 The estimated economic cost impacts remain highly significant, within an estimated range of impacts of between £60 million to £100 million. The updated analysis specifically indicates that the construction phase of the DCO Scheme could result in a significant reduction in visitor numbers (up to 450,000 over 3 years), with associated loss in on-site employment (45 jobs). This will coincide with the completion of the RHS programme of investment at the Garden and the need to expand visitor numbers, and so will be particularly detrimental. The effects of the construction disruption could extend into the operational phase of the DCO Scheme, compiling negative impacts for a number of years thereafter.

9.3 The impacts under the operational phase of the DCO Scheme, whilst not as significant on an annual basis as during the construction phase, will create a new underlying visitor trend with around 54,000 fewer visits each year. Over a 10-year period this equates to a loss of economic value of around £31 million, as well as on-going transport user impacts equivalent to a loss of £26 million over 60 years.

9.4 The proposed RHS Alternative Scheme, with south-facing slips at the Ockham Roundabout and retention of the left-turn egress from Wisley Lane onto the A3, would eliminate the negative economic impacts during the operational phase and generate positive direct transport user benefits for visitors, workers, and volunteers to the Garden of nearly £9m over 60 years.

9.5 The updated analysis provides compelling evidence that the DCO Scheme will result in significant adverse economic impacts in relation to the Garden, and that it will clearly not, as it is required by the objectives, '*improve access to RHS Wisley*'. Furthermore, the analysis strongly supports the case for adopting the RHS Alternative Scheme.

Appendix A - New RHS Market Research Questionnaires

Survey 1: Operational Phase

1. **Roughly how often do you visit RHS Garden Wisley in spring / summer?**
   - ☐ At least once a week
   - ☐ Twice per month
   - ☐ Once every 3 months
   - ☐ Once in spring / summer
   - ☐ Less frequently
   - ☐ Never

2. **Roughly how often do you visit RHS Garden Wisley in autumn / winter?**
   - ☐ At least once a week
   - ☐ Twice per month
   - ☐ Once every 3 months
   - ☐ Once in autumn / winter
   - ☐ Less frequently
   - ☐ Never

3. **Do you ever visit the RHS Wisley site solely to come to the RHS Shop or Café?**
   - ☐ Yes, frequently (over 8 times a year)
   - ☐ Yes, occasionally (2 to 8 times a year)
   - ☐ Yes, on rare occasions
   - ☐ No, I always go into the main garden
   - ☐ Unsure

4. **What mode of transport do you typically use to get to and from RHS Garden Wisley?**
   - ☐ Car
   - ☐ Motorcycle / Moped
   - ☐ Walk
   - ☐ Taxi
   - ☐ Bicycle
   - ☐ Public Bus
   - ☐ Tour coach / private bus / minibus
   - ☐ Other. Please specify.

5. **Please indicate which route you typically use to access RHS Wisely Garden?**

- ☐ From the M25 (either direction) via the A3
- ☐ Via the A3 from north of the M25 (e.g. from the direction of London)
- ☐ Via the A3 from the south (e.g. from the direction of Guildford)
- ☐ Via the B2215 through Ripley
- ☐ From the east of the Garden, via the Wisley Lane (e.g. from the direction of Woking via Pryford Lock)
- ☐ Another route

6. **How long does your current journey to RHS Garden Wisley typically take?**

- ☐ Less than 15 minutes
- ☐ Between 15 and 20 minutes
- ☐ Between 20 and 30 minutes
- ☐ Between 30 and 45 minutes
- ☐ Between 45 minutes and an hour
- ☐ Between 1 hour and 1 and ½ hours
- ☐ Greater than 1 and ½ hours
- ☐ Not sure

7. **How easy do you currently find it to travel to RHS Garden Wisley?**

- ☐ Very easy
- ☐ Reasonably easy
- ☐ Neither easy, nor difficult
- ☐ Reasonably difficult
- ☐ Very difficult
- ☐ Not sure

8. **Imagine a situation where an extra 6 minutes and 3.5 miles was permanently added to your journey to RHS Garden Wisley, with an additional 2 minutes (and 1.5 miles) added when you left the Garden.**

   Would such a change in journey time and distance to and from the Garden affect you?

- ☐ No, the additional time and distance would not affect me *(go to question 10)*
- ☐ Yes, I would find the additional time and distance frustrating *(go to question 9)*
- ☐ I am unsure how the additional time and distance would affect me *(go to question 10)*

9. **Please indicate your likely level of frustration on the following scale:**

Not frustrated ☐**0** ☐**1** ☐**2** ☐**3** ☐**4** ☐**5** ☐**6** ☐**7** ☐**8** ☐**9** ☐**10** Highly Frustrated

10. **Could the additional journey time have any negative impact upon how frequently you would visit RHS Wisley Garden?**

- ☐ Definitely, yes
- ☐ Probably, yes
- ☐ Probably not
- ☐ Definitely not
- ☐ Unsure

11. Please provide an indication of how less frequently you may visit RHS Garden Wisley?

- ☐ Up to 20% less a year
- ☐ Between 20% and 40% less a year
- ☐ Between 40% and 60% less a year
- ☐ Between 60% and 80% less a year
- ☐ Between 80% and 100% less a year
- ☐ I may not visit at all
- ☐ Or alternatively, please state how many fewer trips per year you might make to the Garden

Survey 2: Construction Phase

1. Roughly how often do you visit RHS Garden Wisley in spring / summer?

- ☐ At least once a week
- ☐ Twice per month
- ☐ Once every 3 months
- ☐ Once in spring / summer
- ☐ Less frequently
- ☐ Never

2. Roughly how often do you visit RHS Garden Wisley in autumn / winter?

- ☐ At least once a week
- ☐ Twice per month
- ☐ Once every 3 months
- ☐ Once in autumn / winter
- ☐ Less frequently
- ☐ Never

3. Do you ever visit the RHS Wisley site solely to come to the RHS Shop or Café?

- ☐ Yes, frequently (over 8 times a year)
- ☐ Yes, occasionally (2 to 8 times a year)
- ☐ Yes, on rare occasions
- ☐ No, I always go into the main garden
- ☐ Unsure

4. **What mode of transport do you typically use to get to and from RHS Garden Wisley?**

- ☐ Car
- ☐ Motorcycle / Moped
- ☐ Walk
- ☐ Taxi
- ☐ Bicycle
- ☐ Public Bus
- ☐ Tour coach / private bus / minibus
- ☐ Other. Please specify.

5. **Please indicate which route you typically use to access RHS Wisely Garden?**

- ☐ From the M25 (either direction) via the A3
- ☐ Via the A3 from north of the M25 (e.g. from the direction of London)
- ☐ Via the A3 from the south (e.g. from the direction of Guildford)
- ☐ Via the B2215 through Ripley
- ☐ From the east of the Garden, via the Wisley Lane (e.g. from the direction of Woking via Pryford Lock)
- ☐ Another route

6. **How long does your current journey to RHS Garden Wisley typically take?**

- ☐ Less than 15 minutes
- ☐ Between 15 and 20 minutes
- ☐ Between 20 and 30 minutes
- ☐ Between 30 and 45 minutes
- ☐ Between 45 minutes and an hour
- ☐ Between 1 hour and 1 and ½ hours
- ☐ Greater than 1 and ½ hours
- ☐ Not sure

7. **How easy do you currently find it to travel to RHS Garden Wisley?**

- ☐ Very easy
- ☐ Reasonably easy
- ☐ Neither easy, nor difficult
- ☐ Reasonably difficult
- ☐ Very difficult
- ☐ Not sure

8. **Imagine a situation where you are required to travel through 5 miles of roadworks, adding between 3 to 4 minutes to your journey to RHS Garden Wisley, with an additional 2 to 3 minutes (and 3.5 miles) when you left the Garden.**

   Would the presence of roadworks, and the associated change in journey times, to and from the Garden, affect you?

- ☐ No, the roadworks and additional time would not affect me *(go to question 10)*
- ☐ Yes, I would find the roadworks and additional time frustrating *(go to question 9)*
- ☐ I am unsure how the roadworks would affect me *(go to question 10)*

9. Please indicate your likely level of frustration on the following scale:

Not frustrated ☐**0** ☐**1** ☐**2** ☐**3** ☐**4** ☐**5** ☐**6** ☐**7** ☐**8** ☐**9** ☐**10** Highly Frustrated

10. Could the roadworks and additional journey time have any negative impact upon how frequently you would visit RHS Wisley Garden?

☐ Definitely, yes

☐ Probably, yes

☐ Probably not

☐ Definitely not

☐ Unsure

11. Please provide an indication of how less frequently you may visit RHS Garden Wisley?

☐ Up to 20% less a year

☐ Between 20% and 40% less a year

☐ Between 40% and 60% less a year

☐ Between 60% and 80% less a year

☐ Between 80% and 100% less a year

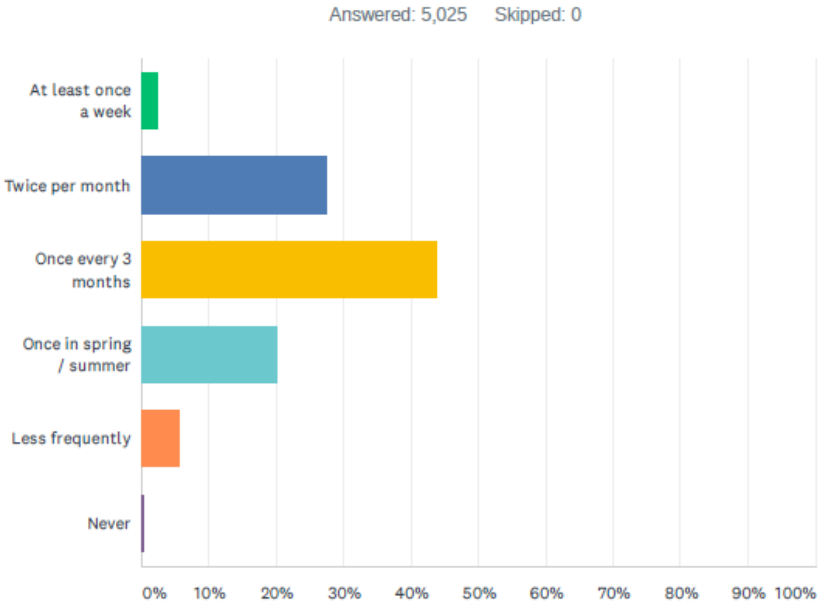
☐ I may not visit at all

☐ Or alternatively, please state how many fewer trips per year you might make to the Garden

