**TOWN AND COUNTRY PLANNING ACT 1990**
**THE TOWN AND COUNTRY PLANNING APPEALS (DETERMINATION BY INSPECTORS) (INQUIRIES PROCEDURE) (ENGLAND) RULES 2000 (AS AMENDED)**

# Appeal by Great Lakes UK Limited

# Proposed Great Wolf Lodge, Chesterton

**Appeal Ref: APP/c3105/W/20/3259189**

**Proof of Evidence**

**of**

**Alan DeVenny, Systra Limited**

**On matters relating to transport planning and traffic impacts**

**On behalf of Oxfordshire County Council acting as Highways Authority**

**12 January 2021**

## 1. INTRODUCTION

1.1. My name is Alan DeVenny and I have a BEng (Hons) in Civil and Transportation Engineering and a PhD in Civil Engineering. I am a Chartered Engineer and a member of the ICE. I am a Projects Director with Systra Limited (Systra), Transport Planners and Engineers and have been with the firm since 1999. I specialise in development planning work and my main role is to provide transport planning advice from the pre-planning stage through to construction and post occupation for all modes of transport. I deliver work to both private developers and public sector clients.

1.2. My firm has been retained by Oxfordshire County Council (OCC) to advise on traffic and transport matters in relation to the planning application submitted by Great Lakes UK Limited for a proposed hotel and indoor family resort at Chesterton, Bicester.

1.3. Systra's instructions from OCC in relation to the proposed development are as follows:

- Review all traffic and transport information submitted in support of the proposed development and all correspondence issued by OCC in connection with the submissions.
- Provide an expert witness to the inquiry process covering traffic and transport matters.

**Scope of Evidence**

1.4. My evidence will cover the following topics:

- Development Proposals
- Relevant Chronology
- Policy Considerations
- Transport Assessment Process
- Highway Reason for Refusal, including;

  *The proposed development fails to demonstrate that traffic impacts of the development are, or can be made acceptable, particularly in relation to additional congestion at the Middleton Stoney signalised junction of the B4030 and B430. As such the proposal is contrary to Policy SLE4 and ESD15 of the Cherwell Local Plan 2011-2031 Part 1, Saved Policy TR7 of the Cherwell Local Plan 2011-2031 Part 1, Policy 17 of the Oxfordshire Local Transport Plan 4 and Government guidance contained within the National Planning Policy Framework.*

- Consideration of Appellants Statement of Case

1.5. My evidence provides a summary of the development proposals and the changes that will affect existing traffic and transport arrangements. The relevant chronology is then provided to examine the timeline and the consultation that has occurred between OCC and the appellant's Transport Consultants. My evidence then turns to the relevant policy considerations for the development and examines the transport assessment process that should be followed for such developments. I go on to examine the stated highway reasons for refusal and finally examine the appellant's statement of case in Section 4.

1.6. In preparing for this Inquiry, I have reviewed the development proposals in full and reviewed the documents submitted by the appellant and other parties. This includes documents and plans submitted in support of the planning application and additional information submitted to OCC after the refusal of planning consent.

1.7. My evidence is confined to traffic and transport matters concerning the traffic impacts of the proposed development on the operation and safety of the highway network and in particular, the impact on the B430 / B4030 Middleton Stoney junction.

1.8. I understand what my duty as an expert witness is to the Inquiry. I have complied with that duty. I confirm that, insofar as the facts stated in my evidence are within my own knowledge. I confirm that this evidence sets out my professional and honest assessment of the matters under consideration and I believe my evidence to be true.

## 2. EVIDENCE SUMMARY

2.1. My proof of evidence describes my views on the Transport Assessment submitted in support of the proposed development and on the wider traffic impacts associated with the proposed development. The structure of my Proof of Evidence is as follows:

- Section 3 contains my main evidence on traffic and transport matters. This includes a description of the transport arrangements for the development, full consideration of the transport policy context that is applicable to the assessment of transport matters, a chronology of the assessment process that has been undertaken to date, a review of the adequacy of the submitted transport assessment and modelling of the B430 / B4030 Middleton Stoney junction and my assessment of the suitability of the mitigation which has been proposed by the Appellant for the B430 / B4030 Middleton Stoney junction.
- Section 4 considers the matters raised in the Appellant's Statement of Case.
- Section 5 compares the proposed development back to the policies quoted in reason for refusal 3.
- Section 6 contains my conclusions.

2.2. I consider that the submitted Transport Assessment demonstrates that the proposed development has a "severe" traffic impact at the B430 / B4030 Middleton Stoney junction which would require mitigation to make the development acceptable.

2.3. The submitted scheme of mitigation for the B430 / B4030 Middleton Stoney junction does not meet design standards, does not properly consider other road users and introduces unacceptable road safety issues which are unacceptable to OCC and contrary to NPPF Para 109.

## 3. EVIDENCE

### Development Proposals

3.1. The formal description of the development proposals associated with planning application reference 19/02550/F for land to the east of the M40 and south of the A4095, Chesterton, Bicester, is as follows:

*"Redevelopment of part of golf course to provide new leisure resort (sui generis) incorporating waterpark, family entertainment centre, hotel, conferencing facilities and restaurants with associated access, parking and landscaping."*

3.2. The proposals comprise the redevelopment of 9 holes of an existing 18 hole golf course and construction of a new leisure resort incorporating waterpark, family entertainment centre, 498-bedroom hotel, conferencing facilities and restaurants with associated parking and landscaping.

3.3. The existing Bicester Hotel Golf & Spa (BHGS) will remain open and operational. In the Appellant's primary case the golf course will be reduced from an 18-hole to a 9-hole course and the hotel and spa will be unchanged as a result of the proposals.

3.4. It is proposed that the development would be accessed via a new priority junction onto the A4095. This access will be distinct from the existing access arrangements to the BHGS where access is taken from an established priority junction on the A4095. A preliminary design has been submitted for the new access onto the A4095 and this has been accepted in principle by OCC (i.e. subject to detailed design and delivery which can be secured by a planning condition or obligation).

### Relevant Chronology

3.5. A summary of key events, document submission dates and formal correspondence submission dates in relation to the application is provided below for reference:

1. 25th April 2019: The Appellant submitted a Scoping Note (ref N01) to OCC, proposing the scope of a Transport Assessment
2. 1st May 2019: OCC response to the Transport Assessment Scoping Proposals submitted by the Appellant
3. 7th May 2019: A Scoping meeting, attended by the Appellant and OCC was held to discuss the necessary scope and content of Transport Assessment

4. 9th July 2019: A Scoping Note Addendum (ref N02) was submitted by the Appellant to OCC

5. 25th July 2019: The Appellant submitted Technical Note N03 on Committed Development and Traffic Growth

6. 26th July 2019: The Appellant submitted Technical Note N04 on Day Visitors and Vehicle Distribution

7. 12th August 2019: OCC provided a response to the Appellant in relation to Technical Note N03

8. 14th August 2019: OCC provided a response to the Appellant in relation to the contents of Technical Notes N01 – N04

9. 16th September 2019: The Appellant submitted Day Visitors and Vehicle Trip Distribution Note to OCC on (contents of note agreed with OCC)

10. 8th November 2019: The Appellant Submitted the Great Wolf Lodge Transport Assessment

11. 10th January 2020: OCC provided its Consultation response on the Development Proposals

12. 4th February 2020: A meeting was held between Motion and OCC where it was agreed that Motion would liaise with the Heyford Park team to understand the position of mitigation works at Middleton Stoney. At this time, Motion also proposed the idea of an alternative signing strategy to reduce demand through Middleton Stoney.

13. 10th February 2020: The Appellant submitted Draft Minutes of the meeting held on 4th February 2020, summarising points discussed and agreed.

14. 12th February 2020: OCC responded to the Appellant proposing additions to the minutes of the meeting held on 4th February 2020.

15. 19th February 2020: The Appellant submitted Technical Note N07

16. 24th February 2020: OCC Response to the Appellant in relation to Technical Note N07

17. 27th February 2020: the Appellant submitted Technical Note N08 to OCC containing suggestions for alternative routeing and comment on mitigation scheme

18. 2nd March 2020: (email Response 1) the Appellant submitted a response to OCC, acknowledging preceding feedback in relation to the B430 / B4030 Middleton Stoney junction layout

19. 3rd March 2020: (email Response 2) OCC provided a response to The Appellant setting out concerns relating to Mitigation drawing 1803047-17

20. 3rd March 2020: (email Response 3) Motion contacted OCC to note OCC's feedback that the junction proposals were 'undeliverable' and advising that an alternative drawing should be prepared

21. 3rd March 2020: OCC issued further response to the Appellant, making clear its intention to maintain an objection on grounds relating to, among other issues, the impact at the B430 / B4030 Middleton Stoney junction

22. 6th March 2020: (email Response 4) the Appellant submitted an updated layout drawing 1803047-17 (Revision A) to OCC for the B430 / B4030 Middleton Stoney junction

23. 10th March 2020: (email Response 5) OCC submitted feedback to the Appellant in relation to drawing 1803047-17 Rev A. The email set out a detailed breakdown of concerns and requested that Stage 1 and Stage 2 Road Safety Audits were undertaken of the proposed junction upgrade.

24. 12th March 2020: (mail Response 6) the Appellant issued further correspondence to OCC, including drawing 1803047-17 Rev B and 1803047-TK62 which contained outputs from a swept path assessment exercise.

25. 12th March 2020: Application Refused at Committee

26. 30th July 2020: Motion submitted a Technical Note (N09) on Highways Matters to OCC

27. 4th September 2020: Motion submitted a Technical Note dated 4/9/20 and titled "Highways Matters". This forms Appendix 4b to the Appellant's SoC.

28. 8th September 2020: Motion produced a further Technical Note dated 8/9/20 and titled "Response to Reasons for Refusal and Summary of Discussions with OCC".

29. 18th September 2020: OCC response to Motion in relation to Technical Note N09

30. 4th October 2020: Email from Motion to OCC seeking clarification from OCC on comments made in their previous consultation response.

31. 9th December 2020: OCC Response to Motion email of 4th October in relation to reason for refusal 3 and NPPF Para 109.

**Highway Reason for Refusal**

3.6. The following transport reason for refusal has been given by Cherwell District Council which reflects the concerns from OCC, as local highway authority*:*

*Reason 3. The proposed development fails to demonstrate that traffic impacts of the development are, or can be made acceptable, particularly in relation to additional congestion at the Middleton Stoney signalised junction of the B4030 and B430. As such the proposal is contrary to Policy SLE4 and ESD15 of the Cherwell Local Plan 2011-2031 Part 1, Saved Policy TR7 of the Cherwell Local Plan 2011-2031 Part 1, Policy 17 of the Oxfordshire Local Transport Plan 4 and Government guidance contained within the National Planning Policy Framework.*

3.7. My evidence will fully examine and justify the above reason for refusal and will explain the concerns which underlie it.

**Policy Considerations**

***National Planning Policy Framework (NPPF)***

3.8. The current version of the NPPF was published in February 2019. The NPPF sets out how local planning policies should be prepared and implemented and also establishes a series of core principles with regard to the assessment of planning applications.

3.9. The NPPF recognises that transport policies have an important role to play in wide sustainability and health objectives as well as their direct influence on development. It goes on to state that all developments that are anticipated to generate significant amounts of movement should provide a Transport Assessment (TA), with any planning application for such development supported by a Travel Plan, so that likely impacts of the proposal can be assessed.

3.10. Paragraph 108 (page 31) states that, in assessing the suitability of a development in transport terms, it should be ensured that:

- *Appropriate opportunities to promote sustainable transport modes can be taken up, with consideration given to the type of development and its location;*
- *Safe and suitable access to the site can be achieved for all users; and*
- *Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost-effectively managed to an acceptable degree.*

3.11. The NPPF states at paragraph 109 (page 32) that development should only be refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe. This paragraph is directly relevant to the stated reason for refusal associated with the planning application.

3.12. It can therefore be concluded from the NPPF that all development proposals must be supported by sufficient technical information to enable the relevant Local Highway Authority (LHA) to make a considered and robust decision in respect of the test set out in paragraph 109.

***National Planning Practice Guidance (NPPG)***

3.13. The NPPG document "Travel Plans, Transport Assessments and Statements" provides additional guidance for applicants and highway authorities in relation to the preparation of these documents to support planning applications. Much of this guidance is captured in greater detail within Local Highway Authority policies; however, the following is noted in relation to the use of traffic data and the determination of future years for assessment:

*"In general, assessments should be based on normal traffic flow and usage conditions (eg non-school holiday periods, typical weather conditions) but it may be necessary to consider the implications for any regular peak traffic and usage periods (such as rush hours). Projections should use local traffic forecasts such as TEMPRO drawing where necessary on National Road Traffic Forecasts for traffic data.*

*The timeframe that the assessment covers should be agreed with the local planning authority in consultation with the relevant transport network operators and service providers."*

3.14. This guidance is considered directly relevant to the assessments which have been presented in the Appellant's TA report and subsequent assessment work submitted to OCC post-refusal.

**Cherwell District Council – Cherwell Local Plan 2011-2031 (Core Document CD5-3)**

3.15. The Adopted Cherwell Local Plan 2011-2031 (Part 1) contains strategic planning policies for development and the use of land. It forms part of the statutory Development Plan for Cherwell to which regard must be given in the determination of planning applications. The Plan was formally adopted by the Council on 20 July 2015. Policy "Bicester 13" was re-adopted on 19 December 2016.

***Policy SLE 4 "Improved Transport and Connections"***

3.16. Policy SLE 4 sets out the Council's vision for improved transport connections and measures to achieve modal shift. With regard to development, the policy (Page 55) states the following:

*"All development where reasonable to do so, should facilitate the use of sustainable modes of transport to make the fullest possible use of public transport, walking and cycling. Encouragement will be given to solutions which support reductions in greenhouse gas emissions and reduce congestion.*

*"Development which is not suitable for the roads that serve the development and which have a severe traffic impact will not be supported".*

***Policy ESD15 "The Character of the Built and Historic Environment"***

3.17. Policy ESD15 of the adopted Local Plan (pages 115-120) relates to the conservation of the historic environment and the protection of the area's character. Reason for Refusal 3 makes reference to this policy in relation to the potential impact of the proposed Middleton Stoney mitigation scheme on the character and landscape of Middleton Stoney village. CDC's Landscape witness, Mr David Huskisson will lead evidence on this matter.

***Saved Policy TR7 "Development attracting traffic on minor roads".***

3.18. CDC's Adopted Local Plan contains saved Policy TR7 which concerns consideration of development that regularly generates large numbers of commercial vehicles or cars onto unsuitable local roads. The relevant policy wording that should be considered in terms of the Appeal site is from para 5.25 of Policy TR7:

*"In order to protect the amenities of the plan area, and in the interests pf highway safety, development likely to create significant traffic flows will normally, subject to consideration of other policies in this Plan, be expected to have good access to the major through routes or County inter-town routes identified in the Structure Plan or other principal roads"*

3.19. The relevance of this policy to the Appeal before us is the potential regular traffic impacts on the "B" Class local roads running through Middleton Stoney. The already congested nature of the road network through Middleton Stoney and already sub-standard nature of the B4030 / B430 junction make the addition of development generated traffic a key consideration as OCC consider the junction unsuitable to carry additional traffic from an unallocated development site.

