

Vale of White Horse Local Plan 2031 Part 2
Partial Review of the Cherwell Local Plan 2011-2031
Statement of Common Ground (Addendum)
between
Vale of White Horse District Council
and
Cherwell District Council
29 June 2018

1. Introduction

- 1.1. This Statement of Common Ground (SoCG) Addendum has been prepared by Vale of White Horse District Council (VOWH) and Cherwell District Council hereafter referred to as “the parties”. It concerns the Vale of White Horse Local Plan 2031 Part 2 and the Partial Review of the Cherwell Local Plan 2011-2031.
- 1.2. This SoCG reflects and confirms the current position agreed by both parties with regard to Habitats Regulations Assessment (HRA) and is an addendum to the SoCG agreed between the parties on 27 April 2018.
- 1.3. This statement is provided without prejudice to other matters of detail that the parties may wish to raise during their respective examinations.

2. Matters on which the parties agree

Habitats Regulations Assessment

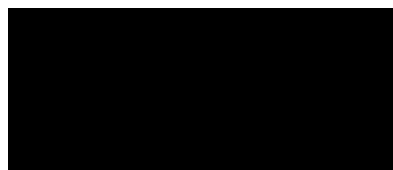
Oxford Meadows SAC – Air Quality

- 2.1. Vale of White Horse District Council and Cherwell District Council have worked collaboratively on this strategic matter in recent months. A memo was jointly submitted by both Councils to Natural England on 10 May 2018.
- 2.2. The analysis presented in the memo concludes that the changes in NOx levels arising from both local plans will not have an adverse effect on the integrity of Oxford Meadows SAC.
- 2.3. Natural England confirmed , "... we are satisfied with the conclusion that the changes in NOx levels arising from Vale and Cherwell Local Plans will not have an adverse effect on the integrity of Oxford Meadows SAC. We advise that the Local Plan Appropriate Assessments are updated accordingly..."

- 2.4. The joint memo and the subsequent response from Natural England are included in Appendix B and Appendix C of the Vale HRA (June 2018) (Final)¹, and appended to this SoCG. They will also be included in an update being prepared to the Cherwell HRA.

Signatures

Signed on behalf of Vale of White Horse District Council



Adrian Duffield
Head of Planning

29/06/2018

Signed on behalf of Cherwell District Council



Adrian Colwell
Executive Director for Place and Growth

¹ Vale Examination Library Reference: **CSD08.4**

Appendix A: Memo from Atkins to Natural England regarding air quality effects at Oxford Meadows SAC from growth in Cherwell and Vale of White Horse in combination.

Memo

To:	Sharon Whiting		
From:	Jennie Godwin	Email:	[REDACTED]
Phone:	[REDACTED]	Date:	09 May 2018
Ref:	Cherwell HRA - Natural England Consultation	cc:	David Peckford, Ronan Leydon, Sarah Horrocks, James Riley
Subject:	Examination of predicted change in traffic in Cherwell and Vale of White Horse with proposed Local Plan Development		

Introduction

As expressed in Marc Turner's email to you (dated 23/02/2018) and Rebecca Micklem's response (dated 15/03/2018) to your further correspondence, Natural England is concerned about the potential for additional development identified in Cherwell's Local Plan Part 1 Partial Review (LPP1 PR), in-combination with that identified in Vale of White Horse's (VoWH) LPP2, to result in an adverse effect on the integrity of the Oxford Meadows Special Area of Conservation (SAC) (specifically, Wolvercote Meadows). This note presents additional evidence to assist Natural England in reaching a conclusion.

Background

Cherwell and VoWH have each submitted assessments of expected changes in air quality (including NOx concentrations and nitrogen deposition) at Oxford Meadows SAC as a result of proposed local plan development within their Habitats Regulations Assessments (HRA) over the past six or so years. The most recent submission by Cherwell was published in June 2017¹, which included an assessment of expected changes in air quality near the A40 and A34 through the Oxford Meadows SAC, due to the implementation of additional housing identified in the Cherwell LPP1 PR. This assessment used the results of atmospheric dispersion modelling² to conclude that there would be no likely significant effects on the SAC as the critical load for nitrogen deposition (N dep) was not exceeded and the change in N dep with the additional development was less than 1% of the critical load.

The most recent air quality assessment that VoWH has published was prepared in support of their LPP1 in 2015³. This work concluded that, as a result of all the possible development in VoWH, (a worst case development scenario) in 2015, there would be no likely significant effect on Oxford Meadows SAC. The modelling work was based on the simple DMRB screening tool and processing tools available at the time of the assessment.