Appendix B - New Market Research Summary Results

Survey 1: Operational Phase Results

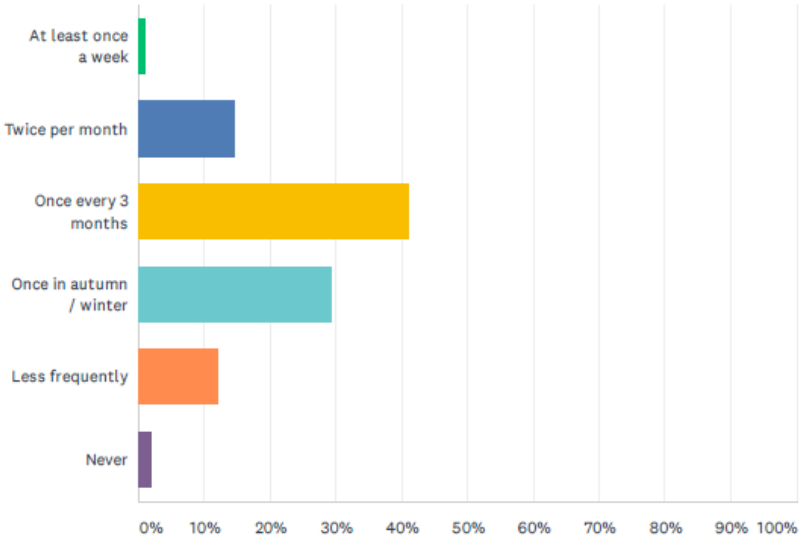
1. **Roughly how often do you visit RHS Garden Wisley in spring / summer?**



ANSWER CHOICES	RESPONSES	
At least once a week	2.43%	122
Twice per month	27.62%	1,388
Once every 3 months	43.92%	2,207
Once in spring / summer	20.14%	1,012
Less frequently	5.55%	279
Never	0.34%	17
TOTAL		5,025

2. Roughly how often do you visit RHS Garden Wisley in autumn / winter?

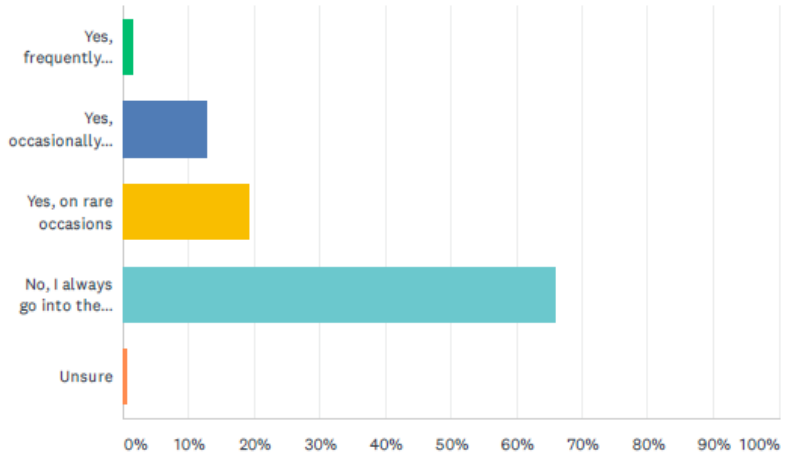
Answered: 5,025 Skipped: 0



ANSWER CHOICES	RESPONSES	
At least once a week	1.07%	54
Twice per month	14.71%	739
Once every 3 months	41.00%	2,060
Once in autumn / winter	29.33%	1,474
Less frequently	12.06%	606
Never	1.83%	92
TOTAL		5,025

3. Do you ever visit the RHS Wisley site solely to come to the RHS Shop or Café?

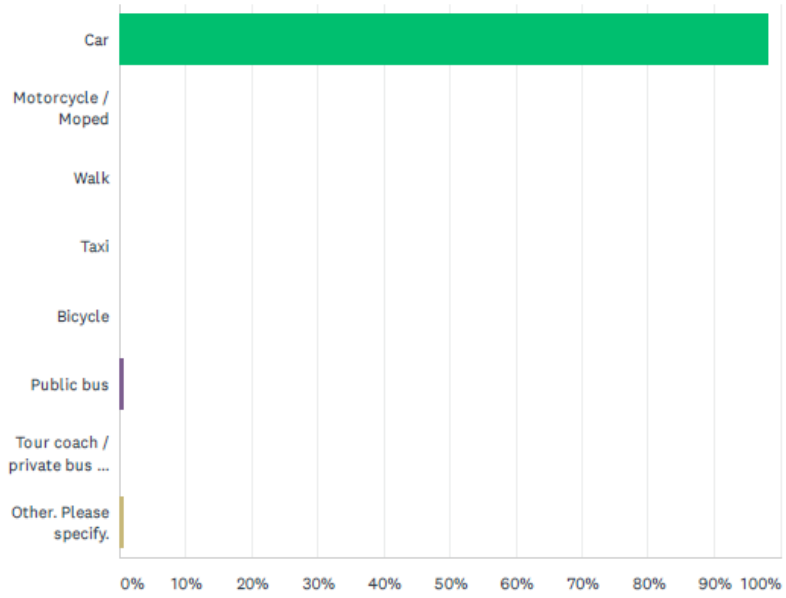
Answered: 5,025 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes, frequently (over 8 times a year)	1.45%	73
Yes, occasionally (2 - 8 times a year)	12.74%	640
Yes, on rare occasions	19.28%	969
No, I always go into the main garden	65.85%	3,309
Unsure	0.68%	34
TOTAL		5,025

4. What mode of transport do you typically use to get to and from RHS Garden Wisley?

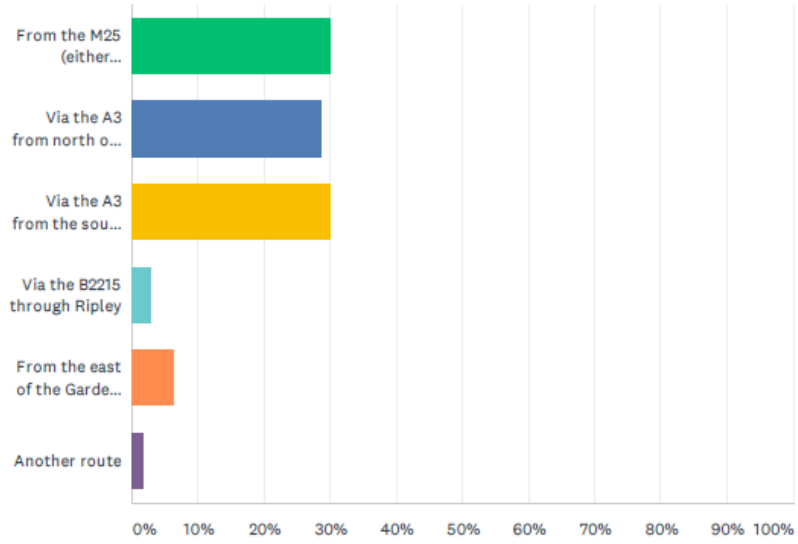
Answered: 5,025 Skipped: 0



ANSWER CHOICES	RESPONSES	
Car	98.19%	4,934
Motorcycle / Moped	0.08%	4
Walk	0.08%	4
Taxi	0.08%	4
Bicycle	0.20%	10
Public bus	0.66%	33
Tour coach / private bus / minibus	0.04%	2
Other. Please specify.	0.68%	34
TOTAL		5,025

5. Please indicate which route you typically use to access RHS Wisely Garden?

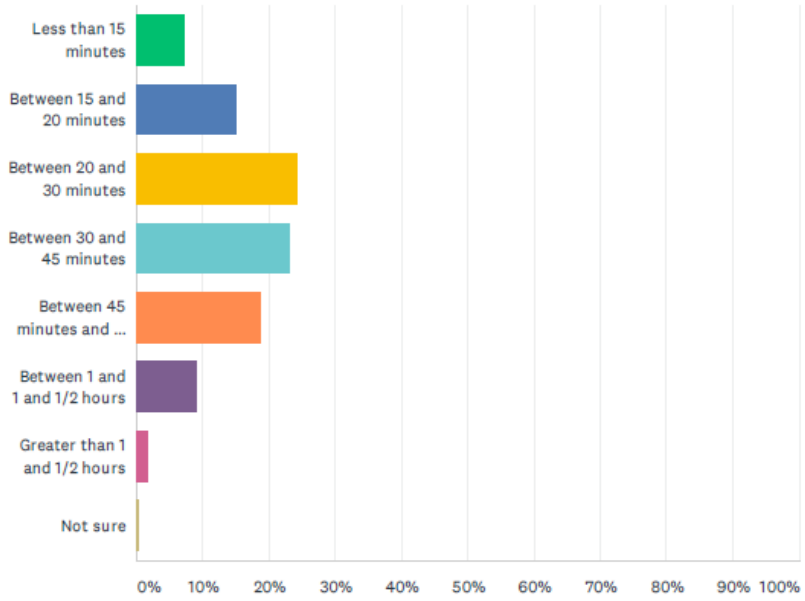
Answered: 5,025 Skipped: 0



ANSWER CHOICES	RESPONSES	
From the M25 (either direction) via the A3	30.13%	1,514
Via the A3 from north of the M25 (e.g. from the direction of London)	28.74%	1,444
Via the A3 from the south (e.g. from the direction of Guildford)	30.19%	1,517
Via the B2215 through Ripley	2.99%	150
From the east of the Garden, via Wisley Lane (i.e. from the direction of Woking via the Pyrford lock)	6.25%	314
Another route	1.71%	86
TOTAL		5,025