**Oxfordshire County Council – Local Transport Plan (LTP4) (2016)**

3.20. The OCC LTP4 document (Core Doc Ref: CD5-6) includes policies and supporting text and analysis which are intended to guide the management, expansion and improvement of transport infrastructure and services within the County in the period 2015 to 2031. It is noted that the LTP does not form part of the Local Plan but it is a statutory document in its own right and is a material planning consideration. As the document relates to the whole of the County area, it is focused primarily on strategic transport matters. Its relationship to the assessment of individual development sites is therefore limited to general principles, and consideration of major schemes which support a variety of development types.

3.21. Policy 17 of the Local Transport Plan (LTP4) is specifically stated in Reason for Refusal 3. Policy 17 states the following:

*"Oxfordshire County Council will seek to ensure through cooperation with the districts and city councils, that the location of development makes the best use of existing and planned infrastructure, provides new or improved infrastructure and reduces the need to travel and supports walking, cycling and public transport."*

3.22. There are several matters raised in the above policy that are directly related to the Great Wolf Appeal. The first matter relates to the location of the development and this is a matter that Mr Andy Bateson of CDC will lead evidence on. Mr Bateson will also cover whether or not the development reduces the need to travel. The second matter for consideration is whether the development makes best use of "existing and planned" infrastructure. I will address whether the proposed unallocated Appeal site makes best use of road network capacity at Middleton Stoney in a situation where committed development (and allocated) proposals at Former RAF Upper Heyford ("Heyford Park") also rely on the existing network at this location. I will also examine whether the proposed development introduces highway safety and operational effects and I will assess whether these can be mitigated.

**Matters of Agreement**

3.23. I would note that the matters of trip generation and trip distribution are not in dispute between OCC and the Appellant. OCC is also satisfied with the proposed vehicular site access arrangements subject to detailed design and implementation. OCC is satisfied that the proposed improvements to sustainable transport infrastructure to make the site accessible are appropriate and can be secured through an appropriate Section 106 agreement. I recognise that the District Council has concerns about locational sustainability, which are addressed by Mr. Bateson in his evidence.

3.24. With regard to the traffic impacts of the development, OCC have objected to the traffic impacts of the development in relation to the B430 / B4030 Middleton Stoney junction. OCC are satisfied that the development will not have a severe impact at other junctions on the highway network.

**Failure to demonstrate that traffic impacts of the development are, or can be made acceptable at Middleton Stoney (CDC Reason for Refusal 3)**

3.25. The key reason for refusal is focused on the failure of the Appellant to demonstrate that the proposed development will not have a detrimental impact on the performance of the B430 / B4030 junction in Middleton Stoney, some 3.5km to the north west of the development site.

3.26. The reason for refusal set out above essentially relates to the adequacy of the Transport Assessment document of November 2019 and other related material, including traffic models and scheme drawings, submitted (before and after refusal of planning permission) in support of the proposed development and which are necessary to demonstrate an acceptable impact on the B430 / B4030 Middleton Stoney junction.

3.27. This section of my evidence examines the Transport Assessment that was submitted and highlights areas where it has failed to address the matters raised by OCC. In particular, I will examine the matter of traffic impact on the Middleton Stoney junction associated with the development as reported within the submitted Transport Assessment and subsequent Technical Notes (submitted in support of the planning application and forming part of the application documents).

***Transport Assessment Scoping Report***

3.28. A Transport Assessment Scoping Note dated 25th April 2019 was submitted to OCC by the Appellant's transport consultant (Core Document CD10-9). This document set out the proposed scope for the Transport Assessment along with the proposed methodology, structure and parameters to be adopted.

3.29. The Scoping Note introduced the proposed development and provided preliminary thoughts in relation to key transportation matters such as development trip generation and trip distribution. It details that the proposals would comprise 500 guest bedrooms, with between 420-450 full-time equivalent staff being employed there. It also noted that the development would be served by an on-site car park with capacity for 1,000 cars. It was noted that guests would travel to the proposed development from a catchment radius of 125 miles.

3.30. Figure 4.2 of the Scoping Note set out the proposed distribution of development trips, noting that 16% of those trips would ultimately assign via the M40 (North) and 14% of trips would assign via the A43. Figure 4.2 demonstrated that these trips would travel through Middleton Stoney on their journey between those strategic routes and the proposed development (and vice-versa).

3.31. In my opinion, the content of the Scoping Note made clear the substantial nature of the proposed development, setting out the large number of proposed guests and staff members and drawing attention to the strategic nature of trips to and from the site (as indicated by the distance that they would be travelling to the site). The scale of the proposed car parking also indicated to me that the development would be a largely car-borne development with significant vehicular trip generation.

3.32. One of the key matters for the scoping report was the proposed extent of the study area. The Scoping Note anticipated that junctions which were expected to experience an increase of more than 30 vehicle movements should be the subject of technical capacity assessments. Based on preliminary trip generation forecasts developed by the Appellant, (Paragraph 4.11) it was proposed that the following junctions would be included in the assessment of development traffic impacts:

1. Site Access/ A4095 priority junction;
2. A4095/ B430 priority crossroads;
3. B430/ B430 Roundabout (north of A34 interchange);
4. A4095/ Vendee Drive priority junction; and,
5. Vendee Drive/ A41 Oxford Road roundabout

3.33. The Scoping Note anticipated that an application would be submitted in 2019 and noted that the Transport Assessment would consider a future assessment year of 2024, five years after the application. The Scoping Note proposed that traffic flows necessary to inform assessment of these junctions would be obtained through a combination of traffic surveys, reference to approved third-party Transport Assessments and with reference to the Bicester Traffic Model (BTM). The use of TEMPRO was proposed to represent traffic growth.

3.34. The Scoping Note correctly anticipated that the Transport Assessment should take relevant committed developments into account, proposing that the following would be relevant to the exercise:

1. Bicester Office Park (CDC Ref: 17/02534/OUT - 60,000 square metres of B1 office use)
2. Bicester Gateway Retail Park (CDC Ref: 16/02505/OUT - Retail development with a mix of food and non-food retail plus a restaurant and gym)

3. Kingsmere (Various applications - Mixed use development including 1716 residential dwellings, nursing home and employment)

4. Graven Hill (11/01494/OUT - Mixed use development including 1900 dwellings, primary school, community centre and employment uses)

3.35. The Appellant proposed that traffic flows for the committed development sites would be extracted from Transport Assessments which accompanied each application.

3.36. The Appellant extracted traffic flow forecasts for each of these developments from the TAs which accompanied the respective planning applications. Those flows are presented collectively in Figures 5.1 and 5.2 of the Great Wolf TA.

***OCC Response to TA Scoping Report***

3.37. OCC provided a response to the TA scoping submission on 1st May 2019 (Core Document CD10-10). The email response recognised the Appellant's request for prompt clarification on the scope of relevant traffic surveys, with both parties agreeing to meet on 7th May to discuss the Scoping Note in further detail.

3.38. The initial OCC response noted the following points:

- While the suggested 125 mile guest travel catchment was noted, OCC expressed a concern that the suggested methodology did not cater for the likelihood that a large proportion of trips would be made by staff members whose trip would take place within a catchment more local to the Bicester area. With this view in mind, OCC requested that the scope of traffic surveys should be widened to include the Vendee Drive / B4030 / Howes Lane roundabout.

- OCC noted that trips to and from the proposed development from origins to the north of the site would pass through the signalised junction at Middleton Stoney. The response went on to state that the junction should be included in the Transport Assessment on the basis that it was already subject to capacity issues.

- The preliminary response also requested that the traffic data collection programme should be broadened out to include Saturdays, reflecting on the fact that the proposed trip generation for the Saturday peak was approximately double that suggested for weekday peaks.

***TA Scoping Meeting***

3.39. The Appellant and OCC met on 7th May 2019 to discuss the contents of the Scoping Note in further detail. Key outcomes from that meeting were recorded in a Minute circulated by the Appellant the same day. I note that there is no record of the Minute being agreed.

3.40. At the Scoping Meeting, it was agreed that the Appellant would undertake further technical analysis to inform forecasts of development trip generation. OCC stated that it was content with the suggested distribution of development trips, albeit further information was requested in relation to the character of employee trips.

3.41. In addition to the four committed developments proposed by the Appellant, OCC stated that a further four committed sites should be included, including the Local Plan allocation Policy Villages 5, Former RAF Upper Heyford. The policy allows for a total of 2,361 residential units along with 120,000sqm of employment land and ancillary land uses. The location of the Heyford Park site to the B430 / B4030 Middleton Stoney junction is indicated by the plan contained within Appendix A to this proof of evidence.

3.42. I note the significance of the Heyford Park application, it being situated in close proximity to the B430 / B4030 Middleton Stoney signalised junction which, as noted by OCC, is already subject to capacity issues.

***Supplementary OCC Response***

3.43. OCC provided a further response to the Appellant in the '*Response to Formal PreApp'* note, dated 14th August 2019 (Core Document CD10-8). This note set OCC's response to a series of separate Technical Notes (numbered N01 – N04) which were submitted by the Appellant to address matters raised in initial scoping correspondence.

***Transport Assessment Document and OCC Response***

3.44. The Transport Assessment (TA) document dated 8th November 2019 (Core Document CD1-24) was submitted in support of the planning application for the proposed development in November 2019. I have fully reviewed this document and its appendices along with the OCC response to the TA (Core Document CD 10-27) dated 10th January 2020.

3.45. The TA contains an examination of the transport matters which are relevant to the proposed development, generally addressing the technical scope which was agreed through correspondence with OCC from May 2019 onwards. The TA considers overall development trip generation, distribution and assignment and discusses key matters relating to traffic growth and committed development.

3.46. I find the Transport Assessment to be relatively comprehensive, providing an explanation of the proposed development, its access arrangements, operational characteristics and traffic generation. It looks in detail at the development site and examines the effects of development-related trips throughout the wider local transport network, as agreed with OCC. Following clarification on certain points arising through Scoping correspondence, I note that OCC had no issue with the trip generation calculations that were used to inform the traffic modelling exercise. These matters are therefore not in dispute.

3.47. With regard to traffic modelling, the TA submitted in support of the proposals undertook analysis of 6 No. of junctions adjacent to the site as follows:

1. A4095 / Site Access priority junction;
2. A4095 / B430 priority crossroads;
3. B430 / B430 Roundabout (north of A34 interchange);
4. A4095 / Vendee Drive priority junction; and,
5. Vendee Drive / A41 Oxford Road roundabout.
6. B430 / B4030 signalised junction at Middleton Stoney

3.48. The B430 / B4030 signalised junction at Middleton Stoney was not initially proposed by the Appellant for assessment. It was added into the scope of the Transport Assessment at OCC's request on the basis that there are already known to be capacity problems at the junction.

3.49. OCC's Reason for Refusal No. 3 raised specific concerns in relation to the signalised junction at Middleton Stoney. OCC has no outstanding concerns in relation to the broader content of the Transport Assessment or outputs relating to junctions 1-5, as listed above (Paragraph 3.47). With the exception of discussions in relation to the B430 / B4030 Middleton Stoney junction, I find that the contents of the Transport Assessment are generally acceptable and not in dispute.

3.50. Ultimately, the evidence I provide will demonstrate my view that OCC's outstanding concerns in relation to the B430 / B4030 Middleton Stoney junction are well-founded and justified.

3.51. This being the case, the focus of my evidence hereafter relates specifically to the B430 / B4030 Middleton Stoney junction. I will provide evidence in relation to specific matters, as follows.

- Baseline conditions at the junction
- The implications of third-party committed development trips, viewed in the context of committed infrastructure improvements associated with the Heyford Park (Phase 1) development
- The implications of Great Wolf development trips
- Concerns in relation to mitigation scheme proposed by the Appellant.

3.52. Prior to the Appellant's first approach to OCC in relation to the Great Wolf proposals, the B430 / B4030 Middleton Stoney junction was already the subject of detailed discussions as a result of the third-party Heyford Park application.

3.53. Heyford Park is a strategic allocation in the Cherwell Local Plan (2011-2031) which comprises over 2000 residential units with retail, employment, commercial and educational uses on land to the north-west of Middleton Stoney. Part of this allocation was already consented as part of a permission for 1075 dwellings and other uses, which shall hereafter be referred to as 'Phase 1'. The majority of the balance of the allocation was submitted as an outline planning application in 2018 and is hereafter referred to as 'Phase 2'. Importantly, I note that the current Heyford proposals emerged through the Local Plan process and as such have evolved through a mechanism to which OCC is party. The current proposals are consistent with Policy Villages 5 contained within the Cherwell Local Plan.

3.54. Phase 1 (planning application reference 10/01642/OUT) of Heyford Park which allows for 1,075 residential units and other development has planning consent. Technical assessments undertaken in support of the Heyford Park proposals highlighted the extent of capacity constraints at the B430 / B4030 Middleton Stoney traffic lights, with additional trips from that development leading to a significant exacerbation of traffic conditions. To date, approximately 776 units have been constructed and occupied at Heyford Park.

3.55. Phase 2 of the Heyford Park development (Planning reference 18/00825/HYBRID) relates to the construction of 1,175 residential units, 35,175sqm of employment buildings, retail and ancillary development. The application is a Hybrid application The Heyford Park Phase 2 development was considered at planning committee on the 5th November 2020 and a copy of the Planning Committee minutes are appended to this proof of evidence (Appendix B). The committee resolved to grant planning consent for the development subject to a number of conditions which included the mitigation works at the B430 / B4030 Middleton Stoney junction.

3.56. Through discussions between OCC and the Heyford Park developer, a package of infrastructure improvements at Middleton Stoney was agreed to support the Phase 1 development. These measures are referred to hereafter as the 'Committed Improvements'. Those measures comprise alterations to the physical geometry and operation of the B430 / B4030 Middleton Stoney junction which, in its present form, represents a straightforward traffic light junction, with single lane approaches on all arms. These mitigation works have not yet been implemented nor has the detailed design of the scheme been agreed with OCC.

3.57. A package of mitigation measures was also included to support the Phase 2 application including further measures to mitigate the impact of development traffic at the B430 / B4030 Middleton Stoney Junction. I would note that these Phase 2 mitigation measures were not approved at Planning Committee and further work is required by the applicant to develop suitable mitigation which will require the applicant to revisit the scheme and make changes in consultation with OCC to work towards a more acceptable scheme of mitigation. I have appended the Minutes of the Council Committee Meeting to this proof of evidence (Appendix B). I would therefore consider that the nature and detail of the allocated and consented Phase 2 Heyford Park development is not yet available and no scheme of mitigation can be relied upon at this point in time.