In their most recent HRA for LPP2⁴, VoWH indicated that further air quality assessment work would be done through the Oxfordshire Growth Board and concluded that because the LPP1 assessment showed inconsequential changes with the highest possible growth scenario, the limited additional development with LPP2 was unlikely to change these findings.

Approach

As described in the introduction, Natural England is concerned about the potential for additional development identified in Cherwell's LPP1 Partial Review, in-combination with that identified in VoWH LPP2, to result in an adverse effect on the integrity of the Oxford SAC. It is not appropriate to combine the output from the VoWH air quality assessment (2015) with the most recent air quality assessment for Cherwell's LPP1 PR (June 2017) as the assessments were based on different modelling methodologies and different tools, including emission rates. It is, however, reasonable to use the outputs from the dispersion modelling undertaken for Cherwell's LPP1 PR to examine the forecast change in NOx concentration associated with a certain change

¹ Partial Review of the Cherwell Local Plan 2011-2031 (Part 1): Oxford's Unmet Housing /needs, Propose Submission Plan – Habitat Regulations Assessment – Screening Report, Cherwell District Council, June 2017

² ADMS Roads v4.0, EFT v 7.0, Defra NOx to NO2 calculator v5.1, and Defra's 2013 based background maps. These tools were superseded in November 2017 with an update to the background maps (2015 base year) which are now available for new assessments. There is no expectation that the modelling presented in the HRA needs to be updated.

³ Vale of White Horse LPP1 Submissions Document, Habitats Regulations Assessment, February 2015

⁴ Vale of White Horse LPP2, Habitats Regulations Assessment, October 2017

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in traffic flow, and from that determine how much additional traffic (i.e. in combination with VoWH LPP2 development) would need to be added to the A40 and the A34 through Oxford Meadows SAC to result in a change in N dep of more than 1% of the critical load. This will provide Natural England with insight as to the likelihood that a traffic change near to the SAC associated with VoWH LPP2 could cause a change in air quality that could have an adverse effect on integrity of the SAC.

The traffic conditions assessed within the Cherwell LPP1 PR HRA (June 2017) have therefore been considered and from this, the volume of development traffic that would be required to change the outcome of the assessment has been determined. This traffic volume has then been compared to the volumes associated with VoWH LPP2.

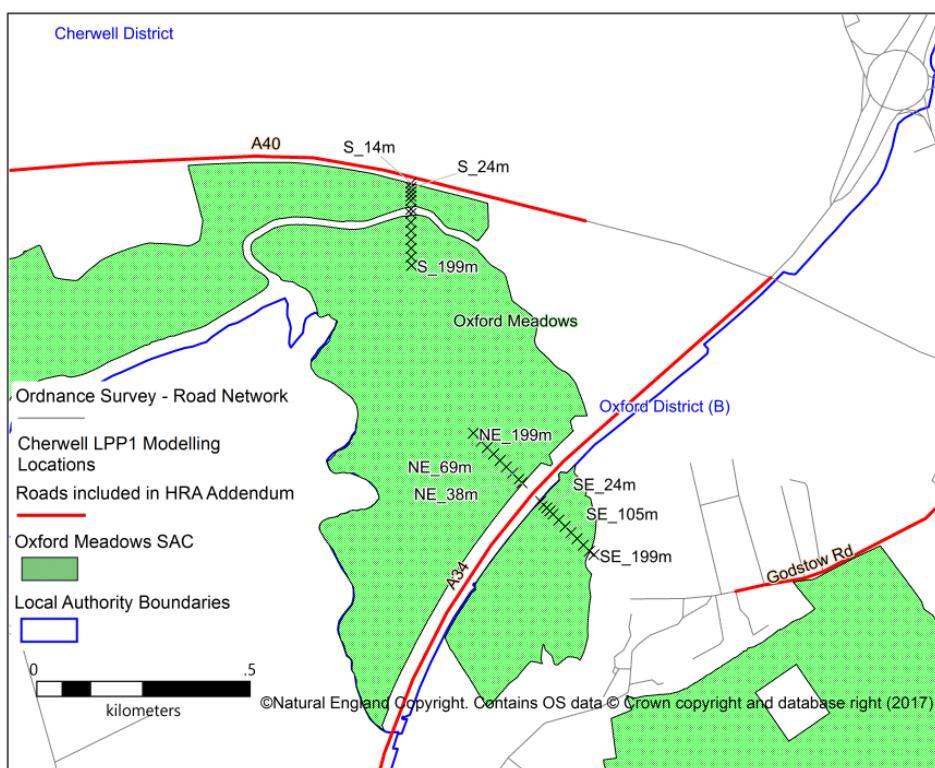
The Cherwell LPP1 PR HRA examined the change in air quality as a result of the traffic change between:

- All local authorities' planned and permitted developments (Table 1 below), which includes Cherwell's Local Plan development and VoWH LPP1 development as well as the traffic for the committed development for Oxford, South and West Oxfordshire authorities, available in February 2017; and
- Cherwell's Scenario 4, which is all the Local Plan development plus 4,400 additional dwellings for Oxford's Additional Unmet Need and additional Cherwell policies to mitigate the additional traffic generated, including the Cycle Super Highway.

Tables 1 and 2 show the proposed housing and employment figures for these two scenarios, which were used to generate traffic flow estimates on the A40 and A34 with the Oxfordshire Strategic Traffic Model in Spring 2017. This analysis produced the traffic estimates shown in Tables 3 and 4, which were used to determine the change in air quality as a result of the LPP1 PR in Cherwell. In addition, the table compares the latest traffic estimates with data published in previous HRA assessments.

The tables show that, since work was done to prepare the Reference Scenario (first used in the Cherwell HRA in 2012) future traffic flow estimates have gone down rather than up. This is believed to be due to a combination of lower national growth forecast factors and less favourable UK economic conditions. Therefore, the latest forecast traffic flows on the A40 and A34 with Cherwell and VoWH approved local plans in place are lower than the 2030 Reference Scenario used in the assessment of the Cherwell HRA 2012 assessment in 2012.

Figure 1 Map of air quality dispersion modelling locations examined in Cherwell's LPP1 HRA.



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Findings

Oxides of nitrogen

The changes in NO_x concentrations within the Oxford Meadows SAC have been examined along three transects. The total NO_x concentrations for the Do Minimum (DM) scenario and the change with LPP1 PR Do Something (DS) at distances up to 200 metres from the A40 and the A34 centrelines, as published in the Cherwell LPP1 PR HRA, are summarised in Table 5. These data have been explored to determine the following:

- How much additional traffic would result in a change of 1% in NO_x concentration within the SAC;
- How much additional traffic would result in a change exceeding the NO_x critical level within the SAC;
- How much of the SAC would be included in areas subject to a >1% change in NO_x concentration and/or exceedence of the NO_x critical level with all traffic scenarios.

Table 5 shows that for the area of Oxford Meadows SAC within 200 m of the A40, the critical level for NO_x of 30 µg/m³ is exceeded in the Base scenario, however there is no exceedance in either the DM and DS scenarios with Cherwell LPP1 PR development (2031).

A change in NO_x concentration equivalent to 1% of the critical level would occur with an increase in traffic flow greater than 677 AADT, however, the SAC area affected by a change of this magnitude would be limited to that between the road boundary and a line 24m from the A40 road centreline, as shown in Figure 2. The (unknown) additional traffic associated with VoWH additional 3,420 housing units would need to exceed 7,000 AADT on the A40 for the NO_x critical level to be exceeded. As the additional traffic resulting from 4,400 additional housing units detailed in Cherwell's LPP1 PR is shown in Table 4 to be 1,129 AADT on the A40 and 1,008 AADT on the A34, this is considered to be an unlikely scenario.

The results for the A34 transects, presented in Table 5, indicate that NO_x concentrations at the Oxford Meadows SAC boundary closest to the A34 exceed the critical level in the Base, DM and DS scenarios. The AADT changes with Cherwell LPP1 PR development result in an increase in NO_x of up to 1% of the critical level at the SAC boundary.

To examine the impact that additional traffic from VoWH additional 3,420 housing units might have on the air quality conditions modelled with Cherwell's LPP1 PR development, a hypothetical increase of 10,000 AADT was determined using the relationship established between Cherwell DM and DS scenario and factoring up to +10,000 AADT. The results are shown in Table 6. The area of the SAC affected by a) changes in NO_x equivalent to more than 1% of the critical level and b) NO_x concentrations above the critical level, are also examined in Table 6.