6. How long does your current journey to RHS Garden Wisley typically take?

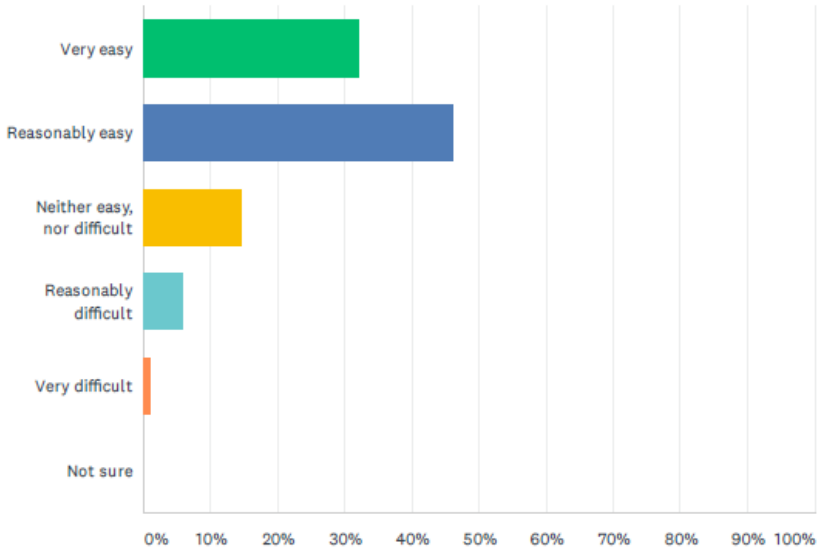
Answered: 5,025 Skipped: 0



ANSWER CHOICES	RESPONSES	
Less than 15 minutes	7.24%	364
Between 15 and 20 minutes	15.02%	755
Between 20 and 30 minutes	24.34%	1,223
Between 30 and 45 minutes	23.32%	1,172
Between 45 minutes and an hour	18.77%	943
Between 1 and 1 and 1/2 hours	9.23%	464
Greater than 1 and 1/2 hours	1.57%	79
Not sure	0.50%	25
TOTAL		5,025

7. How easy do you currently find it to travel to RHS Garden Wisley?

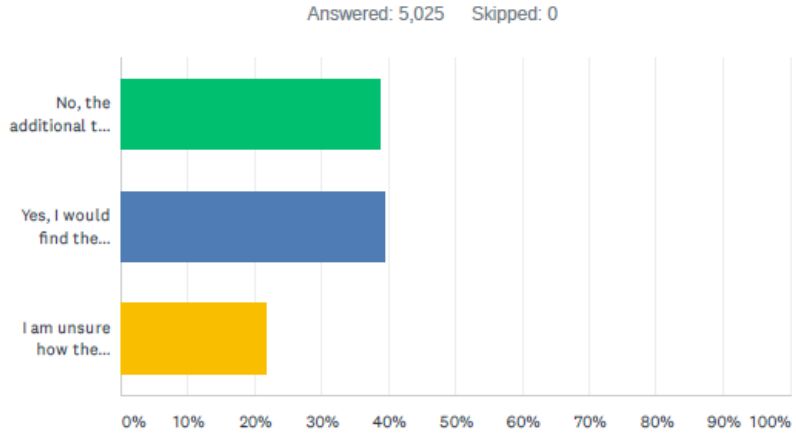
Answered: 5,025 Skipped: 0



ANSWER CHOICES	RESPONSES	
Very easy	32.06%	1,611
Reasonably easy	46.15%	2,319
Neither easy, nor difficult	14.65%	736
Reasonably difficult	5.91%	297
Very difficult	1.07%	54
Not sure	0.16%	8
TOTAL		5,025

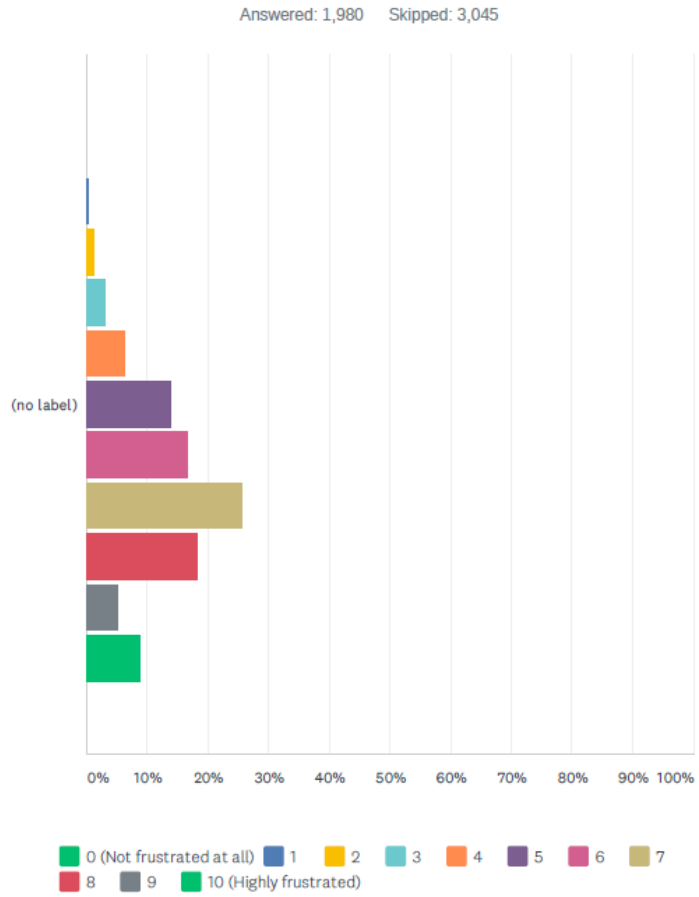
8. **Imagine a situation where an extra 6 minutes and 3.5 miles was permanently added to your journey to RHS Garden Wisley, with an additional 2 minutes (and 1.5 miles) added when you left the Garden.**

   Would such a change in journey time and distance to and from the Garden affect you?



ANSWER CHOICES	RESPONSES	
No, the additional time and distance would not affect me	38.75%	1,947
Yes, I would find the additional time and distance frustrating	39.52%	1,986
I am unsure how the additional time and distance would affect me	21.73%	1,092
TOTAL		5,025

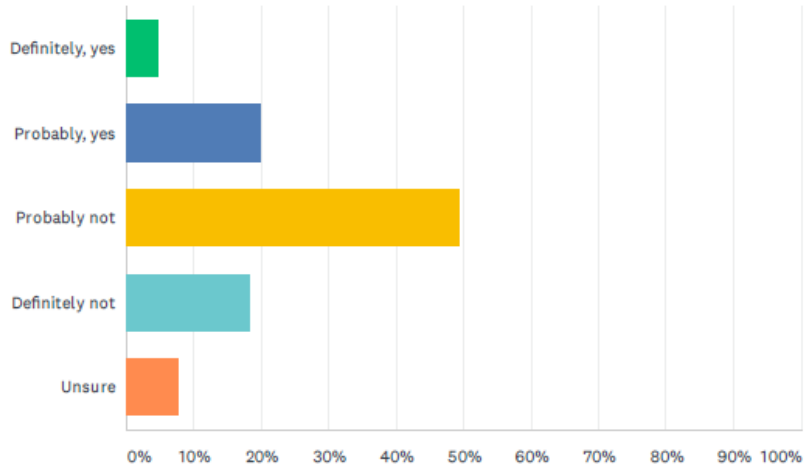
9. Please indicate your likely level of frustration on the following scale:



	0 (NOT FRUSTRATED AT ALL)	1	2	3	4	5	6	7	8	9	10 (HIGHLY FRUSTRATED)	TOTAL
(no label)	0.10% 2	0.35% 7	1.31% 26	3.23% 64	6.21% 123	14.04% 278	16.77% 332	25.81% 511	18.18% 360	5.25% 104	8.74% 173	1,980

10. Could the additional journey time have any negative impact upon how frequently you would visit RHS Wisley Garden?

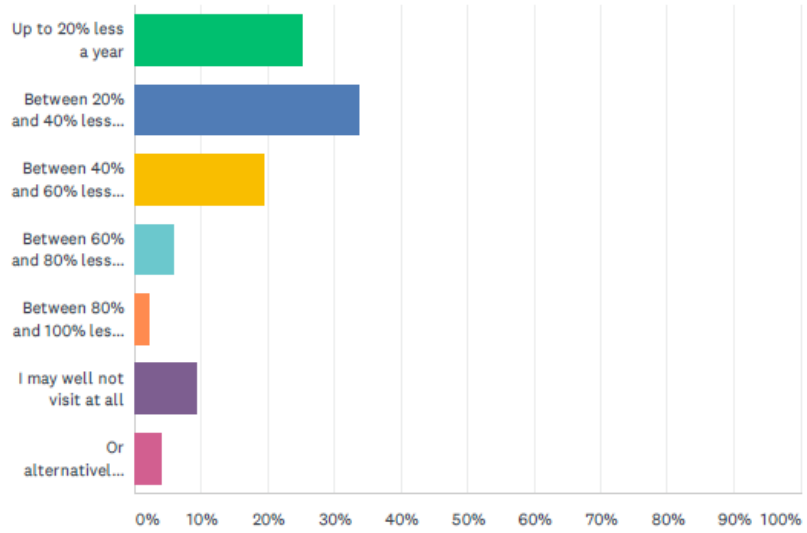
Answered: 5,009 Skipped: 16



ANSWER CHOICES	RESPONSES	
Definitely, yes	4.81%	241
Probably, yes	19.86%	995
Probably not	49.29%	2,469
Definitely not	18.31%	917
Unsure	7.73%	387
TOTAL		5,009

11. Please provide an indication of how less frequently you may visit RHS Garden Wisley?

Answered: 1,234 Skipped: 3,791

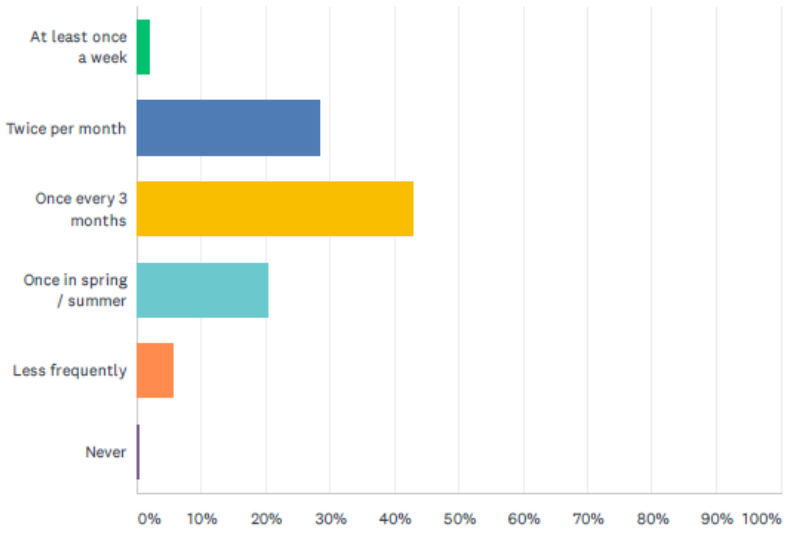


ANSWER CHOICES	RESPONSES	
Up to 20% less a year	25.12%	310
Between 20% and 40% less a year	33.71%	416
Between 40% and 60% less a year	19.53%	241
Between 60% and 80% less a year	5.83%	72
Between 80% and 100% less a year	2.35%	29
I may well not visit at all	9.40%	116
Or alternatively, please state how many fewer trips per year you might make to the Garden.	4.05%	50
TOTAL		1,234