3.58. The scope and parameters of technical capacity assessments in the TA were agreed between OCC and the Appellant. The TA provides model outputs for three scenarios, as follows:

- 2026 Baseline
- 2026 Baseline + Committed Development (and committed infrastructure scheme associated with Heyford Park Phase 1 at the B430 / B4030 Middleton Stoney junction)
- 2026 Baseline + Committed Development + Great Wolf

3.59. In line with good practice, the Appellant has used LINSIG software to evaluate the performance of the B430 / B4030 Middleton Stoney junction in each of these scenarios. Prior to discussion of the various junctions which have been assessed, the Appellant has drawn attention at paragraphs 6.6 and 6.7 to key outputs produced by the LINSIG software, providing some context for the reader and helping to interpret the modelled outputs. The relevant paragraphs from the TA (Core Document CD1-24) are reproduced below for ease of reference:

> *6.6 The LinSig software reports the Degree of Saturation ("DoS") of an approach to a signal-controlled junction. The DoS provides a ratio of the theoretical capacity of a road link in comparison with the demand for vehicles using that link. A DoS of 100% would suggest that demand for vehicles using that link is equal to the theoretical capacity of that link. However, a DoS of 90% is typically regarded as the practical capacity of a signal-controlled link to ensure efficient operation. Practical Reserve Capacity (PRC) is a measure of the capacity within a junction in comparison with its practical capacity. A Degree of Saturation value below 90% will report a positive value of PRC, whilst a Degree of Saturation measurement in excess of 90% will report a negative value of PRC.*
>
> *6.7 The importance of the Practical Reserve Capacity of a link relates to the ability for a junction to operate efficiently. Once a link exceeds 90% DoS and moves towards 100% DoS, small fluctuations in capacity and traffic flow can result in significant changes in queuing and delay.*

3.60. Having prepared and reviewed many Transport Assessments, I am familiar with this general qualification and the significance of its message. The quoted text acknowledges the significance of DoS values which exceed 90%. In particular, the final sentence of TA paragraph 6.7 recognises that when a junction is shown to have a DoS in excess of 90%, small fluctuations in capacity and traffic flow can result in significant changes in queueing and delay i.e. small changes in the percentage DoS can have a significant impact on junction users. I will develop this point further below.

3.61. Table 6.10 of the TA then presents a tabulated breakdown of 2026 BTM baseline flows, which include 'other' committed developments, flows associated with the consented Heyford Park (Phase 1) application and flows associated with the proposed Great Wolf development. Table 6.10 is reproduced, as follows:

*TA Table 6.10 (Traffic Flows for Scenarios)*

| Peak | Traffic Movements at B430 Junction | | |
|---|---|---|---|
| | 2026 BTM Flows | Proposed Development | Heyford Park (submitted application only) |
| | | | |
| AM Peak | 2,071 | 34 | 329 |
| PM Peak | 1,853 | 46 | 272 |
| | | | |

3.62. The Appellant uses this table to make the case that Great Wolf traffic generation is substantially lower than the consented Heyford Park flows.

3.63. The TA then presents model outputs, showing the performance of the B430 / B4030 Middleton Stoney junction in each of the three assessment scenarios. I have reproduced these modelled outputs in my evidence and wish to draw attention to important conclusions which they reveal.

3.64. Table 6.11 of the TA presents outputs from the 2026 Baseline scenario based on traffic flows from the 2026 BTM. Outputs are provided for each of the junction arms for the AM and PM peak hours, with Degree of Saturation (DoS) and Mean Max Queue (MMQ) values provided in each case. Table 6.11 is reproduced, as follows.

*TA Table 6.11 (2026 BTM Baseline Scenario)*

| Approach | AM Peak | | PM Peak | |
|---|---|---|---|---|
| | DoS | MMQ | DoS | MMQ |
| | | | | |
| B430 (south) | 131.6% | 75.1 | 124.1% | 68.5 |
| B4030 (east) | 126.8% | 77.0 | 111.0% | 35.3 |
| B430 (north) | 123.3% | 90.6 | 107.3% | 35.6 |
| B4030 (west) | 125.5% | 50.6 | 118.1% | 51.7 |
| | | | | |
| PRC | -46.2% | | -37.9% | |

3.65. The Table indicates that the DoS values (for the 2026 BTM baseline situation) on all arms exceed 90%, with the lowest values being recorded on the B430 (north) arm at 123.3% in the AM peak and 107.3%, also on the B430 (north) arm in the PM peak. The highest DoS values recorded are both recorded on the B430 (south) arm of the junction with values of 131.6% and 124.1% in the AM and PM peaks, respectively. Queues are expected to form on all arms of the junction, with the lowest MMQ value being 35.5 PCUs and the highest 90.6 PCUs. Table 6.11 shows that the junction has Practical Reserve Capacity outputs of -46.2% and -37.9% in the AM and PM peaks, respectively.

3.66. The Appellant acknowledges in Paragraph 6.3.6 that 'the signalised junction is likely to operate in excess of its theoretical capacity in the 2026 scenario.'

3.67. I would highlight two points based on the outputs in Table 6.11. Firstly, the junction is shown to be critically over capacity, with DoS values in excess of 90% reported on all arms for the 2026 BTM baseline scenario. These values relate to a scenario which does not include trips associated with the Heyford Park (Phase 2) development, or any activity associated with Great Wolf. I would conclude that the junction is already under considerable pressure before any committed development is added and before any Development traffic is added.

3.68. Secondly, I would note that the highest DoS values are recorded on the north and south arms of the B430. The B430 is identified in the Appellant's TA as being the key route for Great Wolf trips travelling to or from key strategic routes further north (Paragraph 3.5 of the TA).

3.69. Table 6.12 of the TA provides model outputs for the '2026 Baseline + Committed Development' scenario. These outputs provide a forecast of how operating conditions at the junction will be expected to change following the introduction of trips associated with committed developments, including Heyford Park (Phase 2). It is also noted that this model includes the committed infrastructure improvement at the B430 / B4030 Middleton Stoney junction associated with the Heyford Park Phase 1 consent. Table 6.12 is reproduced, as follows.

*TA Table 6.12*

| Approach | AM Peak | | PM Peak | | Sat Peak | |
|---|---|---|---|---|---|---|
| | DoS | MMQ | DoS | MMQ | DoS | MMQ |
| | | | | | | |
| B430 (south) | 128.1% | 85.6 | 124.6% | 85.9 | 51.5% | 5.8 |
| B4030 (east) | 147.5% | 155.6 | 130.8% | 90.8 | 55.6% | 7.7 |
| B430 (north) | 143.4% | 139.8 | 121.8% | 66.6 | 55.7% | 8.5 |
| B4030 (west) | 145.5% | 92.1 | 131.4% | 86.1 | 55.1% | 8.7 |
| | | | | | | |
| PRC | -63.9% | | -46.0% | | +61.6% | |

3.70. Table 6.12 shows a deterioration in overall junction performance as a result of the additional demands placed upon it. The highest DoS values are recorded on the B4030 (east) arm, with outputs of 147.5% and 130.8% in the AM and PM periods, respectively. Levels of queueing on all arms are expected to increase substantially, with the highest MMQ value showing an expected queue length of 155.6 vehicles. The model outputs show a worsening of the PRC values with the AM reducing from -46.2% to -63.9% and the PM reducing from -37.9% to -46%. Overall, the junction is expected to perform much less effectively when compared to the 2026 Baseline scenario – which in its own right shows the junction to be over capacity.

3.71. Table 6.12 incudes model outputs for the Saturday peak, showing that the junction is expected to operate within capacity for that period, with an overall PRC value of +61.6%.

3.72. I note that the deterioration of junction performance is acknowledged in Paragraph 6.39 of the TA which notes that 'the model results demonstrate that the inclusion of committed developments results in the PRC decreasing…'.

3.73. I find that these outputs support OCC's concern in relation to the B430 / B4030 Middleton Stoney junction. Firstly, that the junction is known to experience queueing and delay under Baseline conditions, and secondly that through the addition of trips from permitted third-party developments, concerns which are apparent in the Baseline situation will be exacerbated.

3.74. My examination of the modelled outputs presented in the TA leads me to conclude that OCC was correct to require an assessment of the B430 / B4030 Middleton Stoney junction.

3.75. Table 6.13 of the TA presents outputs for the 2026 Baseline + Committed Development + Development scenario. This scenario evaluates the effect of the additional 'Development Trips' which are detailed in Table 6.10 of the TA. The outputs show a general worsening of conditions at the junction, with DoS values on the both arms of the B430 increasing when compared with the 2026 Baseline + Committed Development scenario in both peaks and DoS values increasing on all arms of the junction with the exception of the B4030 (west) in the PM period. I note that MMQ values are generally increased across the junction in this scenario. Table 6.13 is reproduced, as follows.

*TA Table 6.13*

| Approach | AM Peak | | PM Peak | | Sat Peak | |
|---|---|---|---|---|---|---|
| | DoS | MMQ | DoS | MMQ | DoS | MMQ |
| | | | | | | |
| B430 (south) | 130.7% | 91.8 | 121.6% | 83.4 | 55.9% | 6.7 |
| B4030 (east) | 147.5% | 122.6 | 136.0% | 99.5 | 59.9% | 8.1 |
| B430 (north) | 147.5% | 151 | 131.7% | 85.6 | 59.0% | 9.4 |
| B4030 (west) | 145.5% | 92.1 | 131.4% | 86.2 | 58.2% | 9.1 |
| | | | | | | |
| PRC | -63.9% | | -51.1% | | +50.2% | |

3.76. The Tables reproduced above provide an indication of the extent to which queue lengths generally increase as additional trips are added to the junction through planned and then proposed development. Table 6.11 shows the 2026 BTM Baseline, indicating a mean max queue of 75.1 vehicles on the B430 (south) arm in the Weekday AM period. This value increases to 85.6 vehicles with the addition of Committed Development trips, and to 91.8 vehicles in the Great Wolf scenario. Corresponding outputs for the B430 (north) arm are 90.6, 139.8 and 151 vehicles for the BTM Baseline, Committed Development and Great Wolf scenarios, respectively. I find that this represents a considerable worsening of conditions, and note that while the Appellant argues that the number of additional trips arising from the development is small when compared to the Committed Development flows, their effect in this instance is substantial, with more than 11 vehicles added to the queue on the B430 (north) in the weekday AM peak. In the PM peak, queues increase from 35.6 in the 2026 BTM scenario to 66.6 in the committed development scenario. The addition of Great Wolf development trips increases queue length on the B430 (north) to 85.6 vehicles. I find that an increase of nearly twenty vehicles to an already undesirably long queue is a considerable impact which would add a further delay which would impact upon existing road users including public transport trips. This is at odds with

the suggestion that the proposals do not have a significant impact. I find the impact to be "severe" and certainly an impact that requires to be mitigated.

3.77. I find that when comparing the modelled outputs for the 2026 Baseline + Committed Development + Development scenario, metrics relating to junction saturation and vehicle queueing are all exacerbated. Notwithstanding the fact that the junction is already shown to be in excess of its capacity prior to the addition of Great Wolf trips, it is clear to me that the proposed development will have a detrimental effect on the junction and its users. It is worth noting that the Heyford Park Phase 2 development has a severe impact at the junction which requires to be mitigated. The Heyford Park developer seeks to address this impact through a scheme of mitigation that reduces the number of trips travelling through the junction rather than through additional physical changes at the junction. This is confirmed by paragraph 3.17 of the Appellant's Technical Note N09 (Core Document 10-23).

3.78. In summarising the model outputs, the TA states that 'the junction will continue to operate in excess of its theoretical capacity with the inclusion of traffic associated with the proposed development'. I note that the TA makes no specific reference to the exacerbation of DoS or MMQ values, and nor does it acknowledge the simple fact that the addition of development trips stands to make matters at the junction worse. Paragraph 6.41 of the TA states that 'the development will not have a material effect on the operation of the junction'.

3.79. I find this conclusion to be incompatible with the values presented in Table 6.13 of the TA. I also find that the conclusion statement at Paragraph 6.41 is inconsistent with the technical explanation presented in TA paragraphs 6.6 and 6.7. Specifically, I would reiterate the following statement from paragraph 6.7:

*'Once a link exceeds 90% DoS and moves towards 100% DoS, small fluctuations in capacity and traffic flow can result in significant changes in queuing and delay.'*

3.80. Referring back to TA Table 6.10 and the narrative that follows, it is apparent that the Appellant has led an argument based solely on the absolute number of trips associated with the Great Wolf development when compared to absolute values from the 2026 BTM Baseline and Heyford Park (Phase 2) development.

3.81. At paragraph 6.3.2 of the TA, the Appellant states that development trips are 'equivalent to less than one additional vehicle movement per minute during the morning and evening peak hours.' I find that the Appellant's approach to assessing development impact to be in complete contrast to policy and best practice. The relative extent of traffic generation between one development and another is irrelevant. The test here is the availability of the highway network to accommodate acceptably the traffic generated by the proposed development and the residual effect of that additional traffic on highway infrastructure.

3.82. I also find that the Appellant's approach disregards the fundamental importance of the point which the Appellant seeks to develop at TA paragraph 6.7 and fails to take into account the fact that the junction is already operating well beyond its capacity under baseline conditions.

3.83. The specific objective of technical capacity assessments, and the layered scenarios upon which they are constructed is to enable a granular understanding of the effect of a given change; in this case the change is the addition of further traffic. I note that TA paragraph 6.3.4 states:

*'…it is considered that the proposed development will not have a material effect on the operation of the junction in comparison with currently consented and other submitted planning applications. However, at the request of OCC, modelling assessment of the junction has been undertaken.'*

3.84. I would note that this paragraph appears to draw conclusions as to the effects of Great Wolf development trips in advance of the technical assessments which follow thereafter. In my opinion, the evidence presented in the TA simply does not bear this to be true. I find that through a comparison of Table 6.12 and Table 6.13, there is a clear exacerbation of conditions at the junction with reported increases both in DoS values and MMQ outputs. With reference to the B430 (north) arm, I note that reported DoS values increase from 143.4% to 147.5% and that MMQ values increase from 139.8 to 151. While I note that model outputs for the PM period indicate some reduction in specific DoS and MMQ values, I would draw attention to the summary PRC statistic which demonstrates a worsening from -46.0% to -51.1%. The Appellant's inference that the addition of 'less than one additional vehicle every minute' would not have an effect on junction performance is simply not supported by the technical evidence.

3.85. I find that the written summary in the TA is at odds with the technical evidence presented in the model output tables.

3.86. I have revisited the feedback provided by OCC during the TA scoping process and would reiterate that the B430 / B4030 Middleton Stoney junction was not initially identified by the Appellant for inclusion in the Assessment. I find that OCC has been consistent in its references to the junction in correspondence throughout the process and having examined outputs from the technical assessments in detail, I find that OCC's concerns about the existing and future performance of the junction are well-founded and with justification.

3.87. On review of the submitted traffic modelling, I would very much be of the view that the impacts experienced at the B430 / B4030 Middleton Stoney junction are "severe" in the context of the NPPF test and mitigation would certainly be warranted. I return to matters of policy later in this proof of evidence.

***OCC's Response to the Transport Assessment***

3.88. Despite the Appellant's statement that the addition of Great Wolf development trips would have no detrimental effect on the B430 / B4030 Middleton Stoney junction, OCC made it clear that the outcomes reported in the TA were not acceptable. They stood to exacerbate a set of conditions that OCC had already expressed concern with.