For the A40, the change of more than 1% applies for the first 10 m into the SAC, up to 24 m from the A40 road centre line, as shown in Figure 3. This is equivalent to 0.3% of the total SAC area. The NO_x critical level is not exceeded anywhere within this part of the SAC.

For a hypothetical increase in AADT of 10,000 on the A40 with VoWH LPP2, there would be a change in NO_x of more than 1% of the critical level up to 200 m from the road edge, as shown in Figure 3 including 6.6% of the SAC area. However, the area subject to an exceedence of the critical level would only extend up to 24 m from the road centre line as shown in Figure 2. This hypothetical change in critical level affects 0.3% of the SAC area as a whole. It also underlines the premise that a change of 1% of the critical load should not necessarily be interpreted to indicate a 'likely significant effect'.

On the A34, the change in NO_x with Cherwell LPP1 PR vs Do Minimum does not exceed 1% of the critical level. The critical level is, however, exceeded up to 69 m to the north west and 105 m to the south east of the A34 in both future scenarios, i.e. with or without LPP1 PR, affecting a combined total of 1.4% of the SAC as shown in Figure 2; beyond this distance NO_x concentrations reduce below 30 µg/m³.

For a hypothetical increase in AADT of 10,000 with VoWH LPP2, again the distance within the SAC affected by a change of more than 1% of the critical level extends up to 200 m of the road edge affecting 8.6% of the SAC in total, as shown in Figure 3. There is no change in the area exceeding the critical level where it is exceeded up to 69 m north west and 105m to the south east of the A34 as a result of this hypothetical additional development traffic, as shown in Figure 2. Further support for the premise that there is no 'likely