Survey 2: Construction Phase Results

1. Roughly how often do you visit RHS Garden Wisley in spring / summer?

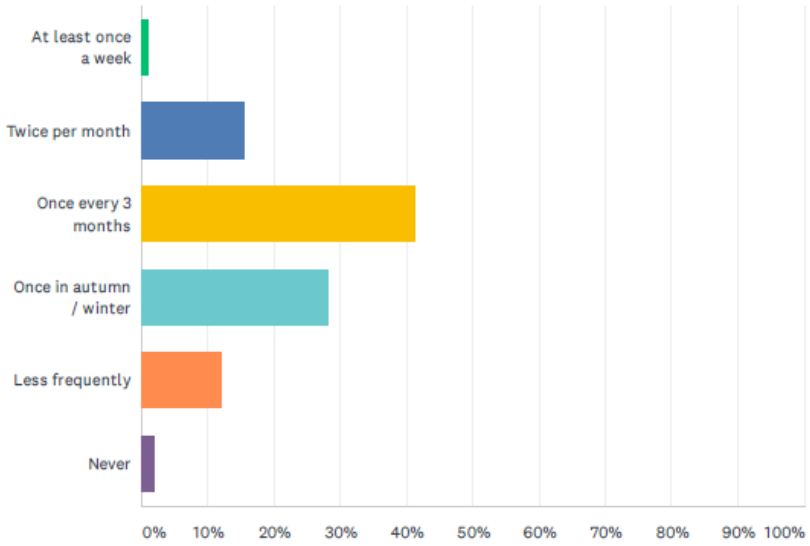
Answered: 4,981 Skipped: 0



ANSWER CHOICES	RESPONSES	
At least once a week	2.19%	109
Twice per month	28.41%	1,415
Once every 3 months	42.96%	2,140
Once in spring / summer	20.36%	1,014
Less frequently	5.68%	283
Never	0.40%	20
TOTAL		4,981

2. Roughly how often do you visit RHS Garden Wisley in autumn / winter?

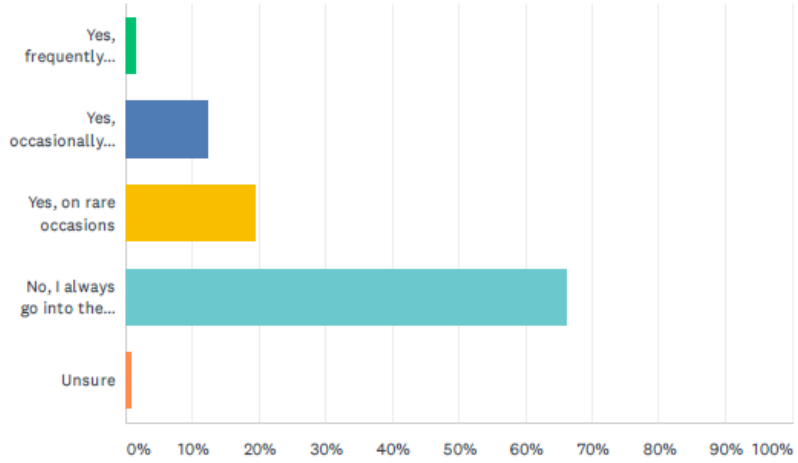
Answered: 4,981 Skipped: 0



ANSWER CHOICES	RESPONSES	
At least once a week	0.96%	48
Twice per month	15.42%	768
Once every 3 months	41.42%	2,063
Once in autumn / winter	28.15%	1,402
Less frequently	12.17%	606
Never	1.89%	94
TOTAL		4,981

3. Do you ever visit the RHS Wisley site solely to come to the RHS Shop or Café?

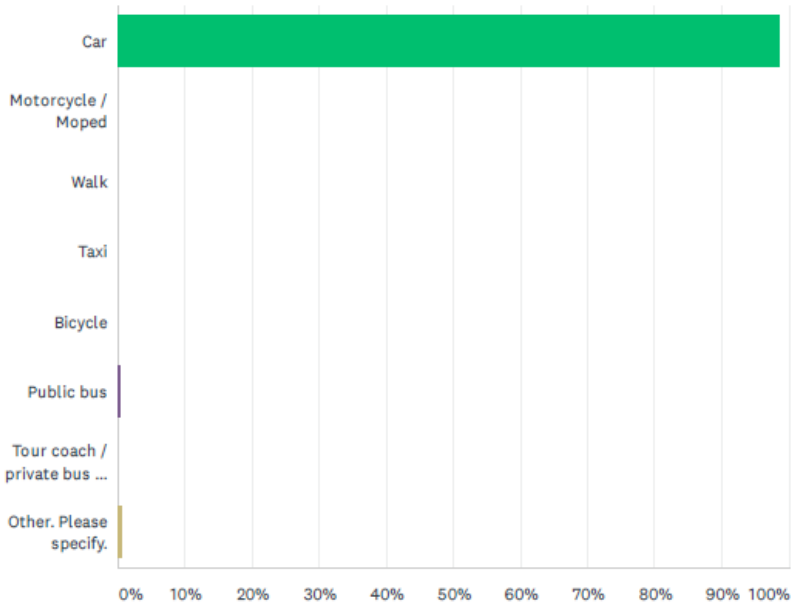
Answered: 4,981 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes, frequently (over 8 times a year)	1.45%	72
Yes, occasionally (2 - 8 times a year)	12.27%	611
Yes, on rare occasions	19.41%	967
No, I always go into the main garden	66.05%	3,290
Unsure	0.82%	41
TOTAL		4,981

4. What mode of transport do you typically use to get to and from RHS Garden Wisley?

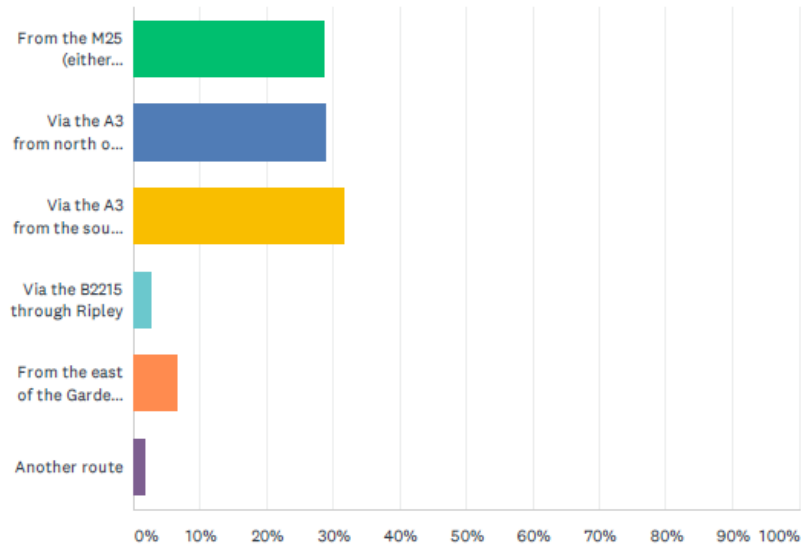
Answered: 4,981 Skipped: 0



ANSWER CHOICES	RESPONSES	
Car	98.51%	4,907
Motorcycle / Moped	0.06%	3
Walk	0.12%	6
Taxi	0.04%	2
Bicycle	0.16%	8
Public bus	0.34%	17
Tour coach / private bus / minibus	0.14%	7
Other. Please specify.	0.62%	31
TOTAL		4,981

5. Please indicate which route you typically use to access RHS Wisely Garden?

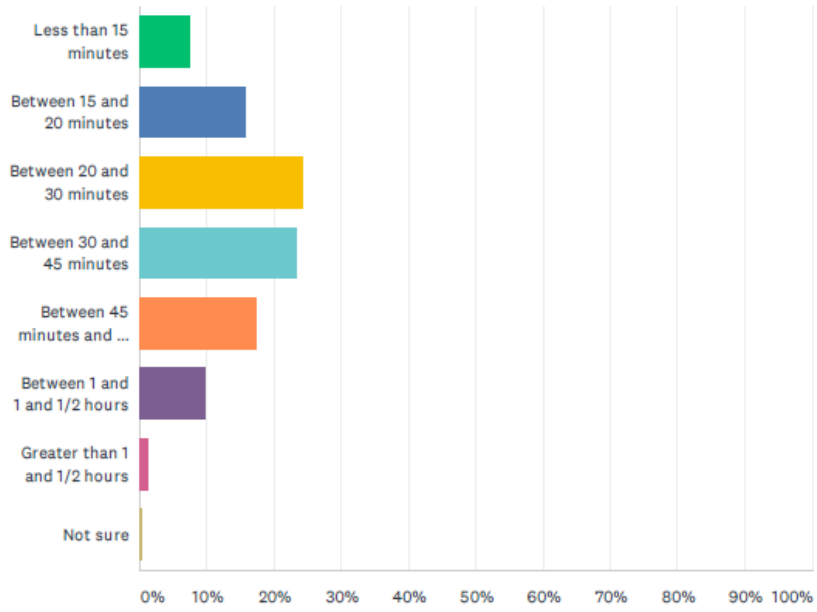
Answered: 4,981 Skipped: 0



ANSWER CHOICES	RESPONSES	
From the M25 (either direction) via the A3	28.75%	1,432
Via the A3 from north of the M25 (e.g. from the direction of London)	28.85%	1,437
Via the A3 from the south (e.g. from the direction of Guildford)	31.64%	1,576
Via the B2215 through Ripley	2.71%	135
From the east of the Garden, via Wisley Lane (i.e. from the direction of Woking via the Pyrford lock)	6.46%	322
Another route	1.59%	79
TOTAL		4,981