3.89. Following a review of the Great Wolf Transport Assessment and other documents submitted with the planning application, OCC provided a recommendation and comments back to CDC as a formal response by way of the Transport Schedule document, dated 10th January 2020 (Core Document CD10-27). In their response, OCC stated that *'Severe congestion at the Middleton Stoney signalised junction will be exacerbated by the additional trips generated by the proposed development. This is contrary to paragraphs 103, 108 and 109 of the NPPF, Cherwell Local Plan Policy SLE4 and Oxfordshire Local Transport Plan 4 Policy 17.*'

3.90. Paragraph 103 of the Revised NPPF states *"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focussed on locations which are of can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."*

3.91. With reference to Revised NPPF paragraph 108, OCC also stated that '*In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that…. (c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree'.*

3.92. Revised NPPF Paragraph 109 states that *'Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.'*

3.93. Turning to OCC's specific comments in relation to the B430 / B4030 Middleton Stoney junction, the 10th January consultation response states the following:

*"The impact on this signalised junction is discussed in paragraphs 6.29 to 6.41 of the Transport Assessment (TA). It should be noted that the planning ref. in 6.29, for the initial Heyford Park application, is 10/01642/OUT. As noted in the TA, the submitted Heyford Park Phase 2 scheme results in a significant increase in traffic movements at the B430 / B4030 junction. OCC objected to this application, partly for the reason that "The application cannot be fully assessed until a strategic mitigation package has been identified as appropriate and deliverable". A mitigation package that includes this junction is currently being developed and negotiated. However, whatever measures are agreed upon, they are unlikely to eliminate the very significant congestion that occurs on a regular basis, and which is confirmed by the outputs of the junction analysis contained within the TA (see summary above). Heyford Park is a Local Plan allocated site, whereas the proposed Great Wolf scheme is a speculative development. It is, therefore, considered that any additional capacity that may be created at the junction should be to the benefit of Heyford Park and that extra traffic from this application will negate the potential improvements, to the detriment of all road users. Any additional pressure on this sensitive junction*

*would exacerbate the challenges and could prejudice delivery of an appropriate scheme to meet the needs of Heyford Park. Paragraph 6.41 of the TA states "….. it is considered that the development will not have a material effect on the operation of the junction. Furthermore, it is anticipated that the Heyford Park Development will be required to provide a package of mitigation measures and as such the effect of the Proposed Development may be lessened. On this basis, no further analysis or mitigation works are deemed necessary." OCC's position is that the development will have a material effect on the operation of the junction, and that further mitigation works (beyond Heyford Park Phase 2) will not be able to counteract the effect. It is considered that the development traffic will have a severe impact on the road network, so the proposals are contrary to paragraphs 108 (c.) and 109 of the NPPF."*

3.94. I find the comments provided by OCC to be accurate and reasonable. As I have set out, the technical assessment of the B430 / B4030 Middleton Stoney junction provides clear evidence that the Great Wolf proposals will have an impact at the junction.

3.95. OCC identified that any additional capacity that could be created at the junction should be for the benefit of the Heyford Park site which, unlike the Great Wolf proposals is allocated in the Local Plan. OCC were also of the view that congestion poses a challenge for the delivery of the public transport strategy for Heyford Park so any additional traffic would exacerbate that challenge.

3.96. I agree with OCC's findings that the proposed development will have *'a material effect on the operation of the junction, and that further mitigation works (beyond Heyford Phase 2) will not be able to counteract the effect. It is considered that the development traffic will have a severe impact on the road network.'*

3.97. Based on the submitted modelling results, OCC has made it clear that the proposals should not be allowed to progress unless a suitable package of mitigation measures has been identified. It is clear from correspondence that OCC has worked in the past with the Heyford Park developer to explore possible remedies and that officers are familiar with the constraints present at the junction.

**Addendum Technical Notes and Emerging Mitigation Proposals**

3.98. The Appellant submitted a further Technical Note (N07) (Core Document CD10-21), dated 19th February 2020, in response to OCC's feedback in the Great Wolf TA. Among other matters being debated, the Note indicated that the Appellant and OCC were in discussions regarding the effect of the proposed development on the B430 / B4030 Middleton Stoney junction. At this stage, the Appellant maintained the stance that the proposals would not have a detrimental effect on the performance of the junction, and indicated that consideration was being given to the development of a signing strategy, designed to reduce the number of development related trips that passed through the junction.

3.99. In my opinion, while the objectives of a signing strategy are well-intentioned, such a strategy would only ever be advisory as far as trips to and from the Great Wolf development are concerned. A signing strategy would not lead to any physical restriction on the ability of trips to assign, should they wish, through the B430 / B4030 Middleton Stoney junction. I would also consider that non-physical route-guidance measures such as in-car satellite navigation systems and dynamic traffic mapping would continue to identify the B430 as a recommended link between the strategic routes to the north and the Great Wolf site. I note that the key parameters of trip generation and distribution were discussed and agreed with OCC during the Scoping stage. In my experience it is not typically the case that such parameters would be revisited at a later stage, simply to avoid the need for mitigation measures. I would also observe that a reduction in the number of trips assigning via the B430 / B4030 Middleton Stoney junction would inevitably lead to an increase in flows elsewhere in the local network. The Appellant's signing strategy proposal does not identify the net effect elsewhere on the study network of additional traffic through other junctions so the picture is incomplete.

3.100. In a further Technical Note of 27th February 2020 (N08) (Core Document CD10-22), the Appellant presented details of a proposed mitigation scheme which sought to mitigate the effect of the Great Wolf development. Appendix B of Technical Note N08 included Drawing 1803047-17, detailing the nature and extent of works deemed necessary by the Appellant. The Technical Note stated that the proposed works were in addition to measures which were already contained as part of the Heyford Park (Phase 1) application. The Appellant proposed that an additional northbound lane incorporating a dedicated left turn lane would be provided, along with minor changes to the kerbline and road markings. It was stated in the Note that the proposed works could be delivered within the existing adopted highway boundary at the junction.

3.101. The Technical Note provides tabulated outputs which show the effects of further LINSIG model applications of the junction, this time taking into account the effects of the proposed Great Wolf Mitigation scheme (as indicated by Drawing 1803047-17). I provide detailed commentary on these model outputs later in this section of my evidence.

3.102. In the supplementary Technical Note, the Appellant states that the proposed mitigation measures as set out in Drawing 1803047-17 'would mitigate the effect of the proposed development' at the B430 / B4030 Middleton Stoney junction.

**OCC's Response to The Appellant's Mitigation Proposals**

3.103. OCC provided a further written response to the Appellant on 3rd March 2020 (Core Document 10-26) summarising the discussions that had been ongoing during the post-application stage and providing detailed comments in relation to the B430 / B4030 Middleton Stoney junction. Under the heading 'Effect on Local Highway Network', OCC restated its objection to the application on the grounds of traffic impact at Middleton Stoney.

3.104. Specifically, OCC reiterated the importance of making the best use of infrastructure to accommodate "*development which had been planned for through the Local Plan process*". OCC stated that *'Future year modelling shows that the B430 corridor is forecast to experience significant congestion without a package of mitigation measures required to accommodate Local Plan growth. Additional traffic as a result of unplanned development will add to the significant congestion forecast along the corridor and could prejudice the ability to deliver a package of suitable mitigation measures required to accommodate planned growth.'*

3.105. From my experience of Transport Assessment, and more broadly, the Planning process, I find that OCC's objection is reasonable and justified. Through the Local Plan process, CDC has sought to balance the wish to accommodate development with the need to ensure traffic from permitted development can be accommodated on the local road network. Where necessary, OCC has worked with developers to ensure suitable mitigation measures can be delivered, offsetting the impact of development. This approach is consistent with that taken elsewhere and in line with the policy objectives of NPPF.

3.106. OCC's point is that if Great Wolf, which was not allocated through the local plan process, was to be permitted, the associated traffic would absorb residual highway capacity which would otherwise be available for permitted or allocated sites.

3.107. OCC's response of 3rd March 2020 also raised fundamental concerns with the indicative mitigation proposals which are set out in the Appellant's drawing 1803047-17. These proposals would represent a modification to the package of junction improvements which are associated with the consented Heyford Park Phase 1 development. OCC acknowledged that the Appellant's proposed mitigation drawing set out to increase highway capacity at the junction but stated that the authority had 'fundamental concerns' relating to the deliverability of the proposals. On this basis, OCC stated that its objection to the scheme remained in place.

3.108. I note that Drawing 1803047-17 (Appendix D), as first submitted to OCC, simply set out suggested alterations to the geometry of the committed Heyford Park Phase 1 mitigation scheme. The drawings indicated a series of proposed alterations to the highway extents, working on the assumption that land which was within the control of OCC could be made available to aid delivery of the proposals. While it did show a suggested alteration to the footway on the west side of the junction, the drawing did not demonstrate how the established pedestrian crossing facilities over the B430 and B4030 would be incorporated. It is my view that the sole purpose of the Mitigation drawing, as submitted at that time, was to address the need for further highway capacity, without consideration of other road users, pedestrian trips and pedestrian safety.

3.109. In closing remarks set out within the Appellant's Technical Note of 27th February 2020 (Core Document 10-22) , it is noted that 'the Technical Note has demonstrated that the development proposals accord with the principles of sustainable development set out within the NPPF and would not result in a severe impact on the highway network. The note goes on to say that *'there are no reasons why the current planning application should be resisted or refused on sustainability, transport or highways grounds'*.

3.110. I disagree. Further detailed evidence of my concerns in relation to the deliverability and safety of the proposed mitigation scheme is set out in the following section.

**Heyford Park Mitigation Scheme**

3.111. Before I consider the implications of the Great Wolf development on junction layout, it is important to acknowledge that the character of the B430 / B4030 Middleton Stoney junction will change as a result of mitigatory measures which are already proposed by the Heyford Park development (Phase 1).

3.112. Those measures proposed as part of Phase 1 of Heyford Park are detailed in Plan HEYF/5/582/C (Attached as Appendix C to my Proof of evidence) comprise the following key elements;

- Incorporation of a right turning lane on the northbound arm of the B430 with an associated right-turn ghost island in the centre of the junction.
- Relocation of the stop line on the southbound arm of the B430, with the effect of moving the queue back.
- Incorporation of a right turn ghost island in the mouth of the junction, catering for trips turning from the B430 (n) to the B4030 (w).
- There are no measures proposed to either the east or west arms of the B4030.
- Alteration to the footway on the west side of the junction, using the verge to create additional width.
- Alterations to the established pedestrian crossing over the southern arm of the B430 with adjustments to the tactile surface treatment at either side of the road.

3.113. Ultimately, these measures represent an attempt to increase the effective highway capacity of the junction through delivery of a more efficient layout and the installation of more dynamic traffic signal equipment, but in so doing they recognise the need to provide waiting and crossing facilities for pedestrians while not detracting from the character of the village centre. The proposals seek to balance the interests of traffic moving through the village with non car-based users who wish to travel within the village – this will include those who wish to access local bus stops and facilities.

3.114. Notwithstanding the efforts to balance the interests of motorised and non-motorised users, I note that the Heyford Park mitigation package does not propose any alteration to the established geometry of the north eastern corner of the junction, where the protrusion of third-party land has the effect of narrowing the footway substantially.

3.115. The alignment of the pedestrian crossing over the B430 south (detailed in the Heyford Park mitigation scheme) would require pedestrians to cross between stationary vehicles, stacked back from the stop line, slightly further to the north. It seems reasonable to suggest that there will be occasions where the gaps between stopped vehicles will be insufficient to allow efficient pedestrian passage. Similarly, it is not unlikely that there will be an imbalance of vehicle types and placement between both of the northbound lanes of traffic, with the effect that pedestrians may be faced with what in practical terms would resemble a staggered crossing alignment. For users with buggies or wheelchairs, this is unlikely to represent an attractive or safe environment.

3.116. While it is not specifically a transportation-related comment, it seems to me that the Heyford Park scheme achieves a highway betterment which is not substantially detrimental to the visual character of the village centre. This is a matter that will be taken up in more detail by CDC's Landscape witness.

**Appellant's Revised Middleton Stoney Mitigation Scheme**

3.117. The Great Wolf mitigation scheme has been developed in response to OCC's concerns that the addition of development traffic would lead to an exacerbation of the junction capacity issues which have already been described. The Appellant's revised mitigation scheme for the B430 / B4030 Middleton Stoney junction is indicated by Drawing 1803047-revision A (included as Appendix D to this proof of evidence) which was submitted subsequent to the original Transport Assessment.

3.118. I note that the key features of the Great Wolf mitigation scheme are as follows:

- The incorporation of a third lane on the B430 southern arm, with the effect that there are separate lanes on approach to the stop line for left-turning, straight-ahead and right-turning movements. This increases the overall footprint of the southern arm, doing so at the expense of open space to either side.
- Material alterations to the established road geometry to incorporate the additional carriageway width and relocated footways.
- Removal of the established pedestrian crossing over the southern arm of the junction
- Incorporation of a new pedestrian crossing alignment adjacent to Corner Cottage, in the centre of the junction. The crossing would feature a 'D' shaped pedestrian refuge island.

3.119. These measures are ostensibly aimed at enhancing the theoretical highway capacity of the junction, with the incorporation of separate turning lanes enabling what the Appellant believes to be a more efficient throughput.

**Operational and Road Safety Issues Arising from the Mitigation Scheme**

3.120. The evidence I present here relates to the design, geometric layout and operation of the junction as proposed by the Appellants Drawing 1803047-17. This is the latest version of the design drawing submitted and is the drawing which the Appellant relies on in terms of their mitigation proposals for the Middleton Stoney junction. In my evaluation of the proposed layout, I will set out my comments in relation to a Road Safety Audit which was commissioned by the Appellant and I will lead evidence to challenge claims which are made by the Appellant in relation to the performance of the junction and its suitability to mitigate the severe traffic impacts at the junction.

***Road Safety Audit***

3.121. A Stage 1 Road Safety Audit was commissioned by the Appellant in 2020 and submitted in support of the planning application. The Road Safety Audit, prepared by Gateway TSP, I appended to Core Document CD10-23). This was in response to OCC's request that a Stage 1 and Stage 2 RSA be carried out. The Audit was undertaken by Gateway TSP and with reference to Drawing 1803047-17 which details the Great Wolf mitigation measures that are proposed. I have reviewed the Stage 1 Road Safety Audit and would comment as follows.

3.122. The RSA identified five 'Problems' with the proposals as detailed in Drawing 1803047-17. These are listed, as follows:

***Problem 1: Footway width could lead to pedestrians being struck by vehicles***

- *'The footway width at this location is presently reduced by verge overgrowth and, to a lesser extent, the boundary hedge. Pedestrians waiting to cross would therefore necessarily stand close to the kerb, potentially leaving them vulnerable to a collision with a passing vehicle.'*

***Problem 2: Side impact collisions***

- *'Northbound drivers approaching the junction may not be aware of the lane assignment and could make late lane changes, leading to side impact collisions.'*

***Problem 3: Risk of head-on collisions between right-turning vehicles.***

- *'Drivers turning right into Middleton Park may inadvertently stray into the right turn lane for Bicester Road, leading to head-on collisions'*

***Problem 4: Risk of collisions involving vehicles turning from an uncontrolled access into the controlled area.***

- *'Drivers emerging from the private access may not know which traffic stream has priority (a green signal) and could collide with a vehicle passing through the junction.'*

***Problem 5: Risk of vehicles, cyclists and pedestrian colliding with street furniture.***

- *'Street furniture and lighting details are not available to the Audit Team and it is acknowledged this will be a detailed design matter, for consideration at Stage 2 RSA. However, if street furniture is not mounted appropriately it could be struck by pedestrians, cyclists or vehicles.'*

3.123. In the Technical Note (N09, dated 30 July 2020, the Appellant notes that OCC requested a Stage 1 and 2 Road Safety Audit. The Appellant then notes that *'it is not normal practice for a Stage 2 Road Safety Audit to be undertaken at the Planning stage as this required the detailed design of the highway works'*. The note then goes on to state that, in the Appellant's view, the RSA *'raises no material concerns with the proposed mitigation scheme and all comments raised in the Audit can be addressed as part of the detailed design stage…*'. before being re-examined in a stage 2 Audit.