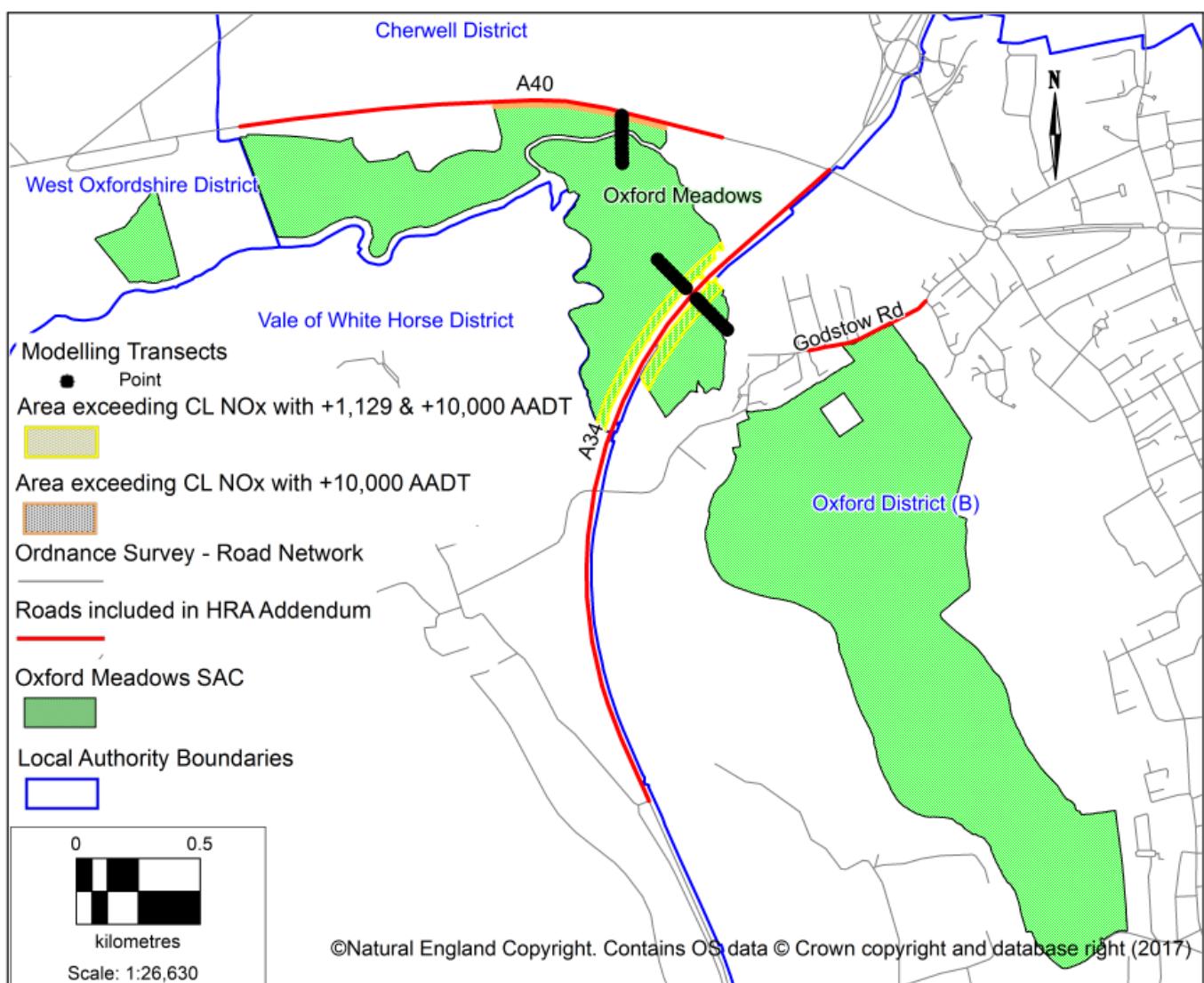
Memo

significant effect' on air quality conditions in the SAC from the potential additional traffic attracted by VoWH LPP2 development.

At annual average concentrations below approximately $100 \mu\text{g}/\text{m}^3$, NOx is essentially a source of deposited nitrogen rather than a toxic compound and for this assessment, concentrations for the Base, DM and DS scenarios are all below that level (and only slightly above the critical level).⁵

On the above basis, the changes in traffic in Cherwell and Vale of White Horse with proposed Local Plan development are unlikely to result in increases in NOx concentrations of 1% or more of the critical level, however, where they do, the resulting changes in total NOx concentrations are unlikely to have an adverse effect on the integrity of the Oxford Meadows due to the limited extent of the affected area relative to the total SAC.

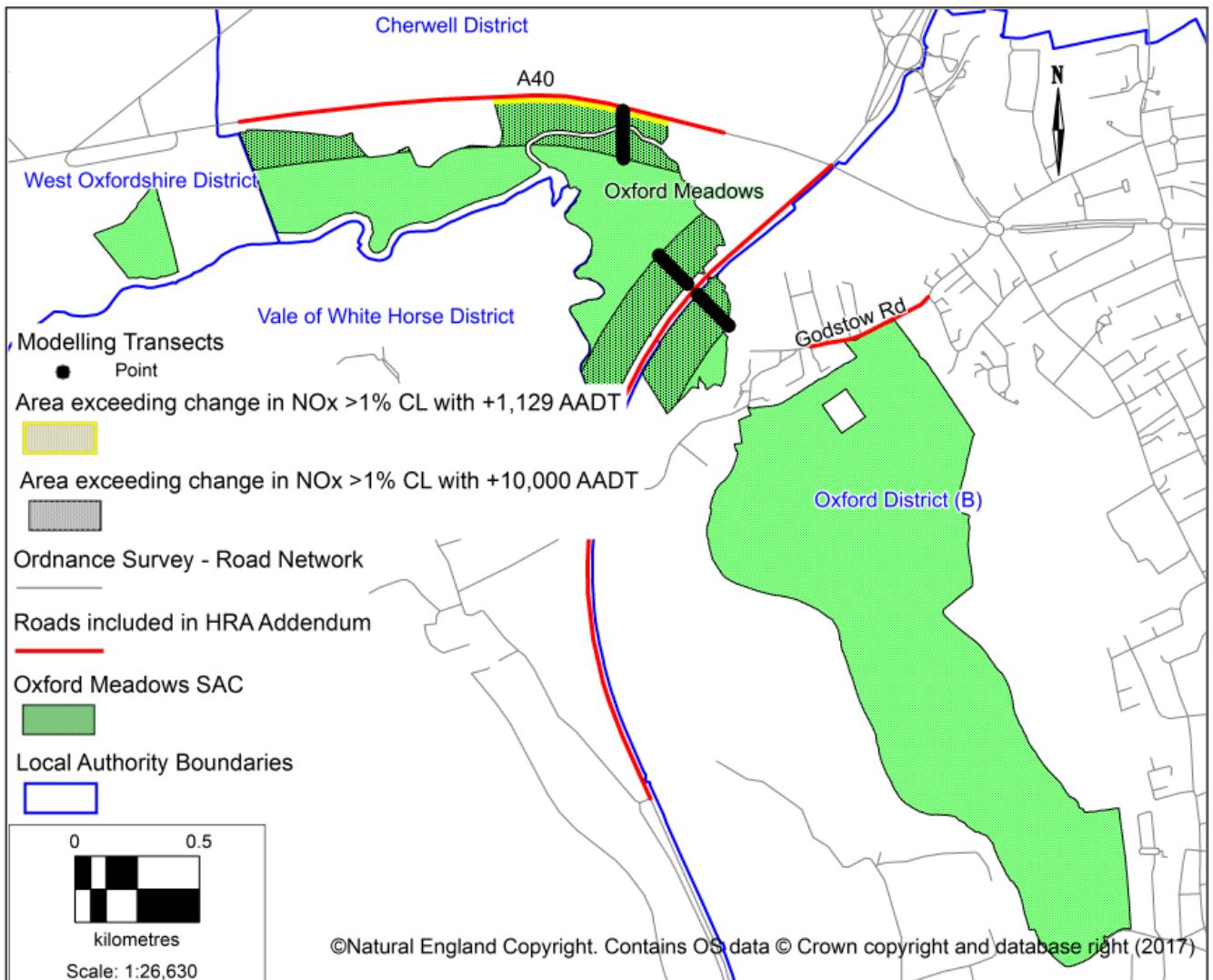
Figure 2 Area of the Oxford Meadows SAC exceeding the NOx critical level (CL) for Vegetation of 30 $\mu\text{g}/\text{m}^3$