6. How long does your current journey to RHS Garden Wisley typically take?

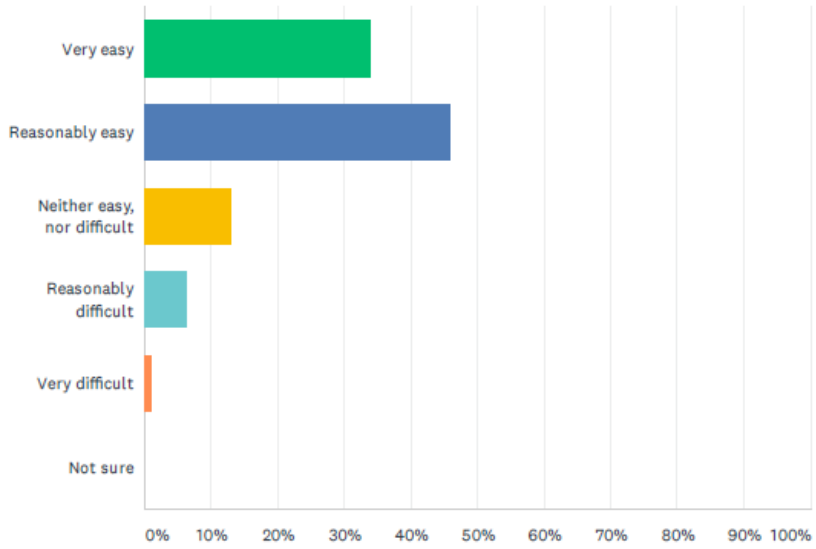
Answered: 4,981 Skipped: 0



ANSWER CHOICES	RESPONSES	
Less than 15 minutes	7.45%	371
Between 15 and 20 minutes	15.76%	785
Between 20 and 30 minutes	24.31%	1,211
Between 30 and 45 minutes	23.53%	1,172
Between 45 minutes and an hour	17.45%	869
Between 1 and 1 and 1/2 hours	9.86%	491
Greater than 1 and 1/2 hours	1.18%	59
Not sure	0.46%	23
TOTAL		4,981

7. How easy do you currently find it to travel to RHS Garden Wisley?

Answered: 4,981 Skipped: 0

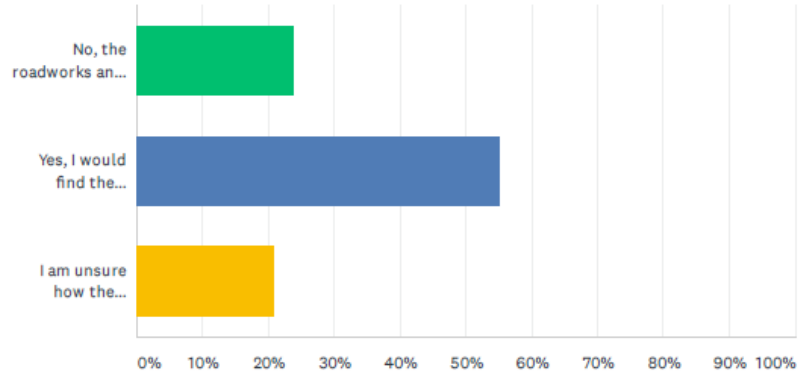


ANSWER CHOICES	RESPONSES	
Very easy	33.79%	1,683
Reasonably easy	45.75%	2,279
Neither easy, nor difficult	12.93%	644
Reasonably difficult	6.18%	308
Very difficult	1.08%	54
Not sure	0.26%	13
TOTAL		4,981

8. **Imagine a situation where you are required to travel through 5 miles of roadworks, adding between 3 to 4 minutes to your journey to RHS Garden Wisley, with an additional 2 to 3 minutes (and 3.5 miles) when you left the Garden.**

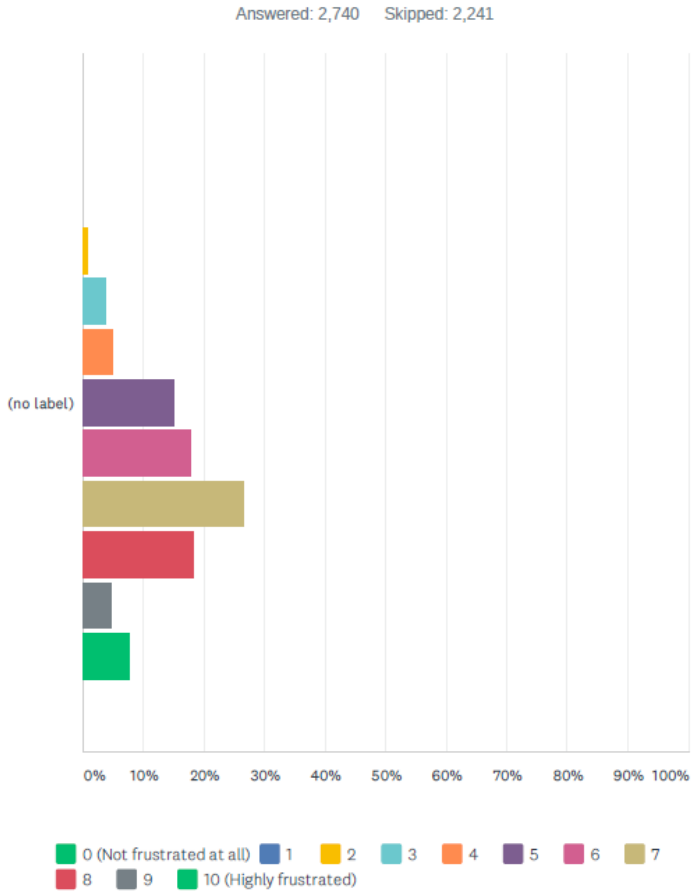
   Would the presence of roadworks, and the associated change in journey times, to and from the Garden, affect you?

Answered: 4,981 Skipped: 0



ANSWER CHOICES	RESPONSES	
No, the roadworks and additional time would not affect me	23.79%	1,185
Yes, I would find the roadworks and additional time frustrating	55.21%	2,750
I am unsure how the roadworks would affect me	21.00%	1,046
TOTAL		4,981

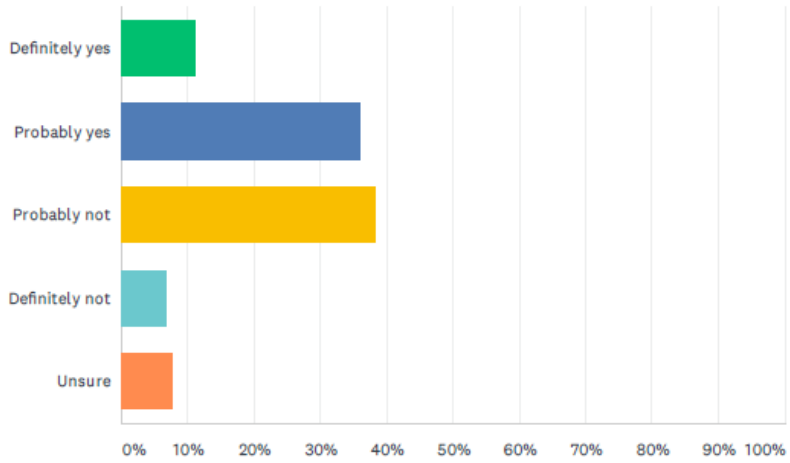
9. Please indicate your likely level of frustration on the following scale:



	0 (NOT FRUSTRATED AT ALL)	1	2	3	4	5	6	7	8	9	10 (HIGHLY FRUSTRATED)	TOTAL
(no label)	0.00% 0	0.22% 6	0.91% 25	3.80% 104	4.93% 135	14.96% 410	17.77% 487	26.50% 726	18.39% 504	4.71% 129	7.81% 214	2,740

10. Could the roadworks and additional journey time have any negative impact upon how frequently you would visit RHS Wisley Garden?

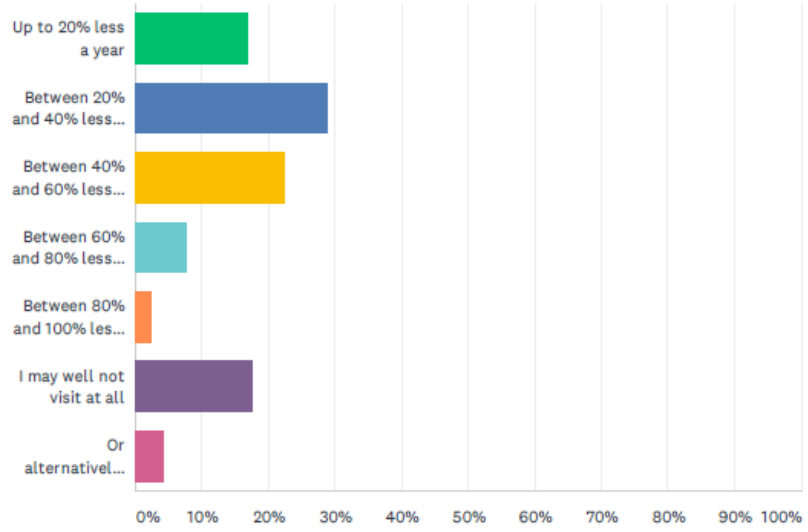
Answered: 4,957 Skipped: 24



ANSWER CHOICES	RESPONSES	
Definitely yes	11.18%	554
Probably yes	35.89%	1,779
Probably not	38.35%	1,901
Definitely not	6.86%	340
Unsure	7.73%	383
TOTAL		4,957

11. Please provide an indication of how less frequently you may visit RHS Garden Wisley?

Answered: 2,320 Skipped: 2,661



ANSWER CHOICES	RESPONSES	
Up to 20% less a year	16.85%	391
Between 20% and 40% less a year	28.79%	668
Between 40% and 60% less a year	22.28%	517
Between 60% and 80% less a year	7.84%	182
Between 80% and 100% less a year	2.41%	56
I may well not visit at all	17.59%	408
Or alternatively, please state how many fewer trips per year you might make to the Garden.	4.22%	98
TOTAL		2,320

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List of Propositions to be addressed between HE and RHS during SoCG discussions