3.124. However, I would observe that to address the risks identified is likely to require material alterations to aspects of the currently proposed layout. As further discussed below, I find that the layout presents considerable risks to pedestrians and that from a vehicle swept path perspective, the junction cannot be shown to work. In this regard, I agree with the findings of the Stage 1 Road Safety Audit.

3.125. Fundamentally, I find that it is only possible to address many of the identified Problems through material alterations to the junction geometry. In so doing, I do not believe it is simultaneously possible to address the safety issues identified while maintaining the level of junction capacity suggested by the Appellant.

3.126. It is my view that the detail presented by the Appellant in Drawing 1803047-17 is not sufficiently well developed to demonstrate satisfactorily that the junction can deliver the required outcome to offset the severe traffic impacts of the development. I believe that OCC was justified in its request that a Stage 2 Road Safety Audit was undertaken. The absence of such detail means that there is no evidence before this process to demonstrate the proposals can be delivered.

3.127. I will cross-refer to each of the 'Problems' raised by the RSA in my own assessment of the junction layout, later in this section.

***Swept Path Assessments***

3.128. The Appellant has submitted outputs from a vehicle swept path assessment exercise, seeking to demonstrate that the geometry of the proposed junction mitigation scheme can cater for the spatial requirements of vehicles using the junction. Swept path assessments are typically undertaken using the AutoTrack module within the industry standard AutoCad software. AutoTrack contains a library of standard vehicle types, replicating the dimensions and outline behavioural characteristics of vehicles most commonly found on the road network. The library allows practitioners to select vehicles which match those in given countries, accepting that standards and dimensions vary from country to country. Similarly, the library is sub-divided into vehicle type categories, helping to represent the breadth of formats, lengths and axle configurations within a given classification. In the case of commercial vehicles found on the UK road network, the library allows users to distinguish between, for example, a 10m two-axle light goods vehicle, a three-axle medium goods vehicle or a 16.5m articulated lorry. A broad range of vehicle types and formats is available, with the practitioner being responsible for selecting a type that best represents the situation to be designed for. AutoTrack also allows for the creation of 'user-defined' vehicle types, allowing the practitioner to synthesise a type which may not already be contained in the library. I am very familiar with the use of AutoTrack and understand the techniques which are necessary to ensure a meaningful audit of a given road geometry.

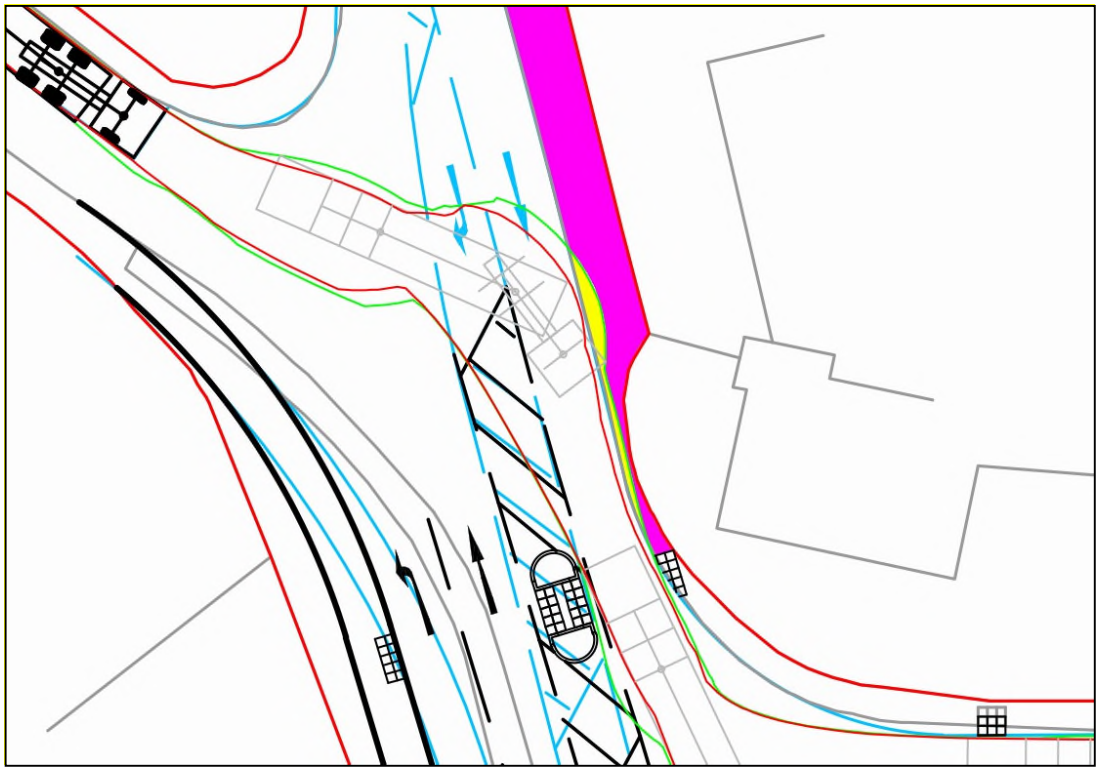
3.129. AutoTrack assessments help to inform and evaluate highway design schemes such as that proposed in the Great Wolf drawing 1803047-17. When used for this purpose, the process involves 'driving' a given vehicle type through a layout to determine if that vehicle can be accommodated within the road geometry provided. Based on specifics such as overall vehicle length and axle configuration, the software is capable of replicating the turning circle of a given type and it will show the 'swept path' of a vehicle as it performs a turn. The 'swept path' is the spatial envelope occupied by a vehicle as it moves through the geometry of the road network. Most commonly, swept path assessments of this nature evaluate long rigid vehicles (such as buses and refuse collection trucks) and articulated vehicles; such vehicles occupy more road space than standard cars or vans and they are more complex to manoeuvre.

3.130. Outputs from swept path assessments show the outline of a given vehicle type and coloured lines which indicate the path taken by the vehicle to reach a certain position. A red line indicates the envelope defined by the vehicle's wheels, showing where the truck physically crosses a given junction layout. A green line shows the envelope defined by the vehicle's body, showing the space occupied above ground level as a vehicle completes a manoeuvre. For an exercise such as this, which evaluates the suitability of a proposed road layout, the objective is that a vehicle can traverse the road layout without any instances of over-running (red line) beyond the confines of the carriageway or over-sailing (green line) features beyond the confines of the carriageway. Where either of these two encroachments occur, risks of conflict will start to occur with other road users (vehicles, pedestrians, cyclists etc) and with structures (street furniture etc). Such conflicts can pose a problem to road safety and heighten the risk of damage occurring to kerblines or street furniture leading to an on-going maintenance issue for the highway authority. I would highlight that it is the responsibility of the designer to identify such risks (at all stages of the design process) and ensure they are appropriately mitigated.

3.131. I have reviewed the swept path outputs provided by the Appellant in Drawing 1803047-TK62. This drawing was included as Appendix B of Technical note N09 (Core Document 10-23). It includes four inset windows which each show swept paths for key movements at the proposed junction. Swept path outputs are provided for the through movement on the B4030 in both directions. Eastbound and westbound outputs are shown for a 10m rigid truck and a 16.5m articulated truck.

3.132. Before providing my own evidence in relation on this point, I would draw attention to a fundamental point arising from the following statement, included in the third bullet point of Paragraph 3.12 of Technical Note N09. The Appellant states that *'the swept path analysis demonstrates that a 10 metre rigid vehicle and 16.5 metre articulated vehicle can manoeuvre appropriately from the B430 east to the B430 west and vice versa and would not conflict with the proposed pedestrian refuge*.

3.133. I would strongly disagree with this statement. With reference to an excerpt of Drawing 1803047-TK62, I would note that the swept path details show an articulated vehicle protruding into the footway when making this manoeuvre which if replicated in a real-life situation, would present a serious risk to pedestrians. I have overlaid colour to the drawing to highlight the extent of the established footway (shown in pink) and the encroachment of a heavy goods vehicle into that space (shown in yellow).



3.134. The Appellant's statement that large vehicles *'can manoeuvre appropriately without conflicting with the pedestrian refuge'* should be viewed in the context that as part of the same manoeuvre, it is necessary for such vehicles to encroach into pedestrian space. As my own review of the junction demonstrates below, I consider that if the truck did not encroach into the footway to the north east of the pedestrian refuge island, a vehicle of this length would be unable to complete the manoeuvre without conflict with the refuge island.

3.135. This is a completely unacceptable proposition which I find to be contrary to policy, contrary to good practice and contrary to the safety of pedestrians.

3.136. The key points emerging from my review of this information are summarised in the following paragraphs.

3.137. I note that the Appellant has used a 16.5m articulated truck for this assessment but would add that the UK fleet incudes a growing number of articulated combinations which are 18.5m in length. Such vehicles are commonly used by retailers and parcel distribution companies and I would not regard them to be 'specialist' in nature. It is likely that such vehicles are travelling through the junction just now and will continue to do so. I would observe that the swept path outputs reported in Drawing 1803047-TK62 therefore do not characterise a likely reasonable 'worst-case' design vehicle.

3.138. With specific reference to the swept path which shows a 16.5m articulated truck travelling eastbound through the junction from the B4030 (W) to the B4030 (E), I note that the truck has to perform a very sharp manoeuvre to negotiate the proposed pedestrian refuge island. In my opinion, this is not a manoeuvre that a truck of this size would perform at speed, rather it would be a considered movement, performed at a lower speed than the corresponding movement if made at the junction in its existing form.

3.139. I note that under current circumstances, a truck making this manoeuvre would be able to do so at a shallower angle, making the most of the relatively less constrained space in the centre of the junction and thereby completing the movement at a higher speed. The configuration of the traffic lights allocates separate priority to traffic from the east and west arms, meaning that those two flows never occur simultaneously. Consequently, there are no opposing east/west flows and as such vehicles need not anticipate oncoming traffic when selecting their path through the junction.

3.140. While the proposals do not seek to introduce simultaneous two-way traffic between the B4030 side arms, the incorporation of the pedestrian refuge island introduces a physical obstacle which considerably reduces the space available to larger vehicles, and the margin for error, as they move through the junction from west to east.

3.141. From examination of swept path outputs in Drawing 1803047-TK62, I note that the green over-sail line intersects the pedestrian footway at the north east corner of the junction. In practice, this equates to the forward edge of the truck cab encroaching into a defined pedestrian space, in direct conflict with pedestrians who may be standing within that space. I find this to be an unacceptable situation; pedestrians who are using the footway should expect to do so with the confidence that the space is safe and segregated from moving traffic. I would further develop this point by emphasising that the incorporation of a refuge island with accompanying dropped kerbs and tactile paving suggests to pedestrians that the revised crossing alignment is safe. Furthermore, I would note that while the proposed mitigation measures are likely to encourage pedestrians to dwell at the footway to the north east of the junction, they fail to address what I would regard to be an inadequate shortfall in the width of the existing footway. The existing footway width at this location is approximately 1.0m and narrows to just 0.5m just north of the crossing point. I would consider any width less than 1.8m to be a reduction in DMRB standards.

3.142. I have undertaken my own swept path assessment of this movement to evaluate whether the scheme shown by Drawing 1803047 is fit for purpose. This Drawing is contained within Appendix E to this PoE. I note that in order to avoid instances of over-sail on the nearside footway, it is necessary to position the vehicle further from the kerbside and that as a consequence, the rear of the truck over-runs the pedestrian refuge island. Therefore, I find that in order to minimise risk posed to pedestrians on the nearside footway, there is an increased risk to pedestrians who may be present in the pedestrian refuge island. My own assessment indicates that it is not possible for a vehicle of this size (16.5m) to negotiate the revised junction layout without presenting a risk to vulnerable road users and I conclude that this is an unacceptable and unsafe outcome.

3.143. My own examination of this issue corresponds with the findings of the Road Safety Audit, which identified specific problems relating to pedestrian safety. Specifically, I would refer to Paragraph 5.3 of the Road Safety Audit which noted that *'…the footway at this location is presently reduced by verge overgrowth and, to a lesser extent, the boundary hedge. Pedestrians waiting to cross the road would therefore necessarily stand close to the kerb, potentially leaving them vulnerable to a collision with a passing vehicle.'*

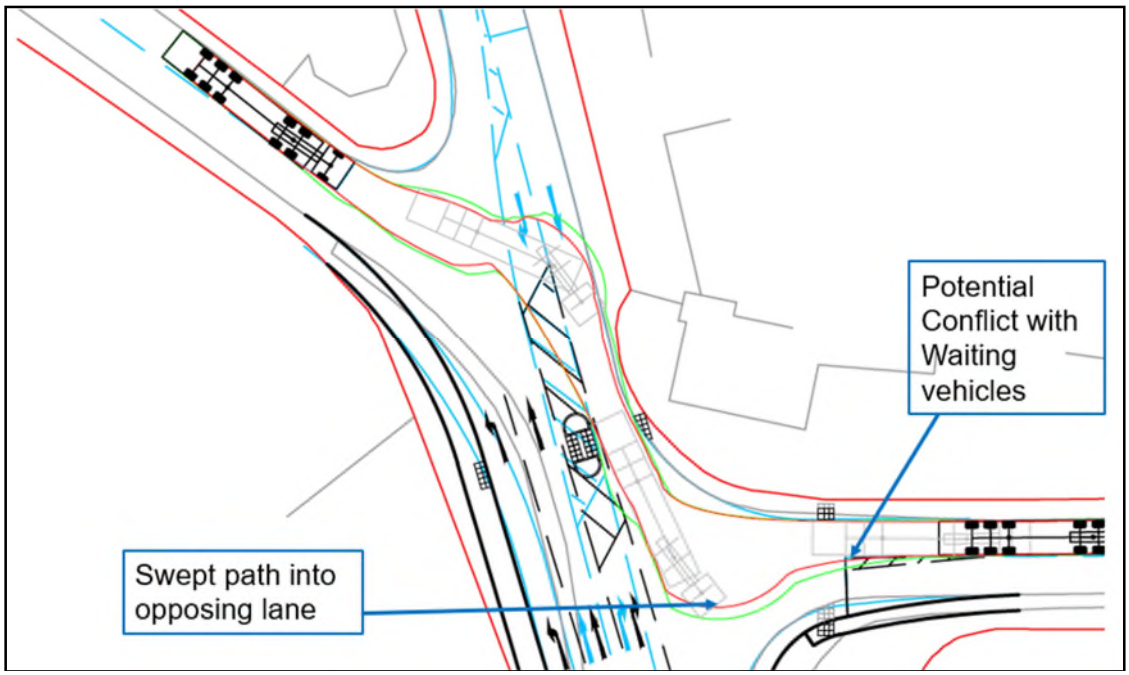
3.144. While the Road Safety Audit observes that the footway is reduced by verge overgrowth and the boundary hedge, I would consider that it is the width of the footway itself that is significantly sub-standard as it is less than a metre in place which is well below DMRB standards. The presence of overgrowth and a boundary hedge simply serve to amplify the inadequacy of the footway width. A problem that the proposed mitigation scheme does nothing to address.