⁵ WHO Regional Office for Europe, Copenhagen, Denmark, 2000. Air Quality Guidelines – Second Edition. Chapter 11, Figure 2, indicates that exposure to annual average concentrations below $100 \mu\text{g}/\text{m}^3$ are unlikely to cause direct biochemical or physiological effects based on the available studies'

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Figure 3 Area of the Oxford Meadows SAC with change in NOx concentration greater than 0.3 µg/m³



Nitrogen deposition

The total N dep rate for the Do Minimum scenario, and the change in N dep at the closest point between the Oxford Meadows SAC and the A40 and the A34, published in the Cherwell LPP1 PR HRA, are presented in Table 7. This calculation used the modelled change in N dep to determine how much traffic flows would need to increase by to result in a 1% increase in N dep rate. If the contribution of N dep were to increase by 1%, this does not necessarily indicate a 'likely significant effect', however such a level of change would suggest further examination or assessment is required.

The additional traffic resulting from 4,400 additional housing units, detailed in Cherwell's LPP1 PR is shown in Table 4 to be 1,129 AADT on the A40 and 1,008 AADT on the A34. The additional traffic associated with VoWH additional 3,420 housing units therefore would need to exceed 9,000 AADT on the A40 and 10,000 AADT on the A34 to result in an increase in N dep rate of 1%, which might require further assessment to identify any potential adverse effect on site integrity.

On the above basis, therefore, the changes in traffic in Cherwell and Vale of White Horse with proposed Local Plan development are unlikely to result in increases in N deposition of 1% or more.

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Table 1. Do Minimum Scenario including all of VoWH and Cherwell Local Plan Development without Additional Housing

Developments 2031	Oxford	Cherwell	Vale	South	West	TOTAL
Houses	6,695	21,132	21,739	10,791	5,088	65,445
Jobs	30,267	41,434	26,379	4,135	12,182	114,398

Table 2. Cherwell Scenario 4 – Do Minimum + 4400 additional dwellings and traffic mitigation policies

Developments 2031	Oxford	Cherwell	Vale	South	West	TOTAL
Houses	6,695	25,122	21,739	10,791	5,498	69,845
Jobs	29,967	41,434	26,379	4,135	12,182	114,098

Table 3. Traffic data input for air quality assessment presented in HRA by Cherwell and VoWH

Link Name	2013 Base			2030 Reference Scenario used in VoWH and 2012 Cherwell HRA assessment			2031 Cherwell LPP1 DM* = (with Cherwell LP & VoWH LPP1)			2031 Cherwell LPP1 DS^ = 'Transport Improvement Package 2 and Super Cycle Route'			Additional VoWH LPP2 development		
	AADT	%HGV	Speed (kph)	AADT	%HGV	Speed (kph)	AADT	%HGV	Speed (kph)	AADT	%HGV	Speed (kph)	AADT	%HGV	Speed (kph)
A40 (W of A34)	20,022	2.7	55.8	25,033	6.3	54	21,819	4.3	45.5	22,948	4.2	43.4	TBC		
A34 (S of A40)	83,196	2.5	67.8	102,593	12.7	68	96,296	2.4	64.2	97,304	2.4	64	TBC		