Proposition 1.1	The strategic traffic model used by Highways England for the Scheme has been appropriately developed for the base year (2015)
Proposition 1.1a	Confirmation as to whether the base year (2015) traffic flows identified by the Applicant in the submitted application documentation for the B2215 (Portsmouth Road/Ripley High Street), Newark Lane and Rose Lane are or are not agreed.
Proposition 1.1b	Confirmation as to whether any of the B2215's links between its junctions with the A3 and A247 and its junctions with Newark Lane and Rose Lane are or are not currently operating at capacity.
Proposition 1.2	The micro-simulation model used by Highways England for the Scheme has been appropriately developed for the base year (2015)
Proposition 1.3	The forecasting methodology used by Highways England for the purpose of the traffic modelling exercise includes the appropriate proposed land use developments and other highway infrastructure and it has been implemented to Highways England standards.
Proposition 1.3a	Assuming the Proposed Development were to be consented and implemented, confirmation as to whether the predicted AM peak, Inter-peak and PM peak hour traffic flows for the Do-minimum and Do-something scenarios in 2022 and 2037 identified by the Applicant in the submitted application documentation are or are not agreed.
Proposition 1.3b	For any link or junction referred to in c) above for which it is predicted that the capacity will be exceeded in the future (ie post-dating the operation of the Proposed Development should it receive consent), please provide an indication when it is expected the capacity of the link or junction would be exceeded and what the reason for the capacity exceedance would be.
Proposition 1.4	The Highways England modelling as regards RHS traffic uses an event day (when RHS has more visitors than on a non-event day)
Proposition 1.5	The results from the traffic modelling fairly represent the effects of the Scheme in terms of traffic issues as regards the SRN and the local highway network.
Proposition 1.6	Although the traffic modelling assumes all traffic travelling to and from the gardens from the south travels via Ripley in reality some will travel via the SRN
Proposition 2.1	The highways design standard that applies to the "left out" from Wisley Lane as proposed by RHS is CD122
Proposition 2.2	The proposed left out is not compliant with standards CD122
Proposition 2.3	The proposed Ockham Junction South Facing Slip Roads are not compliant with DMRB standards including CD122
Proposition 3.1	The Wisley Lane diversion will provide a safer access/egress to/from RHS Wisley than the existing one.
Proposition 3.2	The Wisley Lane diversion will provide a safer access/egress to/ RHS Wisley than the "left out" proposed by RHS
Proposition 4.1	Changes to journey distances and journey times to and from RHS Wisley as a result of the DCO Scheme
Proposition 4.2	Origin of RHS visitor traffic
Proposition 4.3	The journey times information in tables 2.8 and 2.9 of the report are agreed

Matters which are Agreed

Proposition 1.1b **Confirmation as to whether any of the B2215's links between its junctions with the A3 and A247 and its junctions with Newark Lane and Rose Lane are or are not currently operating at capacity.**
Agreed that the links referred to are not currently operating at capacity. The congestion within Ripley is a consequence of the junction of Newark Lane and Rose Lane.
Proposition 2.1 **The highways design standard that applies to the "left out" from Wisley Lane as proposed by RHS is CD122**
The applicable highways design standard for the RHS proposed connection from Wisley Lane to the A3 Northbound is Geometric Design of Grade Separated Junctions (CD 122).
Proposition 4.1 **Changes to journey distances and journey times to and from RHS Wisley as a result of the DCO Scheme**
The agreed distances are set out in **Appendix C** of REP5-050.

Matters which are Agreed in part

Highways England Position	RHS Position
Proposition 1.1 **The strategic traffic model used by Highways England for the Scheme has been appropriately developed for the base year (2015)**	
The 2015 base year strategic and the operational S-Paramics models has been developed, calibrated and validated in accordance with DfT best practice guidance (WebTAG), with a good level of validation, including in Ripley. [Appendix C of the Transport Assessment Report APP-136]. It is the outputs of the strategic model that have been used for the assessment of impacts on Ripley and the outputs from the operational model have been used to evaluate the changes in operational performance of the road network, due to the scheme, i.e. changes in levels of service reported in the Transport Assessment Report [APP-136] Routing of traffic in relation to the DCO scheme is a matter for propositions 1.3 to 1.5.	Agree (in part). RHS considers that the strategic model is not suitable to provide an acceptable basis upon which to determine future year effects on the local road network. As confirmed in REP3-051, there is no validation of existing conditions within Ripley and, as a result, there remains uncertainty regarding the use of the model for projecting future traffic assignment predictions. HE's modelling routes all Wisley Lane traffic away from the A3 and onto the local road network through Ripley so accurately simulating existing conditions in the Base year is essential. As noted in the first draft SoCG (REP4-050), the S-Paramics microsimulation model has only been developed for the AM and PM peaks – there is no inter-peak model. Furthermore, as noted in the S-Paramics Local Model Validation Report ("LMVR"), the journey time validation routes are only partial (eg through Ripley) and the validation of the routes is not sufficient, particularly routes 5, 9, 10 and 18 (Table 12 of the S-Paramics LMVR.
Proposition 1.4 **The Highways England modelling as regards RHS traffic uses an event day (when RHS has more visitors than on a non-event day)**	
Agreement of event day demand for RHS Gardens Wisley is noted. The small difference between the numbers quoted by RHS opposite is a result of delays around the modelled network preventing all of the modelled traffic completing their journeys within the modelled hour. The model used, SERTM, covers the whole of the south east of England in some detail and notwithstanding the improvements to the A3 and M25 associated with this scheme, it is delays outside of this Scheme's study area has resulted in some trips not completing journeys within the modelled hour.	Agree (in part). However, there remains uncertainty regarding RHS traffic as cross referencing with the model output suggests that not all of this traffic is actually assigned to the network. For example, the 2022 RHS 2 way AADT flow in Table 3.10 of REP1-010 states an RHS Garden traffic flow of 8857 PCUs, whereas the model output and flow plots provided to RHS by HE for the whole 'Wisley Zone' (of which RHS is a part) is lower at 8238 in the DoMinimum and lower again in the DoSomething at 8095. The clarification by HE that not all of the assumed event

To ensure consistency between model reporting we refer to all demand at the zone containing RHS Gardens Wisley as being RHS busy day traffic. Whilst not all this traffic is RHS related, the overwhelming majority is (c95%), and the volumes quoted for the zone are still below busiest day levels such as those in the Motion TA for a weekday in April.	day traffic is able to complete its journey within the modelled hour is noted. Although it is suggested this is due to congestion outside of the DCO study area, it is unfortunate that there is no modelled tests of the RHS Alternative to determine whether this position could be improved upon.
Proposition 1.6 **Although the traffic modelling assumes all traffic travelling to and from the gardens from the south travels via Ripley in reality some will travel via the SRN**	
As regards use of the signed route – see above. Furthermore, the Scheme is predicted to result in an overall net reduction in traffic volumes on the local road network of approximately 1% that equates to a reduction of up to 741,000 vehicle kilometers on an average day across the modelled local road network. This is as a result of traffic diverting away from local roads and onto the SRN due to the reduction in traffic congestion and delay delivered on it by the Scheme.	Agree that the model assumes the routeing through Ripley but disagree that this has been accurately modelled for the reasons outlined in response to Proposition 1.1 and there remains uncertainty as to how RHS traffic will route to/from the Garden. Further, it is not acceptable to for a Strategic Road Improvement Scheme to result in the local road network being a more attractive proposition for a significant proportion of RHS traffic. The A3 'Ripley Bypass' is intended to keep through traffic out of the village. As described in REP5-053, the HE modelling assumes as a direct consequence of the DCO Scheme a 30% switch of RHS traffic off the A3 Strategic Route in favour of the Local Road Network.
Proposition 2.2 **The proposed left out is not compliant with standards CD122**	
HE SES have indicated that a departure for reduced weaving length between Wisley Lane and Junction 10 would not be agreed due to the high volume of traffic weaving in this location causing increased likelihood of accidents. RHS alternative left out would require a total of five departures required to be approved. Full details in Appendix A of REP5-050.	Agree that against the guidance set out in CD122, the RHS Alternative Scheme would be subject to HE's Departure from Standard process (for 'Near Straight' and 'Horizontal Curvature', but not in respect of weaving length). As noted in Appendix A of REP5-050, HE's position on weaving length is based on the assumption that other components of the design would be amended. It should also be noted that, although we know the DCO Scheme will be subject of 'many' Departures (page 10 REP5-052), there has been no disclosure of these as part of the DCO process.
Proposition 2.3 **The proposed Ockham Junction South Facing Slip Roads are not compliant with DMRB standards including CD122**	
Multiple departures would be necessary including for the weaving length to Ripley Services that would be less than standard 1000m. The RHS alternative south facing slip road would require a total of five departures required to be approved. The north facing slip road would require a	Agree that the southbound on-slip is shown at 75m rather than 85m (which previously constituted a 'one-step below' Relaxation) – this would be subject to HE's Departure from Standard process. Weaving length standard would be met as noted by reference to REP5-

total of five departures required to be approved. Full details in Appendix B of REP5-050.	051 and 052.
Proposition 4.2 **Origin of RHS visitor traffic**	
	Agree (in part). The RHS and HE distributions have been obtained using different methods. However, the results are relatively similar.

Matters which are Not Agreed

Proposition 1.1a **Confirmation as to whether the base year (2015) traffic flows identified by the Applicant in the submitted application documentation for the B2215 (Portsmouth Road/Ripley High Street), Newark Lane and Rose Lane are or are not agreed.**	
Highways England has dealt with this in its response to ExA Q2.13.29. See also response 1.1 above.	Not agreed for the reasons given in response to 1.1 above.
Proposition 1.2 **The micro-simulation model used by Highways England for the Scheme has been appropriately developed for the base year (2015)**	
The micro-simulation model has been developed to test the operational impacts of the scheme during most congested conditions rather than the inter-peak. The journey time routes cover key highway links within the extents of the S-Paramics model. As mentioned in the TA [APP-136], each individual hour in the morning and evening peak meets the recommended target specified in WebTAG, which states that 85% of journey time routes are required to be within 15% of surveyed times (or 1 minute if higher than 15%). As the model calibrated and validated against criteria it was fit for use as an operational assessment tool.	The WebTAG validation referred to is based on an assessment of the whole model and not in respect of Ripley (which the DCO Scheme modelling is suggesting would be the route for all RHS traffic to/from the south). The microsimulation model has only been developed for the AM and PM peaks – there is no inter-peak model. Furthermore, as noted in the S-Paramics LMVR, the journey time validation routes are only partial (eg through Ripley) and the validation of the routes in the AM and PM peaks is not sufficient, particularly routes 5, 9, 10 and 18 (Table 12 of the S-Paramics LMVR). As confirmed in REP3-051, there has been no validation of local junction models within Ripley either as HE has been unable to replicate junction blocking which is evident in the existing highway network.
Proposition 1.3 **The forecasting methodology used by Highways England for the purpose of the traffic modelling exercise includes the appropriate proposed land use developments and other highway infrastructure and it has been implemented to Highways England standards.**	
Wisley Airfield development is not included in the 2022 opening year models and as such, the comments from RHS cannot relate to forecasts from that modelled year. There is no live planning application for the proposed Wisley Airfield development, so the traffic modelling could not have appropriately included specific highway measures proposed to mitigate its traffic impacts. However, even though Highways England has not modelled the Burnt Common slips, it is reasonable to assume that they will cause less traffic to route through Ripley.	RHS take no issue with the land use assumed for Wisley Airfield. However, the modelling of the Wisley Airfield development has not included the associated mitigation at Burnt Common and within Ripley, which will have a bearing on how much Strategic Road Network traffic (to/from the south) via Wisley Lane will divert onto the Local Road Network as a consequence of the DCO Scheme. There is no logic to modelling Wisley Airfield but not the mitigation which is associated with this development.