3.145. Returning to Drawing 1803047-TK62, I would consider that the swept path outputs demonstrate the proposed junction cannot safety accommodate large vehicles without presenting a risk to vulnerable road users.

3.146. The Appellant presented Drawing 1803047-TK62 on the basis that the proposed pedestrian refuge island would not impede the progress of larger vehicles moving through the junction. I find that the opposite is true, as evidenced by the sharp turn required and the careful negotiation that is required to minimise (not avoid) encroachment to either the nearside pedestrian footway or the offside pedestrian refuge island.

3.147. Earlier in this section of my proof of evidence, I explained that the introduction of the pedestrian refuge island to the centre of the junction reduces the space within which large vehicles can manoeuvre. I cited the example of a large vehicle following a smooth path from the B4030 (w) to the B4030 (e), drawing a comparison with the far sharper path required with the refuge island in place. With further reference to the swept path output contained in the lower right panel in Drawing 1803047-TK62, I note that an articulated truck is shown to perform a sharp left turn having navigated the refuge island before turning into the B4030 (e). When compared with the shallower angle of approach afforded by the present layout, I note that the truck is essentially aligned in a north to south axis, rather than a north-west to south-east axis.

3.148. Consequently, the vehicle occupies much more of the road space in the centre of the junction adjacent to the B4030(E) as it completes its turn. Drawing 1803047-TK shows that the vehicle encroaches into the oncoming traffic lane before fully correcting itself and continuing eastwards. I would highlight that the swept path outputs have failed to recognise the likelihood that other vehicles will be present at the stoplines of the junction. Junction modelling outputs demonstrate that the junction will experience considerable demand, with lengthy queues forming on each arm of the junction. In my view, this means it is more likely than not that an eastbound vehicle would be faced with a stationary west-facing vehicle at the stop line on the B4030(E). In such an instance, the suggested swept path could not physically be completed without conflict between two vehicles. This point is illustrated by the marked up swept path below.




3.149. My swept path examinations support this outcome and I find that this provides further evidence that the proposed layout is neither practical nor safe.

3.150. I reiterate the claim made by the Appellant that Drawing 1803047-TK62 demonstrates that large vehicles '*can manoeuvre appropriately from the B430 east to the B430 west and vice versa and would not conflict with the proposed pedestrian refuge'.* I find that this is simply not the case. In addition to the considerable risk of pedestrian conflict identified already, it is my view that the proposed arrangement presents a considerable risk of vehicle and pedestrian conflict especially in a situation where pedestrians will require to cross the junction during the "intergreen" period when there could be HGVs seeking to clear the junction.

***Presence of HGVs***

3.151. I present further evidence, as follows, to provide context for my observations in relation to the presence and performance of heavy goods vehicles at the junction.

3.152. I have reviewed the Environmental Statement (ES) submitted as part of the application (Core Document CD1-13). This document was prepared by WSP in November 2019, with Chapter 6 presenting findings in relation to Transport and Access (Extract Included as Appendix F to this PoE). The ES examines matters related to severance, delay, amenity, fear and intimidation, accidents and safety and it includes a qualitative and quantitative assessment of LGV and HGV activity in the defined study area.

3.153. Table 6-6 and 6-8 of the ES present a tabulated breakdown of traffic flows on links where flows are expected to increase as a result of Committed Development and the Great Wolf proposals. Each of the tables identify that the B430 north of the A4095 falls within the remit of the ES exercise. With reference to the local road network, this link ultimately forms the southern arm of the B430 / B4030 junction in Middleton Stoney and that vehicles present in that location will pass through the junction concerned.

3.154. I note that Table 6-6 states an Annual Average Daily Traffic flow of 7,685 vehicles, of which 298 are classified as HGVs. With reference to Table 6-8, the 'Assessment of Operational Traffic' in the proposed opening year, I note that AADT flows on this study link are expected to increase by 8% for LGVs and 2% for HGVs.

3.155. The B430, passing through Middleton Stoney is identified as a formal motorway diversion route for heavy goods vehicles in instances where the M40 is closed. The diversion route plans are enclosed at Appendix G to this PoE. While infrequent, closures on the M40 lead to a significant uplift in vehicular demands through the junction with a perceptible increase in the number of heavy goods vehicles. With reference to my observations that the Great Wolf mitigation scheme is likely to reduce vehicle speeds through the junction, particularly for larger vehicles, I consider that a material increase in goods vehicles as a result of a diversion scenario would lead to unnecessary and unwelcome delay. I would also make the point that any future mitigation schemes delivered as part of the Heyford Park Phase 2 planning application (CDC Planning Application Reference 18/00825/HYBRID) to reduce HGV levels through the B430 / B4030 Middleton Stoney junction would have no impact on the flow of HGVs associated with the motorway diversion route. It is therefore very important to ensure that the design of any mitigation scheme at this junction takes account of HGV movements now and in the future.

3.156. I would also make reference to the Draft Construction Management Plan (November 2019), prepared by Arcadis and submitted as part of the Great Wolf application (Core Document CD1-8). This document is also contained in the Environmental Statement as Appendix 4.1. Section 3.2 of that report identifies the suggested route options for goods vehicles during the construction of the Great Wolf development. The report identifies route options via the A4095 and B430 to access M40 junctions 9 and 10, respectively. I note that these routes have been identified on the basis that they avoid the need for construction traffic '*to drive through any villages'*.

3.157. While I recognise that the suggested routes would not be used for this purpose in the event that development at Great Wolf did not progress, my interpretation of the wording is that the identified routes emerged in response to constraints or restrictions on alternative routes which may otherwise have proved attractive. It would, therefore, appear to me that HGVs are a feature at the B430 / B4030 Middleton Stoney junction and this situation will continue.

**Compliance with DMRB Standards**

3.158. As part of my review process, I have reviewed the proposed mitigation scheme, I have compared the proposed design of the junction against the requirement of the Design Manual for Roads and Bridges (DMRB). The applicable standard for the design of such a mitigation scheme is DMRB CD123 "Geometric Design of At Grade Priority and Signal Controlled Junctions" (Revision 2 August 2020) which is Core Document CD10-11. The design of signal-controlled junctions is dealt with at section 7 of CD123 (Pages 49-57). There are a number of design criteria to be considered and I have reviewed these in turn below.

***Visibility of Signals***

3.159. Paragraph 7.2.2 of CD123 indicates that "A minimum of 2 signals should be visible from each approach arm and each stop line" with a supplementary note indicating that "The 2 signals usually comprise a primary and secondary signal". I would note that the current design plan (Drawing 1803047-17 Rev C) has not been developed to a level of detail where the signal heads are even shown. This makes a detailed review of the proposals difficult. As the proposed mitigation strategy is for a signalised junction, I would have expected that the traffic signals would actually have been shown, even at this stage in the design process, especially at such a constrained location and given the importance of the infrastructure in terms of seeking to mitigate the impact of the development.

3.160. I have several concerns over the provision of signals to support the proposed mitigation scheme especially in relation to the northbound approach to the junction. The standard states that a minimum of two signal heads will be required on this approach that are clearly visible to drivers approaching from the south. It would be logical for the primary signal head to be located adjacent to the carriageway on the west side of the carriageway just in front of the stopline while the secondary signal head would likely be located within the pedestrian refuge island that is proposed in the middle of the junction.

3.161. My concern is that the location of such infrastructure including required clearances could have implications for pedestrians and for the swept path of vehicles (in the case of the secondary signal head).

3.162. For the primary signal head, it would appear that the signal head and associated pole would require to be located within the proposed footway area on the west side of the junction. It is noted that the footway in this area is 2m wide and fills the whole space between the carriageway and the road boundary. This means that the signal head will require to be located within the footway itself and a clearance of 450mm would need to be allowed between the edge of the signal pole and the edge of the carriageway to prevent vehicle strikes. This coupled with the width of the pole itself (100mm) means that the effective width of the footway is reduced from 2m to 1.45m to the detriment of pedestrians at the junction and means that the footway width falls below the minimum footway width of 1.8m as specified by the DMRB.

3.163. For the secondary signal head, the only place I can see the head being provided is within the proposed pedestrian island in the middle of the junction. My concern here is that the proposed island measures off the drawing at 2.0m which is the minimum width for such a refuge island. With the signal head in place and with a right-turn filter arrow added for the right turn onto Bicester Road contributing to an increased signal head width, it would appear that there is very little room within the island to achieve the required clearances of 450mm (as indicated by DMRB CD 123 Para 7.14) to each live carriageway. As the swept paths have indicated, that HGVs could be over-sailing pedestrian areas, my concern is that there is now a new risk introduced associated with vehicles striking the signal heads at a location where pedestrians could be waiting to cross the road. I would also be concerned that the signals will reduce the intervisibility across the junction; in particular the visibility of pedestrians who will be crossing uncontrolled during the intergreen period at the same time as vehicles will be clearing the junction at the end of the green phase.

3.164. In some circumstances, an approving authority would be able to take sufficient comfort from a preliminary design drawing as to the delivery of proposed infrastructure. In such cases, it can be possible to condition the development to provide the improvements "generally in accordance" with the submitted plans. This allows points of detail to be addressed at detailed design stage. In the case of the submitted mitigation proposals for the B430 / B4030 Middleton Stoney Junction, there are a number of concerns over the deliverability of the junction and concern that design standards cannot be met. It is therefore not possible to condition the delivery of the mitigation scheme in a situation where the approving authority needs to be satisfied that an acceptable scheme of mitigation can be granted before planning permission is granted.

**Junction Intervisibility Zone**

3.165. Section 7.3 of DMRB CD 123 sets out the intervisibility zone that should be provided at a signal controlled junction and Figure 7.3 shows how this is measured at the junction (a zone measured 2.5m back from each stop line. With the stop lines provided on the preliminary design plan, it is possible to see that the "intervisibility zone" requirements cannot be met at this junction as a result of the set-back stop lines and the location of buildings around the junction. In particular "Corner Cottage" as indicated on drawing 1803047-17 Rev C prevents intervisibility between the north and east arms of the junction. I would acknowledge that this may be an existing issue and an issue with the scheme associated with Heyford Park Phase 1. The point that I make is that the junction already falls short of DMRB design standards and the proposals to introduce an additional lane and uncontrolled pedestrian infrastructure at the junction further exacerbate the problems that already exist at the junction.

**Entry Lanes, Exit Lanes and Storage Capacity**

3.166. The lanes widths provided on the southbound arm of the junction as per drawing 1803047-17 Rev C are all shown as 3m width which is acceptable as per the requirements of sections 7.6 and 7.7 of DMRB CD123. Section 7.8 sets out the tapers that should be achieved in relation to the development of the left and right-turning lanes at a junction with diagrams provided at Figures 7.8 and 7.8.2 to show the required tapers.

3.167. For the left, turning lane, the required taper length should be the ratio 5 to 1 i.e. for every metre of lane width, the taper leading from the single approach lane to the left turn lane should be 5m long. Therefore, for a 3m lane width (as proposed), the taper should be 15m long. From drawing 1803047-17 Rev C, I measure the proposed taper for the left turn lane as less than 5m compared to the 15m standard.

3.168. For the right-turn lane, the total taper length is made up of a direct taper length of 7.5m and a hatched island taper in the ratio of 1 to 10 i.e. 10m of taper for every 1m of lane width. From my examination of drawing 1803047-17 Rev C, I measure the direct taper as less than 4m while the hatched island taper extends some 57.5m. The latter meets standard but the direct taper length does not meet standard. I would also comment that the way that the lanes have been developed is unorthodox. The lane arrangement takes the single lane away from the channel line into a central point before allowing traffic to split left and right into the respective turning lanes.

3.169. It is not clear whether the required standards can be achieved with regard to tapers. An updated design would be required to assess this and such matters would need to be addressed at this stage in the planning process to test the deliverability of the scheme.

**Storage Length**

3.170. The storage length is the length of carriageway available at dedicated right and left-turn lanes to store vehicles within. DMRB CD123 section 7.9 indicates that the storage length of left and right turn entry lanes should be designed to:

*"1) to meet the capacity requirements of the junction*

*2) to accommodate the longest queue of stopped traffic (to avoid turning traffic blocking the adjacent lane); and*

*3) to avoid traffic being prevented from entering the left of right turn lane where there is a high proportion of straight ahead traffic queuing in the adjacent lane"*

3.171. Looking at drawing 1803047-17 Rev C, I have measured the right turning storage length to be 31m and the left turning storage length to be 43m. Taking a "queued" car length as 6m, the right-turn storage length would accommodate approximately 5 queued cars while the left turning lane would accommodate approximately 7 queued cars. Such queuing capacity does very little to address the very large queues predicted in the future year models. The implications of this are that the junction will continue to experience significant congestion and queuing vehicles that are waiting to turn will "block" vehicles that are wishing to travel through the junction.

**Swept Path and Corner Radii**

3.172. Section 7.11 of DMRB CD123 indicates that "*The design of a signal-controlled junction shall allow for the swept turning paths of the design vehicle where provision is to be made for large goods vehicles*" and goes on to say "*The design should incorporate turning radii to cater for the swept paths of the worst case vehicle that can be reasonably expected to use the junction on a frequent basis*". I would note that this confirms that swept paths are part of the design standards for signal controlled junctions and the Appellant's failure to provide swept path plans that confirm that the design vehicle can stay within the confines of the carriageway (as described in detail above) mean that the design does not conform to DMRB standards.

**Traffic Islands and Pedestrian Facilities**

3.173. Note 4 of section 7.15.4 of DMRB CD123 refers to DMRB CD143 in relation to the design requirements for pedestrian islands while CD143 refers to LTN 2/95 which has recently been replaced by the Traffic Signs Manual (2019) Chapter 6 "Traffic Control" (Core Document 10-12). On review of this section of the manual, I would draw attention to paragraph 11.14.1 which states the following in relation to pedestrian facilities:

"*Providing no signalised pedestrian facilities at all at a junction should be seen as the exception. A lack of formal facilities requires pedestrians to judge for themselves when to cross while traffic is held, which can be intimidating for those not familiar with the junction, and especially for visually impaired people and mobility impaired people. Generally, this is only acceptable where levels of pedestrian demand are very low and the width to be crossed is narrow. Examples of where it may be justified are at sites where there are no footways, at tunnel control sites or at bus gates, particularly where part of the site is not signal-controlled."*

3.174. I find the above paragraph particularly relevant in my assessment of the proposed junction mitigation scheme represented by the Appellants drawing 1803047-17 Rev C where the pedestrian facilities have been shown as uncontrolled crossings rather than being included as formal crossings within the traffic signal layout. The layout provides an uncontrolled crossing on the east arm of the junction and also in the middle of the junction where a new pedestrian refuge island is proposed. I would note that pedestrians would have to cross a very busy junction uncontrolled and would require to cross three lanes of traffic at the location of the new island. The pedestrian crossing in the middle of the junction connects to a footway on the east side of the junction which is just 1.0m wide. Approximately, 2m to the north of the crossing alignment the footway width reduces to less than 0.5m which is significantly short of design standards.