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Table 4. Changes in traffic assessed for HRA and used in this memo

Link name	Cherwell LP & VoWH LPP1 (DM) minus Ref Scenario from 2012 assessment	Cherwell LPP1 with improvements (DS) minus Ref Scenario	Cherwell LPP1 with improvements (DS) minus Cherwell LP & VoWH LPP1 (DM)	VoWH LPP2 minus Cherwell LP & VoWH LPP1 (DM)	Increase in AADT giving a 1% increase in N dep [#]
A40 (W of A34) Change in AADT	-3,214	-2,085	+1,129	TBC	+9,000
A34 (SE of A40) Change in AADT	-6,297	-5,289	+1,008	TBC	+10,000
Comment	Change in traffic with already approved plans in place compared to the Reference Scenario i.e. the Reference Scenario overestimated future flows	Change in traffic with Cherwell's LPP1 in place (with already approved plans) compared with Reference Scenario i.e. the Reference Scenario overestimated future flows	Change in traffic with Cherwell's LPP1 in place compared to existing approved plans and found not to have a likely significant effect on Oxford Meadows SAC	TBC - the change in traffic that additional housing as a result of VoWH's LPP2 will have, compared with existing approved plans	Change in traffic that would need to happen to result in a 1% increase in N dep. Smaller changes in traffic would likely be judged as insignificant.

The calculation used to determine the change in N dep as a result of changes in traffic data is set out in Table 5 below

Memo

Table 5. Relationship between change in traffic and NOx concentration at Oxford Meadows SAC*, based on detailed dispersion modelling results

Link name	Base Total NOx at SAC boundary, ($\mu\text{g}/\text{m}^3$)	DM Total NOx at SAC boundary, ($\mu\text{g}/\text{m}^3$)	DS Total NOx at SAC boundary, ($\mu\text{g}/\text{m}^3$)	Change in NOx at SAC boundary, DS-DM ($\mu\text{g}/\text{m}^3$)	Cherwell LPP1 traffic change, DS-DM (AADT)	1% of NOx critical level (CL)	AADT Factor	Change in AADT giving NOx > 1% CL at SAC boundary	Change in NOx giving >30 $\mu\text{g}/\text{m}^3$ at SAC boundary	Change in AADT giving >30 $\mu\text{g}/\text{m}^3$ at SAC boundary
	(1)	(2)	(3)	(4) = (3)-(2)	(5)	(6) = 30*0.01	(7) = (6)/(4)	(8) = (7)*(5)	(9) = 30-(2)	(10) = (5)*(9)/(4)
A40-14m S transect	49.7	26.9	27.4	0.5	+1,129	0.3	0.6	+677	+3.1	7,000
A34-38m NW transect	63.0	31.9	32.0	0.1	+1,008	0.3	3.0	+3,024	n/a	CL exceeded in DM
A34-24m SE transect	87.8	48.3	48.6	0.3	+1,008	0.3	1.0	+1,008	n/a	CL exceeded in DM

* Where SAC boundary is quoted in the table, this is the point on the SAC boundary closest to the road in question. See Figure 1

- DM Total NOx concentration and change in NOx concentration are reported in the air quality assessment, Appendix C, Partial Review of the Cherwell Local Plan 2011-2031 (Part 1): Oxford's Unmet Housing /needs, Propose Submission Plan – Habitat Regulations Assessment – Screening Report, Cherwell District Council, June 2017
- This calculation assumes a linear relationship between increasing traffic and increasing NOx concentration. This is valid for a single location where the change is from a substantial amount of traffic to a slightly larger flow with no change to road layout, speed or vehicle composition. It would not be the case for all assessments.