Proposition 1.3a **Assuming the Proposed Development were to be consented and implemented, confirmation as to whether the predicted AM peak, Inter-peak and PM peak hour traffic flows for the Do-minimum and Do-something scenarios in 2022 and 2037 identified by the Applicant in the submitted application documentation are or are not agreed.**	
Highways England has dealt with this in its response to ExA Q2.13.29.	Not agreed for the reasons given above. There remains uncertainty within the model as to how much traffic will divert away from the SRN and onto the LRN.
Proposition 1.3b **For any link or junction referred to in c) above for which it is predicted that the capacity will be exceeded in the future (ie post-dating the operation of the Proposed Development should it receive consent), please provide an indication when it is expected the capacity of the link or junction would be exceeded and what the reason for the capacity exceedance would be.**	
Highways England has dealt with this in its response to ExA Q2.13.29.	Not possible for this to be answered given that the modelling is not agreed. We know, for example that the B2215 Portsmouth Road/Ripley High Street/Newark Lane/Rose Lane is operating at capacity but this is not reflected in any of the modelling. Any reference to future year operational performance and capacity cannot be relied upon where Base Year validation has not been possible. Further, there has been no modelling of the Burnt Common slips.
Proposition 1.5 **The results from the traffic modelling fairly represent the effects of the Scheme in terms of traffic issues as regards the SRN and the local highway network.**	
The model has been developed, calibrated and validated in accordance with DfT best practice guidance (WebTAG), with a good level of validation on the strategic and local road networks. Forecasting assumptions have been comprehensively considered and Highways England is satisfied with the representation of future year scenarios against which to test this Scheme. Whilst Highways England has not claimed that it is possible to model the proportion of traffic that would follow the signing strategy, but plainly a proportion will follow it.	Disagree. The traffic modelling commences from a 2015 Base which has not been validated, particularly in respect of Ripley. Future forecasting based on this modelling, which then routes traffic away from the Strategic Road Network onto such local roads as a direct consequence of the DCO Scheme will not be accurately predicted (see response to Proposition 1.6 above). HE is not able to state how effective its proposed signing strategy (which seeks to retain traffic on the A3) will be. A 'proportion' of traffic is not a sufficiently accurate answer upon which to promote a DCO Scheme which would have such significant impacts on RHS's flagship Garden.

Proposition 3.1 **The Wisley Lane diversion will provide a safer access/egress to/from RHS Wisley than the existing one.**	
In terms of safety issues the impact of traffic using other links having used the Wisley lane Diversion to get to and from the garden is negligible. Highways England has responded more fully in response to ExA Q2.13.20	Disagree. There has been no comprehensive/wider assessment of this in terms of traffic having to route along other links and through junctions via the longer signed route or via Ripley and Send (see REP5-053).
Proposition 3.2 **The Wisley Lane diversion will provide a safer access/egress to/ RHS Wisley than the "left out" proposed by RHS**	
In response to ExA Q2.13.16, Highways England will be providing full details of the collisions in the vicinity of the Wisley Lane junction. This information has also been provided to RHS.	Disagree. HE's claimed significant safety issue with the existing Wisley Lane junction is not supported by accident records (see REP5-053). Furthermore, there has been no comprehensive/wider assessment of this in terms of traffic having to travel further, u-turn at Ockham and join via the northbound Ockham slip road.
Proposition 4.3 **The journey times information in tables 2.8 and 2.9 of the report are agreed**	
See response 1.1	Disagree. For the reasons set out in response to the traffic modelling above, journey times are not agreed.

M25 junction 10/A3 Wisley interchange

TR010030

9.38 Statement of Common Ground with The Royal Horticultural Society

Rule 8 (1) (e)

Planning Act 2008

Infrastructure Planning (Examination Procedure) Rules 2010

Volume 9

March 2020

Infrastructure Planning

Planning Act 2008

Infrastructure Planning (Examination Procedure) Rules 2010

M25 junction 10/A3 Wisley

Interchange Improvement Scheme

Development Consent Order 202X

9.38 STATEMENT OF COMMON GROUND WITH THE ROYAL HORTICULTURAL SOCIETY

Regulation Number:	Rule 8 (1) (e)
Planning Inspectorate Scheme Reference	TR010030
Author:	M25 junction 10/A3 Wisley interchange Project Team, Highways England

Version	Date	Status of Version
Rev 1	3 March 2020	Deadline 5
Rev 0	28 January 2020	Deadline 3

STATEMENT OF COMMON GROUND

This Statement of Common Ground has been prepared and agreed by (1) Highways England Company Limited and (2) The Royal Horticultural Society.

Signed
Jonathan Wade
Project Manager
on behalf of Highways England
Date:

Signed……
[ ]
[Title]
on behalf of [The Royal Horticultural Society]
Date: [ ]

Table of contents

1. Introduction

1.1 Purpose of this document

1.1.1 This Statement of Common Ground ("SoCG") has been prepared in respect of the M25 junction 10/A3 Wisley interchange improvement scheme application ("the Application") made by Highways England Company Limited ("Highways England") to the Secretary of State for Transport ("Secretary of State") for a Development Consent Order ("the Order") under section 37 of the Planning Act 2008.

1.1.2 This SoCG does not seek to replicate information which is available elsewhere within the Application documents. All documents are available in the deposit locations and/or the Planning Inspectorate website and are referenced where appropriate.

1.1.3 The SoCG has been produced to explain to the Examining Authority where agreement has been reached between the parties to it, and where agreement has not (yet) been reached on a number of substantive issues as at Deadline 5 of the examination. There may be further iterations of this SoCG as the examination proceeds.

1.2 Parties to this Statement of Common Ground

1.2.1 This SoCG has been prepared by (1) Highways England as the Applicant and (2) The Royal Horticultural Society.

2. Issues

MATTERS NOT AGREED AND MATTERS AGREED

Matters Not Agreed

Matters NOT AGREED			
	Relevant issue	**RHS Wisley Position**	**Highways England Position**
NA1	Inclusion of ammonia in the calculations of nitrogen deposition.	There is evidence that ammonia from road traffic makes a substantial contribution to nitrogen deposition near to roads. Concentrations decline away from the road. However, like NOx, they are not at background at 30 metres but need to be considered at least out to 200 metres from the road. Current modelling elsewhere for plans and projects is including ammonia from road traffic. Thus, in line with current practice and applying professional judgement and best scientific knowledge, and in view of the SIAA-acknowledged pathway of impact to the qualifying features via invertebrates in the woodland <150m from the road, it is clearly critical to include ammonia from traffic in the calculations of nitrogen deposition. Without this the SiAA does not comply with the requirements of the Habitats Regulations, notwithstanding the absence of reference to ammonia in the guidance referred to. It is not correct for Highways England to say doubling nitrogen deposition by including ammonia would not materially affect the conclusion of the SIAA. The nitrogen deposition is already significantly increased in the woodland area with the DCO Scheme, due to NOx emissions. Doubling this with ammonia would be yet more significant, with commensurately more serious effects (see REP1-041, para 3.12 REP3-050 page 5, REP1-042 Appendix 4, REP3-044 page 13, the RHS response to question 2.3.2, page 1, in REP5-054, and Annex X to RHS REP6-xxx for details).	Highways England does not agree that ammonia should have been included in the SIAA. There is no such duty in the Habitats Regulations. The Highways England guidance in LA105 does not include ammonia, in line with the Department for Transport's National Policy Statement for National Networks at paragraph 5.8. The IAQM guidance does not specify the inclusion of ammonia. In REP2-022 at 2.7.3 and 2.7.4, Highways England sets out that even if nitrogen deposition was doubled by including ammonia, this would not materially affect the conclusion of the SIAA. REP1-041 (RHS' Air Quality Representation) Appendix A4 Figure 1 shows that ammonia concentrations decrease rapidly with distance from the road such that by 30 metres from the road centre, concentrations are at background levels. At the distance at which the qualifying features of the SPA are present, there would not be any traffic related contribution from ammonia to nitrogen deposition rates.

Matters NOT AGREED			
	Relevant issue	**RHS Wisley Position**	**Highways England Position**
NA2	Validity of the air quality data provided for the in-combination assessment of impacts on the SPA.	Highways England has provided calculations of in-combination impacts in Table 4 in REP5-003. However, the results (i) are only presented for the receptors >150m from the road (all receptors in the woodland <150m from the road are excluded, even though the SIAA acknowledges a pathway of impact between invertebrates in the woodland and the qualifying features of the SPA), and (ii) they do not include the contribution from ammonia. Therefore, there is no proper basis for the assessment of the in-combination effects on the SPA.	The traffic data for the do-something scenario already includes traffic from other plans and projects within the traffic model. Hence the assessment already takes into account the Scheme in combination with other plans and projects as regards nitrogen oxides concentrations and nitrogen deposition (see REP4-005 point 2.9 on page 56 for details). This is in accordance with advice from Natural England as recorded in 3.2.11 of the SoCG between Highways England and Natural England (as submitted at Deadline 5).
NA3	Validity of the in-combination assessment of air quality impacts on the SPA.	As NA2 (above) makes clear, the data for a complete in-combination assessment have not been provided. A complete in-combination assessment is required by the Habitats Regulations 2017 to avoid the accumulation of smaller impacts that may cumulatively cause harm and give rise to the need for mitigation to which the Scheme may need to contribute. Without a complete in-combination assessment, the SIAA does not meet the requirements of the Habitats Regulations (see REP1-041 para 3.14, REP3-047, section 3.6.1, page 44, and Annex X to RHS REP6-xxx for details).	There has been an assessment of in-combination effects. The traffic model used for the Scheme has been developed in accordance with the Department for Transport's webTAG guidance, which takes into account traffic growth using National Trip End Model (NTEM) factors. It additionally takes into account traffic from other plans and projects from an extensive area around junction 10. The traffic data for the do-something scenario therefore already takes account of the traffic for the Scheme in combination with the traffic from other plans and projects (see REP4-005 point 2.9 on page 56 for details). This approach is in accordance with advice from Natural England, and aligns with the approach taken in the A30 Chiverton to Carland Cross DCO as explained in the Technical Note in Appendix B of the SoCG between Highways England and Natural England (as submitted at Deadline 5).