3.175. I find it unacceptable that new pedestrian infrastructure such as the island should be provided when such a sub-standard footway forms part of the arrangement. The design should have sought to address this issue and made sure that due consideration was given to pedestrians in the overall design. The layout achieved, would in my view, present a very intimidating environment for pedestrians especially those waiting in the refuge island in the middle of the junction who would have to wait for an “intergreen” period before completing their crossing movement. The lack of street lighting at the junction also compounds the issue. The layout would be completely unworkable for those with visual impairments. The design standards indicate that uncontrolled pedestrian facilities should be delivered only by exception where pedestrian demand is low. The appellant has not offered any pedestrian count figures to justify this position so I must draw the conclusion that the proposed pedestrian facilities are completely inadequate and would pose significant safety concerns at this location where vehicle volumes are high.

3.176. In addition to inadequate pedestrian infrastructure, I also note that no consideration appears to have been given to cyclists within the design. I find that this lack of consideration goes against current guidelines and best practice. Section 11.1.1 of Traffic Signs Manual (2019) Chapter 6 “Traffic Control” (Core Document CD10-12) sets out an overview of the design process and states the following:

*"The design issues at signal-controlled junctions may be vehicular movement, delay and congestion problems, but crossing places at junctions are a key part of the network, providing a safe and reliable place to cross. The initial justification for signal control may still be a vehicular one but the needs of all road users should be taken into account in the final design. In recent years there has been an emphasis on encouraging walking and cycling, improving accessibility, and creating streets with a better sense of 'place' that encourages footfall. The provision of better crossing facilities is an essential part of this."*

3.177. I would be of the view that the proposed mitigation scheme proposed by the Appellant in Drawing 1803047-17 Rev C does nothing to address these objectives and guidance. It is a sub-standard and inappropriate layout which will give rise to operational problems and compromises pedestrian safety.

**Post Application Discussions and Submissions**

3.178. Following CDC's refusal of the Great Wolf application, the Appellant maintained dialogue with OCC, seeking to address the reasons given for refusal. During this period, the Appellant undertook further technical capacity assessments of the B430 / B4030 Middleton Stoney junction to evaluate the effects of the proposed Great Wolf mitigation scheme. Key outputs from this process were presented by the Appellant in Technical Note N08 (dated 27th February 2020) and Technical Note N09 (dated 30th July 2020 and then updated on 4 September 2020) (Core Documents CD10-22 and CD10-23).

3.179. The additional technical assessments undertaken at this stage evaluated the effects of the Great Wolf development trips and the effects of the Great Wolf Mitigation scheme for the B430 / B4030 Middleton Stoney junction. Key tables from Technical Notes N08 and N09 are reproduced, as follows.

3.180. Table 5.1 from Technical Note N08 further develops the outputs which are reported in the Appellant's TA, evaluating the effects of 2026 BTM traffic, committed developments and Heyford Park traffic with the proposed Heyford Park Phase 1 mitigation measures in place. The outputs in Table 5.1 do not take into account the effects of the Great Wolf development. While the table shows that as a result of the additional capacity afforded by the Heyford Park Phase 1 mitigation scheme, overall junction capacity is improved and levels of queuing are reduced, but the junction continues to operate well in excess of its theoretical capacity.

*Table 5.1 from Technical Note N08*

| Approach | AM Peak | | PM Peak | | Sat Peak | |
|---|---|---|---|---|---|---|
| | DoS | MMQ | DoS | MMQ | DoS | MMQ |
| B430 (south) | 114.8% | 70.4 | 95.8% | 15 | 59.1% | 4.7 |
| B4030 (east) | 114.3% | 41.40 | 95.6% | 21.8 | 58.3% | 9.1 |
| B430 (north) | 71.6% | 8.8 | 85.3% | 10.2 | 36.5% | 2.8 |
| B4030 (west) | 114.1% | 56.5 | 98.1% | 21.4 | 58.0% | 7.7 |
| PRC | -27.6% | | -9.0% | | +52.2% | |

3.181. Table 5.2 from Technical Note N08 replicates the scenario presented in Table 5.1 but shows the additional demands which are associated with the Heyford Park Phase 2 development. As above, this scenario reflects the additional junction capacity delivered through the Heyford Park Phase 1 mitigation package. While Table 5.1 demonstrated a degree of betterment as a result of the Heyford Park Phase 1 mitigation proposals, those benefits are eroded through the addition of trips associated with the Heyford Park Phase 2 development.

3.182. Table 5.2, which does not reflect any trips related to Great Wolf shows that the DoS values on all arms exceed 90% in both the AM and PM peaks, with levels of queueing increasing to as many as 125 vehicles.

*Table 5.2 from Technical Note N08*

| Approach | AM Peak | | PM Peak | | Sat Peak | |
|---|---|---|---|---|---|---|
| | DoS | MMQ | DoS | MMQ | DoS | MMQ |
| | | | | | | |
| B430 (south) | 131.7% | 112.6 | 109.0% | 36.7 | 59.1% | 4.7 |
| B4030 (east) | 133.1% | 79.50 | 111.0% | 50.4 | 58.3% | 9.1 |
| B430 (north) | 93.4% | 15.3 | 112.3% | 49.9 | 36.5% | 2.8 |
| B4030 (west) | 135.0% | 125 | 112.1% | 52.7 | 58.0% | 7.7 |
| | | | | | | |
| PRC | -50.0% | | -24.8% | | +52.2% | |

3.183. Table 5.3 from Technical Note N08 considers the addition of Great Wolf development trips and the effects of the Great Wolf mitigation proposals but does not represent any demand associated with Heyford Park phase 2. In that regard, Table 5.2 may be directly compared with Table 5.1 for the purposes of evaluating the benefits of the proposed Great Wolf mitigation prior to the addition of Heyford park Phase 2 trips. Overall, the junction remains over capacity, with DoS values in excess of 90% on both arms of the B4030 and on the B430 south during the AM peak. When compared with PRC values of -27.6% and -9% in Table 5.1 for the AM and PM periods, corresponding outputs in Table 5.3 show PRC values of -26.8% and -6.3%. Based on these model outputs, which assume the suitability and deliverability of both the Heyford Park Phase 1 and Great Wolf mitigation schemes, Technical Note N08 reports that the Great Wolf mitigation scheme can deliver a *No Net Detriment* outcome.

*Table 5.3 from Technical Note N08*

| Approach | AM Peak | | PM Peak | | Sat Peak | |
|---|---|---|---|---|---|---|
| | DoS | MMQ | DoS | MMQ | DoS | MMQ |
| | | | | | | |
| B430 (south) | 112.4% | 65.6 | 94.0% | 14.3 | 59.2% | 5.1 |
| B4030 (east) | 109.3% | 34.20 | 95.6% | 21.8 | 58.3% | 9.1 |
| B430 (north) (ahead, left) | 68.4% | 8.00 | 81.2% | 9.3 | 36.0% | 2.8 |
| B430 (north) (right) | 8.3% | 0.2 | 32.2% | 1 | 110.6% | 0.5 |
| B4030 (west) | 114.1% | 56.5 | 95.2% | 19 | 59.8% | 7.8 |
| | | | | | | |
| PRC | -26.8% | | -6.3% | | +50.5% | |

3.184. Table 5.4 from Technical Note N08 considers the addition of Heyford Park Phase 2 trips to the network which has been upgraded with both the Heyford Park phase 1 and Great Wolf mitigation proposals. Outputs in this table demonstrate that even in a scenario whereby both mitigation schemes are assumed to be deliverable, the addition of trips from both Phases of the permitted Heyford Park development and those from Great Wolf leads the junction to be considerably in excess of its theoretical capacity. PRC values for the AM and PM peaks are -46.5% and -23.4%, respectively and the reported DoS values on three of the four junction arms are well above 90% with the highest reported value being 131.7% on the B430 south in the AM peak. Mean Max Queuing outputs suggest queues of up to 118 vehicles in the AM peak on the B430 south and B4030 west.

3.185. Taking a "queued" car length as 6m, these outputs suggest a queue length of more than 700m on these arms.

*Table 5.4 from Technical Note N08*

| Approach | AM Peak | | PM Peak | | Sat Peak | |
|---|---|---|---|---|---|---|
| | DoS | MMQ | DoS | MMQ | DoS | MMQ |
| B430 (south) | 131.7% | 117 | 110.3% | 42.8 | 60.8% | 5.7 |
| B4030 (east) | 127.6% | 71.50 | 111.0% | 50.4 | 61.9% | 9.4 |
| B430 (north) (ahead, left) | 86.1% | 11.40 | 105.2% | 32.3 | 39.6% | 3.3. |
| B430 (north) (right) | 8.3% | 0.3 | 32.2% | 1 | 10.4% | 0.5 |
| B4030 (west) | 131.8% | 118.2 | 109.1% | 46.6 | 61.7% | 7.9 |
| PRC | -46.5% | | -23.4% | | 45.5% | |

3.186. I acknowledge that the additional modelling outputs presented in Technical Note N08 suggest that the Great Wolf mitigation package can deliver a theoretical betterment at the B430 / B4030 Middleton Stoney junction if one was to compare DoS, PRC and queuing values in isolation. However, on review of the submitted modelling, OCC found issues with some of the parameters that had been used in the construction of the traffic model. This led to updated modelling results which I comment upon in paragraphs 3.188 to 3.195 below.

3.187. Having examined the broad package of information associated with the Great Wolf application, I find that there are considerable issues relating to the safety and deliverability of the suggested Great Wolf mitigation scheme. While I acknowledge the outputs suggested by the LINSIG modelling exercise, my opinion is that the Great Wolf mitigation scheme cannot acceptably be delivered in its proposed form. I therefore find that the values reported in Technical Note N08 are somewhat academic, and likely to overstate the extent of any benefits afforded by the Great Wolf mitigation scheme especially in a situation where larger vehicles are having difficulty navigating through the proposed geometry.

3.188. Technical Note N09 was submitted on 30th July 2020 and reissued on 4 September 2020 (Core Document CD10-23), demonstrating the Appellant's ongoing efforts to address the concerns expressed by OCC, in particular comments made by OCC in their response dated 19th August (Appendix I). Note N09 provided further discussion in relation to the proposed Great Wolf mitigation scheme and included updated modelling outputs to reflect the content of the Heyford Park Phase 2 Transport Assessment Addendum (TAA).

3.189. While the TAA did not propose any amendments to the mitigation measures proposed by the Heyford Park Phase 1 application, it documented the following features, (as quoted in Paragraph 3.16 of Note N09 from the TAA):

- The introduction of a bus gate to the B4030 west arm of the junction and associated changes in the priority of the B4030/Unnamed Road Junction (west of Middleton Stoney). The Heyford Park TAA includes two options from the bus gate; one that provides a full restriction and one that provides a southbound only restriction.
- Introduction of a weight restriction on the B4030 east arm to reduce the number of HGVs using the junction; and
- A package of sustainable transport improvements including improved bus services between Heyford Park and Bicester, a cycle route between Heyford Park and Bicester and a Travel Plan which result in modal shift away from car usage and reduce the vehicle trip generation of the Heyford Park development proposals.

3.190. Table 5.1 in Technical Note N09 presented updated model outputs which included 2026 BTM demand, all committed development and demands associated with Heyford Park Phases 1 and 2. This scenario reflected the suggested effects of the TAA mitigation measures (as documented above). Table 5.2 presented corresponding outputs for a supplementary scenario which included Great Wolf demands and the highway amendments proposed by the Great Wolf mitigation scheme.

3.191. I note that neither Table 5.1 or Table 5.2 contain summary PRC statistics and as such I cannot draw final comparisons on that metric with earlier model outputs.

*Table 5.1 from Technical Note N09*

| Approach | AM Peak | | PM Peak | |
|---|---|---|---|---|
| | DoS | MMQ | DoS | MMQ |
| B430 (south) | 107.3% | 107 | 92.7% | 36 |
| B4030 (east) | 106.7% | 52 | 92.1% | 24 |
| B430 (north) | 75.0% | 11 | 92.5% | 27 |
| B4030 (west) | 86.7% | 5 | 44.8% | 2 |

3.192. When compared with the equivalent scenario from Technical Note N08 (N08, Table 5.2), I note that DoS and MMQ values are all reduced, suggesting that the measures contained in the Heyford park Phase 2 mitigation package introduce benefits. Notwithstanding any betterment afforded by the unapproved Heyford Park Phase 2 mitigation package, I would highlight that the junction remains in excess of its theoretical capacity, with DoS values in excess of 100% on the B430 (south) and B4030 (east) in the AM peak and, in the PM peak, DoS values in excess of 90% on all arms except the B4030 (west). While no summary PRC statistic is provided, the outputs in Table 5.1 suggest that users of the junction would continue to experience queuing and delay, even without Great Wolf trips.

*Table 5.2 from Technical Note N09 (with Great Wolf and Great Wolf Mitigation)*

| Approach | AM Peak | | PM Peak | |
|---|---|---|---|---|
| | DoS | MMQ | DoS | MMQ |
| B430 (south) | 108.7% | 117 | 92.8% | 37 |
| B4030 (east) | 107.8% | 56 | 95.4% | 26 |
| B430 (north) (ahead, left) | 37.5% | 9 | 67.4% | 20 |
| B430 (north) (right) | 75.0% | 2 | 92.9% | 8 |
| B4030 (west) | 86.7% | 5 | 44.8% | 2 |

3.193. The outputs presented in Table 5.2 suggest that following the addition of Great Wolf trips and with the Great Wolf mitigation package in place, increases in DoS and MMQ values occur during both peaks, further exacerbating conditions. This Table therefore demonstrates that even with the benefits which are assumed by the Heyford Park Phase 2 mitigation package, the Great Wolf mitigation measures are not capable of delivering a no net detriment outcome, with DoS values in excess of 100% on the B430 (south) and B4030 (east) and a reported queue length of 117 vehicles on the B430 (south). When you compare the results in Tables 5.1 and 5.2, the AM results clearly show that the Great Wolf Development has a negative impact on DoS and MMQ values at the junction. With the proposed mitigation scheme not providing a no net detriment situation and the junction operating well in excess of capacity, I have no other option to conclude that the proposed development continues to have a "severe" traffic impact even when the proposed Great Wolf mitigation scheme is accounted for in the modelling of the junction.

3.194. Even though the above results for the Great Wolf development fall short of mitigating the "severe" impact, I would note that the final results in Table 5.2 above are reliant on the combined outcomes of three separate schemes; namely the Heyford Park Phase 1 measures, (the final details of which have not yet been approved by OCC), the Heyford Park Phase 2 measures which are not supported by the Local Planning Authority (Minutes of planning committee contained within Appendix B to this PoE) and the Great Wolf mitigation package, with which OCC has serious reservations. I am therefore of the view that the stated results may be overstated as the nature of the mitigation, especially that associated with Heyford Park Phase 2 could materially change with the effect of changing flows at the B430 / B4030 Middleton Stoney Junction.

3.195. Given the Local Planning Authority's present stance in relation to the Heyford Park Phase 2 mitigation package (i.e. that they do not approve the mitigation package), I consider that the outcomes suggested by Table 5.2 remain academic. Such outcomes would only be deliverable in the event that all three suggested measures were approved and delivered. In view of my evidence relating to the layout, safety and operation of the Great Wolf proposals, such a scenario remains highly unlikely.