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Table 6. Calculation of area of SAC affected by change in NOx concentration at Oxford Meadows SAC

Link name	Future development scenario*	Associated traffic change (AADT)	Change in NOx at SAC boundary ($\mu\text{g}/\text{m}^3$)	Change in NOx as % of CL	Distance from road within SAC with change in NOx > 1% CL (m)	Total SAC area with change > 1% CL (DS) ^	Distance from road within SAC with NOx CL exceedance	% of total SAC area with NOx CL exceedance (DS) ^	Change in % area affected DS vs DM^
A40-14m S transect	Cherwell LPP1 DS	+1,129	0.5	1.7	14-24	0.7 ha (0.3% of SAC)	n/a	n/a	n/a
	VoWH LPP2#	+10,000	4.4	15	14-199	17.5 ha (6.6% of SAC)	14 to 24	0.7 ha	+0.3%
A34-38m NW transect	Cherwell LPP1 DS	+1,008	0.1	0.3	n/a	0	38-69	1.3 ha (0.5% of SAC)	0
	VoWH LPP2#	+10,000	1.0	3.3	38-199	14.4 ha (5.4% of SAC)	38-69	1.3 ha	0
A34-24m SE transect	Cherwell LPP1 DS	+1,008	0.3	1.0	n/a	0	24-105	2.5 ha (0.9% of SAC)	0
	VoWH LPP2#	+10,000	3.0	10	24-199	8.6 ha (3.2% of SAC)	24-105	2.5 ha	0

* Where SAC boundary is quoted in the table, this is the point on the SAC boundary closest to the road in question. See Figure 1

Estimates for VoWH LPP2 are hypothetical as traffic data is not yet available. These estimates are provided to give an indication of scale of change in NO_x only.

^ Estimates of area affected are based on measurements in square kilometre as compared to the area of Oxford Meadows SAC which, in accordance with the Improvement Programme for England's Natura 2000 Sites (IPENS) Site Improvement Plan is 265.89 ha

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Table 7. Relationship between change in traffic and N dep at Oxford Meadows SAC, based on detailed dispersion modelling results

Link name	Cherwell LPP1 with improvements (DS) minus Cherwell LP & VoWH LPP1 (DM), (AADT)	Total N dep at SAC boundary closest to road (DM)	Change in N dep at SAC boundary closest to road due to change in AADT	Change in N dep resulting in a 1% increase compared with DM at closest point	Factor = Change with 1% / Actual Change	Factor * Cherwell change in AADT = Change in AADT giving a 1% increase in N dep
A40-14m S transect	+1,129	18.6	0.024	0.186	8	+9,000
A34-38m NW transect	+1,008	13.7	0.008	0.137	17	+17,000
A34-24m SE transect	+1,008	14.5	0.014	0.145	10	+10,000

- DM Total N dep and change in N dep are reported in the air quality assessment, Appendix C, Partial Review of the Cherwell Local Plan 2011-2031 (Part 1): Oxford's Unmet Housing /needs, Propose Submission Plan – Habitat Regulations Assessment – Screening Report, Cherwell District Council, June 2017
- This calculation assumes that there is a linear relationship between increasing traffic and increasing N dep. This is valid for a single location where the change is from a substantial amount of traffic to a slightly larger flow with no change to road layout, speed or vehicle composition. It would not be the case for all assessments.

Appendix B: Natural England response to Atkins memo

From: Micklem, Rebecca (NE)

Sent: 25 May 2018 10:45

To: Sharon Whiting; Turner, Marc (NE)

Cc: 'Godwin, Jennie A'; 'Sarah.Horrocks@████████'; Riley, James D (Basingstoke); David Peckford; Leydon, Ronan; 'Alex.Watson@████████'

Subject: RE: Air Quality data for Oxford Meadows

Dear Sharon,

Thank you for providing the in-combination assessment of NOx levels for Vale of White Horse and Cherwell District Council Local Plan work. Having reviewed the data, I can confirm that we are satisfied with the conclusion that the changes in NOx levels arising from Vale and Cherwell Local Plans will not have an adverse effect on the integrity of Oxford Meadows SAC. We advise that the Local Plan Appropriate Assessments are updated accordingly and will be happy to consider an additional Statement of Common Ground to cover this issue.

Whilst we are satisfied that this issue has been sufficiently addressed for these Local Plans, there was general agreement at our joint meeting on 2nd November that a strategic solution to air pollution issues at Oxford Meadows would be a useful future direction for all districts and we look forward to working together on this going forward.

Kind regards,

Rebecca Micklem

Lead Adviser

Sustainable Development
Thames Team

Tel: ██████████
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www.gov.uk/natural-england

We are here to secure a healthy natural environment for people to enjoy, where wildlife is protected and England's traditional landscapes are safeguarded for future generations.

In an effort to reduce Natural England's carbon footprint, I will, wherever possible, avoid travelling to meetings and attend via audio, video or web conferencing.

Natural England is accredited to the Cabinet Office Customer Service Excellence Standard