Matters NOT AGREED			
	Relevant issue	**RHS Wisley Position**	**Highways England Position**
NA4	The relevance of impacts within the SPA for locations close to the A3 and M25.	RHS's position is that the woodland within 150m of the major roads is relevant (both now and in the future) to the integrity of the SPA and the SPA's qualifying features and is not merely a "buffer". This has been clearly acknowledged by HE in the SIAA in relation to the assessed land-take impact pathway. Air quality impacts on the integrity of the SPA within this woodland must therefore be assessed and the assessment must be undertaken on the basis of robust air quality data. To date Highways England has limited its assessment (of the impacts of declining air quality on SPA integrity) to the heathland >150m from the road and ignored potential air quality impacts on the woodland and its ecology <150m from the roads. This is because it considers these areas do not to support the breeding or foraging birds of the SPA qualifying features (nightjar, woodlark or Dartford warbler). This approach is clearly incorrect and not compliant with the Habitats Regulations 2017, given that HE at the same time fully acknowledges in its SIAA (in the context of its assessment of the land take impact pathway) the role played by woodland invertebrates in relation to the integrity of the SPA. Highways England is therefore not protecting a substantial area of the SPA for which there is a critical load that is exceeded by a substantial margin (see REP3-044, pages 8 to 10, REP5-052 point 2,7.3, page 65, and Annex X to RHS REP6-xxx for details).	The SIAA considered air quality impacts to 200m from the A3 and M25, and determined that the spatial extent of air pollution impacts is confined to the established woodland that separates the heathland from the roads. The SIAA has focused on air quality impacts on the heathland habitats because this is the habitat that supports the qualifying features of the SPA (nightjar, woodlark and Dartford warbler). The established woodland that separates the heathland from the roads acts as a buffer and does not support the qualifying features of the SPA. This approach aligns with recent case law and Natural England advice, as explained in Point 11 of the table at Section 2 (Comments on RHS's overview letter) of REP4-005 (pages 8-20) and as recorded in item 3.2.6 on page 16 of the SoCG between Highways England and Natural England (as submitted at Deadline 5).

Matters NOT AGREED			
	Relevant issue	**RHS Wisley Position**	**Highways England Position**
NA5	The need for an assessment of the RHS Alternative in relation to impacts on the SPA	HE has ruled out any adverse effect on the integrity of the SPA from changes in air quality on an incorrect and unlawful basis and one which directly contradicts HE's own SIAA assessment of impacts on SPA integrity via the land-take impact pathway. If conducted lawfully, HE's assessment would conclude that an adverse effect on SPA integrity from the air quality pathway cannot be ruled out and as such a negative assessment results. It is then therefore a legal requirement for the Secretary of State to consider whether there is any alternative which better respects the integrity of the SPA than the DCO Scheme in terms of the air quality impact pathway, such as the RHS Alternative Scheme (see REP3-044, page 8, and Annex X to RHS REP6-xxx for details).	Adverse effects to the integrity of the SPA from changes in air quality have been ruled out, even after taking into account updated velocities and assuming that all of the RHS Wisley traffic visiting the gardens from the south follows the signposted route along the A3 both travelling to and from the garden. Therefore, there is no requirement to consider alternatives in respect of air quality. This position is explained in Point 11 of the table at Section 2 (Comments on RHS's overview letter) of REP4-005 (pages 8-20) and is recorded in item 3.2.13 on page 20 of the SoCG between Highways England and Natural England (as submitted at Deadline 5).
NA6	Validity of loss of single species as a significance criterion	The data cited by HE from Table 21 of the Natural England Commissioned Report NECR210, have been used illogically by Highways England to define the significance of impacts in the SIAA. Prof. Laxen has spoken to the author of the report NECR210, Dr Simon Caporn, who said that this table was not designed to be used as a basis for defining significance. It is unclear whether Highways England obtained the sign-off of Natural England before including this approach in LA 105. The professional view of Prof. Laxen and Mr Baker is that the criterion of loss of one species cannot be used as a significance criterion and its use in this way in the SIAA is not valid (see REP3-044, pages 12 and 13, and REP5-052, point 2.1.3, page 52, for details).	Highways England did engage extensively with Natural England in the use of NECR210 in LA 105. This is explained in 2.1.3 of REP4-005 (pages 45, 46). However, the SIAA did not use Table 21 of NECR210 to assess potential adverse effects on the SPA, but instead focused on increases of greater than 1% of nitrogen deposition critical loads. The approach to undertaking the air quality assessment in the SIAA was agreed with Natural England as recorded in meeting minutes for 27 March 2018 in APP-041 and in items 3.2.12 and 3.2.13 on page 20 of the SoCG between Highways England and Natural England (as submitted at Deadline 5).

Matters NOT AGREED			
	Relevant issue	**RHS Wisley Position**	**Highways England Position**
NA7	Use of IAQM descriptors	It is appropriate to include the IAQM descriptors, as well as those of Highway England, to help understand the impacts within Ripley (see REP1-041 paras 5.5 and 5.6 and Appendix A11 of REP1-042). These descriptors are what local authorities would expect for a planning application that impacted on air quality in Ripley. This would help the ExA have a more balanced view of the impacts of the DCO Scheme. The application of the descriptors to the sites in Ripley is set out in (RHS Response to Inspectors' question 2.3.7 in PD-010).	As this is a Highways England project, it is clearly appropriate to use the descriptors in the Highways England guidance. The descriptors have not changed in the recent update published in November 2019 (see REP4-005 point 4.4 on page 62).
NA8	Interpretation of results for carbon dioxide for traffic following the signed route to RHS Wisley	With traffic following the signed route emissions of carbon dioxide would be 4,064 t/yr higher. The RHS Alternative Scheme, would reduce this overall increase in emissions with the Scheme by more than 16%. This is a significant reduction in the additional emissions (see REP3-050, page 10 for details).	A calculation of carbon dioxide emissions was made for comparative purposes between traffic using the signposted route and traffic travelling through Ripley. The traffic data used for the calculations were taken from the Traffic Assessment Supplementary Information Report (REP2-011) and the traffic forecasting report (REP1-010), representing a special event on a weekday, and thus not representative of a full year, unlike the data provided for the air quality assessment. The calculations should really only be used for comparative purposes between the two scenarios. The carbon dioxide emissions as regards the Scheme would be 639 t/yr higher if all traffic visiting the gardens from the south (and returning to the south) follows the signposted route to and from RHS Wisley (as opposed to routing via the B2215), representing 0.04% of total emissions with the Scheme, which is considered negligible (see REP2-022, para 3.1.1). The key driver to reducing CO2 emissions will be through national policy measures such as the move to zero emission vehicles.
NA9	Impacts of the RHS Alternative on the SPA	The RHS Alternative would reduce Scheme impacts on the SPA .	There would not be any difference to the conclusions of the SIAA as a result of the RHS Alternative Scheme, as discussed in REP2-022.

Matters NOT AGREED			
	Relevant issue	**RHS Wisley Position**	**Highways England Position**
NA10	Impacts of the RHS Alternative on Ripley	The RHS Alternative would reduce Scheme impacts within Ripley.	There would not be any difference to the conclusions of the air quality assessment documented in APP-050, as discussed in REP2-022.
NA11	Significance of nitrogen dioxide concentrations in Ripley	The impacts of the Scheme on nitrogen dioxide concentrations in Ripley are slight adverse, using the IAQM descriptors, at four of the six new receptors (see RHS response to question 2.3.7 in PD-010). It is accepted that the concentrations are likely to be below the objective, but there are still effects on health arising from exposure to nitrogen dioxide, even at concentrations below the objective (see point 4.2, page 76 in REP5-052), and these would be increased with the Highways England Scheme. The RHS Alternative Scheme, on the other hand, will reduce these adverse effects.	The estimated annual mean nitrogen dioxide concentrations, using the more conservative DF2 traffic data have been provided in REP4-005 and show that concentrations at all receptors are below the national annual mean air quality objective, and that the largest change at a receptor is 1.7 $\mu g/m^3$, classed as a small change. In addition, the change with DF3 traffic data would be smaller still, as explained previously at 4.2.4 in REP2-022. As the concentrations would be below the air quality objective there would not be a significant adverse effect on health.

Matters AGREED

Matters AGREED			
	Relevant issue	**RHS Wisley Position**	**Highways England Position**
A1	Validity of the nitrogen oxides projections	RHS accepts that nitrogen oxides concentrations have been projected forwards using the LTTE6 methodology.	The NOx concentrations were projected forwards correctly using the LTTE6 approach, as documented in paragraph 5.5.23 of APP-050.

Matters AGREED			
	Relevant issue	**RHS Wisley Position**	**Highways England Position**
A2	Use of appropriate deposition velocities to calculate nitrogen deposition from nitrogen oxides emissions.	Highways England has accepted the advice from Prof. Laxen and the nitrogen deposition rates due to nitrogen oxides emission from vehicles are now substantially higher (see Table 8 in REP5-024 submitted by HE). This Table does not include the contribution from ammonia.	Highways England is aware that nitrogen deposition rates have been revised since the assessment for this project was undertaken. The nitrogen deposition rates have been revised in accordance with the revised deposition velocities in guidance document LA105.
A3	RHS traffic passing through Ripley	RHS accepts that the modelling of impacts on air quality in Ripley has been carried out assuming all the RHS traffic from the south will pass through Ripley. This traffic would not pass through Ripley with the RHS Alternative.	The traffic model assumes that all traffic travelling to and from RHS Wisley from the south will travel through Ripley. The air quality assessment as presented in the ES was based on this assumption.
A4	Validity of receptors in Ripley	RHS accepts that Highways England has now identified worst-case receptors in Ripley.	Highways England has accepted that there are receptors in Ripley which are closer to the kerb than the receptor used in the air quality assessment in the ES, which was located close to the junction of the High Street and Newark Lane.
A5	Validity of results for Ripley	RHS accepts the results for annual mean nitrogen dioxide concentrations at the new receptors in Ripley, as set out in the Table on pages 59/60 of REP4-005.	Noted
A6	Concentrations of nitrogen dioxide in Ripley unlikely to exceed objective.	RHS accepts the results for the estimated annual mean nitrogen dioxide concentrations in Ripley, as set out in REP4-005, 4.2.2, page 60	Noted

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