**Submitted Traffic Model for B430 / B4030 Middleton Stoney Junction**

3.196. Technical capacity assessments of the B430 / B4030 Middleton Stoney junction were undertaken by the Appellant using LINSIG software. LINSIG is the standard software tool for assessment of traffic light junctions and its application in the assessment of the Great Wolf proposals was agreed between the Appellant and OCC. Through their review of the TA and Technical Notes prepared after the application was refused, OCC has reviewed the LINSIG model, providing feedback to the Appellant, as required.

3.197. My evidence reflects on observations and concerns relating to the mitigation proposals presented by the Appellant. These points, which relate to junction design, operations and safety, are discussed in full in earlier in this section of my proof of evidence. Ultimately, my evidence supports the concerns expressed by OCC that the Great Wolf mitigation proposals are not deliverable in the form shown in Drawing 1803047-17.

3.198. Having reviewed the submitted modelling, I would offer the following observations, specifically relating to the LINSIG model. These comments do not seek to challenge or disregard the views presented by OCC through earlier technical reviews, rather they highlight how key modelling parameters might change as a result of my observations in relation to junction layout and operations.

3.199. LINSIG requires that users define junction intergreen settings to reflect the period between the termination of green on one traffic light phase and the commencement of green on another phase. In cases where arms of a junction are offset from one another, as is the case for the east and west arms of the B4030, a user may wish to adopt different intergreen values for 'straight through' movements and 'turning movements'. My own findings highlight that larger vehicles making turning movements at the junction would do so at a reduced speed, particularly as they negotiate the pedestrian refuge island. The Intergreen values adopted by the Appellant do not appear to take either point into account and I would suggest that increased values are required especially in a situation where pedestrians will be expected to cross the junction uncontrolled during the intergreen period.

3.200. I would also observe that adjustments to corner radius settings might be necessary, particularly in relation to the B4030 (west) arm which appears to have a radius which does not accord with the mitigation scheme drawing for the left turn between the B4040 (west) and B430 (north). The actual radius achievable appears to be less than that used in the model. In turn, this is likely to have a slight negative impact on the junction modelling results as a tighter radius reduces the rate of flow associated with that movement.

3.201. I note that the junction is configured with a cycle time of 180 seconds, with the staging set to enable a 'double-cycling' of the B430 north and south arms. I suggest that this approach reflects the relative imbalance of high demands on the B430 and relatively lower demands on the B4030. By implication, the minor arms (the B4030) appear to be called once every 360 seconds (six minutes). I would observe that for users of the B4030, this represents an unattractive and impractical cycle time. I would also observe that in the absence of a dedicated pedestrian stage, a cycle time of 360 seconds presents ambiguity to pedestrians who would reasonably expect crossing opportunities to present themselves more frequently.

3.202. I would finally draw upon the implications of any adjustments to the model configuration that may be deemed necessary through subsequent design stages. For example, if alternations to corner radii or lane widths are required, or if intergreen settings are altered to better reflect specific arrangements at this junction, it is likely that corresponding adjustments to the saturation flows on particular arms may change. Similarly, with respect to the junction cycle time and staging sequences, alterations which led to the B430 arms being called less frequently would reduce the overall throughput on those arms.

3.203. Mindful of these various considerations, I believe it is reasonable to state that in its present form, the LINSIG model is likely to overstate the performance of the B430 / B4030 Middleton Stoney junction. Were a more pessimistic set of parameters to be adopted, it is my view that key DoS, MMQ and PRC indicators would show less favourable results overall.

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## 4. CONSIDERATION OF APPELLANTS STATEMENT OF CASE

4.1. The Appellants' Statement of Case (SoC) (Core Document CD12-2) provides commentary on the issues, which are considered relevant to the appeal. This section of my Proof of Evidence considers those parts of the Appellants' SoC which are directly relevant to transport matters of concern to OCC and where appropriate, reference is made to previous sections of this Proof which respond in detail to the points raised.

4.2. Section 5 of the SoC sets out the "Grounds of Appeal" and paragraphs 5.12 to 5.15 seek to respond to Reason for Refusal 3 which relates to the B4030 / B430 junction at Middleton Stoney.

4.3. Paragraph 5.12 seeks to suggest that the reason for refusal is unjustified and CDC refused the planning application without permitting the Appellant a proper opportunity to address concerns with regard to the B430 / B4030 Middleton Stoney Junction. In response, I consider that the reason for refusal is entirely justified as the proposed development has a "severe" residual traffic impact at the junction and an unacceptable impact on safety as defined by NPPF Para 109. The Appellant has failed to submit an acceptable scheme of mitigation to address the impacts. It is noted that dialogue has continued after the refusal of planning permission but during this period, no agreement has been reached that would result in the Council removing this reason for refusal.

4.4. Para 5.13 of the Appellant's SoC refers to the Transport Assessment (TA) document submitted with the application. It states that *"The TA includes detailed junction capacity modelling considering the effect of the Proposed Development on the local road network and demonstrates that it will not result in a severe residual cumulative impact".* I do not agree with this statement and my evidence at Section 3 (paragraphs 3.48 to 3.91) clearly sets out the modelling results from the Appellant's TA submission that confirms that the proposed development will have a material and "severe" impact at the junction which requires to be mitigated and an unacceptable impact on road safety.

4.5. The first part of Para 5.14 of the Appellant's SoC indicates that the TA *"demonstrates that the Proposed Development will not result in a material change in vehicle trips at the B430 / B4030 Middleton Stoney Junction and therefore the Proposed Development will not result in a material impact on the operation of this junction"*. I don't accept this position and my evidence addresses the modelling of the junction at paragraphs 3.47 to 3.74. In particular, I would draw attention to paragraphs 3.60 and 3.80-3.81 where I provide my view on why even small fluctuations in traffic flow at a signalised junction can have a significant impact on queuing and delay.

4.6. The second part of Para 5.14 concerns the mitigation proposals at the junction. The Appellant states that the mitigation scheme will *"ensure that the Proposed Development will not have any impact at this junction*". This statement is simply not the case. The development will generate significant levels of daily traffic onto a junction which is already congested and predicted to become more congested when the traffic associated with the allocated Heyford Park development is factored in.

4.7. In addition to my views on the residual traffic impacts of the development at the junction, my evidence in section 3 concludes that the proposed scheme of mitigation is significantly below design standards, does not properly take account of other road users and would introduce pedestrian safety issues at the junction. As such, the proposed scheme of mitigation is unacceptable to OCC.

4.8. The final part of Para 5.14 of the Appellant's SoC refers to the additional technical note prepared by the Appellant's Transport Consultants dated 4th September and the summary of discussions with OCC (Appendix 4 of the SoC). I note that the technical note seeks to introduce additional information in relation to the B430 / B4030 Middleton Stoney junction including preliminary proposals for a signage strategy, a Stage 1 Road Safety Audit, swept path analysis, commentary on pedestrian provision at the junction and commentary in relation to the potential impact of Heyford Park Phase 2 works.

4.9. I have considered these additional matters in my evidence at paras 3.180 to 3.197 concluding that the additional information does nothing to change OCC's position that the residual impacts at the B4030 / B430 Middleton Stoney Junction are severe and the proposed mitigation scheme is unacceptable. I would comment that it actually reinforces OCC's position with regard to there being a "severe" impact at the junction.

4.10. Paragraph 5.15 of the Appellant's SoC states that the Appellant will *"demonstrate that the Proposed Development has been supported by a comprehensive and robust TA which demonstrates the acceptability of the Proposed Development with regard to all impacts on the road network and that the Proposed Development will not have any such material impact, including at the Middleton Stoney signalised junction and that the Appellant has proposed improvements to that junction in any event"*. My contrary position to this statement is that the TA has demonstrated that the Proposed Development will have a material and "severe" impact at the B430 / B4030 Middleton Stoney junction which requires mitigation. I consider that the TA did not propose any mitigation proposals at the junction and it was in a separate later submission that the Appellant proposed a scheme of mitigation. OCC has responded on the scheme of mitigation to indicate that they do not accept the mitigation scheme. My own review of the mitigation scheme found the proposals to be far from acceptable for the reasons set out in section 3 and in Para 4.7 above.

## 5. POLICY CONSIDERATIONS

5.1. This section of my proof of evidence compares the policies quoted in reason for refusal number 3 back to the proposed development in light of the evidence presented in earlier sections of the proof.

***National Planning Policy Framework (NPPF) (Core Document CD5-1)***

5.2. The key test for the proposed development in traffic impact terms is set out by Paragraph 109 of NPPF which states that development should only be refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

5.3. I find that the traffic assessment information submitted clearly shows that the development has a "severe" traffic impact on the B430 / B4030 Middleton Stoney Junction. A mitigation scheme has been put forward to try and address this severe impact but the submitted scheme is sub-standard when compared with the DMRB and introduces unacceptable impacts on highway safety. In the absence of a suitable mitigation scheme, the traffic impacts at the junction remain "severe" and therefore contrary to Paragraph 109 of the NPPF.

**Cherwell District Council – Cherwell Local Plan 2011-2031 (Core Document CD5-3)**

***Policy SLE 4 "Improved Transport and Connections"***

5.4. Policy SLE 4 sets out the Council's vision for improved transport connections and measures to achieve modal shift. With regard to development, the policy (Page 55) states the following:

*"All development where reasonable to do so, should facilitate the use of sustainable modes of transport to make the fullest possible use of public transport, walking and cycling. Encouragement will be given to solutions which support reductions in greenhouse gas emissions and reduce congestion.*

*"Development which is not suitable for the roads that serve the development and which have a severe traffic impact will not be supported".*

5.5. The reality is that it the proposal is a largely car-borne development with a high number of car parking spaces and a high volume of traffic generation on a daily basis. A proportion of the generated traffic will pass through the village of Middleton Stoney and will pass through the B430 / B4030 Middleton Stoney junction which already experiences congestion problems.

5.6. The proposed development is being brought forward at a time when the allocated Heyford Park development is coming forward which also has a significant impact at the B430 / B4030 junction. For the latest Heyford Park application (Phase 2), the scheme of mitigation at the Middleton Stoney junction has not yet been agreed and further work is to be done to try and reach agreement with OCC on the nature of such a scheme. I therefore find that the additional traffic impacts introduced by the proposed development, to a junction predicted to operate way beyond its capacity in the future, potentially compromise the delivery of the allocated site and its associated mitigation proposals for the B430 / B4030 Middleton Stoney junction. Even with the current unapproved Heyford Park mitigation scheme taken into account, the modelling presented by the Appellant to simulate a scenario where the proposed development flows and proposed mitigation scheme are added, does not demonstrate a no net detriment outcome. The traffic impact of the development therefore remains as "severe" and contrary to NPPF Paragraph 109.

5.7. Taken in isolation, the development has a "severe" traffic impact which has not been mitigated at a junction which is already operating well over capacity. An unsuitable, unsafe and sub-standard mitigation proposal has been submitted which has been found to be unacceptable for a number of reasons set out in my evidence. I am therefore firmly of the view that the proposed development falls into the category set out by the last part of Policy SLE4 and cannot be supported under this policy:

*"Development which is not suitable for the roads that serve the development and which have a severe traffic impact will not be supported".*

***Policy ESD15 "The Character of the Built and Historic Environment"***

5.8. CDC's Landscape witness, Mr David Huskisson will lead evidence on this matter

***Saved Policy TR7 "Development attracting traffic on minor roads".***

5.9. Saved Policy TR7 concerns consideration of development that regularly generates large numbers of commercial vehicles or cars onto unsuitable local roads. The relevant policy wording that should be considered in terms of the Appeal site is from para 5.25 of Policy TR7:

*"In order to protect the amenities of the plan area, and in the interests of highway safety, development likely to create significant traffic flows will normally, subject to consideration of other policies in this Plan, be expected to have good access to the major through routes or County inter-town routes identified in the Structure Plan or other principal roads"*

5.10. With regard to this policy, I find that the proposed development will generate daily traffic impacts onto the "B" Class local roads running through Middleton Stoney. The already congested nature of the road network through Middleton Stoney and the already sub-standard nature of the B4030 / B430 junction make the addition of development generated traffic a key consideration. I am of the view that the proposed development is contrary to saved policy TR7 as the development will generate regular traffic onto a part of the network that unsuitable to carry additional traffic and no acceptable mitigation scheme has been submitted to address the impacts of this traffic.

**Oxfordshire County Council – Local Transport Plan (LTP4) (2016) (CD5-6)**

5.11. Policy 17 of the Local Transport Plan (LTP4) is stated in Reason for Refusal 3 with the policy stating the following:

*"Oxfordshire County Council will seek to ensure through cooperation with the districts and city councils, that the location of development makes the best use of existing and planned infrastructure, provides new or improved infrastructure and reduces the need to travel and supports walking, cycling and public transport."*

5.12. The matter for consideration within my evidence is whether the development makes best use of “existing and planned” infrastructure. Having reviewed all the submitted information, I am of the view that the proposed unallocated Appeal site does not make best use of road network capacity at the B430 / B4030 Middleton Stoney junction in a situation where committed development (and allocated) proposals at Heyford Park also rely on the existing network at this location. In light of the geometric constraints at the junction, delivery of a physical scheme of mitigation has proved very difficult and even with Heyford Park mitigation in place, the junction is expected to operate well in excess of capacity.

5.13. I am therefore of the view that the proposed development would take up existing capacity at the B430 / B04030 Middleton Stoney Junction exacerbating existing problems and would reduce the effectiveness of the planned infrastructure improvements associated with Phase 1 of the Heyford Park development. With no acceptable mitigation proposals forwarded by the Appellant, I find that the proposed development is contrary to Policy 17 of the LTP4.

## 6. CONCLUSIONS

6.1. With specific reference to highways policy, NPPF paragraph 109 (page 32) states that development should only be refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

6.2. In my opinion, the work produced does not demonstrate that the residual cumulative impacts upon the road network are not severe.

6.3. The submitted Transport Assessment and subsequent technical notes all demonstrate that the proposed development, which is an unallocated site, will have a “severe” impact on the operation of the B430 / B4030 Middleton Stoney junction that requires mitigation.

6.4. The impacts of the development are further compounded by the cumulative impacts introduced by the Heyford Park Phase 1 development and the recently consented Heyford Park phase 2 development. These proposals are part of a strategic local plan allocation and when the proposed development flows are added to the Heyford Park flows, we are faced with significant problems at the B430 / B4030 Middleton Stoney junction which are very difficult to mitigate as a result of the existing tight geometry and adjacent constraints which prevent any easy fixes with regard to the provision of additional road space.

6.5. A scheme of mitigation has been forwarded by the Appellant for the B430 / B4030 Middleton Stoney junction in order to try and address the “severe” traffic impacts. I have examined this scheme and find it to fall short of design standards and I find that its implementation would introduce significant and unacceptable road safety matters particularly around pedestrian safety. The appellant has also failed to demonstrate that the mitigation scheme provides a no net detriment solution at the junction in terms of the submitted traffic modelling.

6.6. It is therefore considered that the evidence presented by the Appellant is not sufficient to demonstrate compliance with the requirements of transport policy, in particular NPPF paragraph 109. I find that residual cumulative impacts of the development upon the off-site highway network upon an already congested location at Middleton Stoney are considered severe; as a result of the daily trip generation impacts from the development and as a result of the proposed mitigation scheme being ineffective and unacceptable in addressing these impacts.