

**THE OXFORDSHIRE COUNTY COUNCIL (DIDCOT GARDEN TOWN
HIGHWAYS INFRASTRUCTURE – A4130 IMPROVEMENT (MILTON GATE
TO COLLETT ROUNDABOUT), A4197 DIDCOT TO CULHAM LINK ROAD,
AND A415 CLIFTON HAMPDEN BYPASS) COMPULSORY PURCHASE
ORDER 2022**

**THE OXFORDSHIRE COUNTY COUNCIL (DIDCOT TO CULHAM THAMES
BRIDGE) SCHEME 2022**

**THE OXFORDSHIRE COUNTY COUNCIL (DIDCOT GARDEN TOWN
HIGHWAYS INFRASTRUCTURE – A4130 IMPROVEMENT (MILTON GATE
TO COLLETT ROUNDABOUT), A4197 DIDCOT TO CULHAM LINK ROAD,
AND A415 CLIFTON HAMPDEN BYPASS) (SIDE ROADS) ORDER 2022**

**THE CALLED-IN PLANNING APPLICATION BY OXFORDSHIRE COUNTY
COUNCIL FOR THE DUALLING OF THE A4130 CARRIAGEWAY,
CONSTRUCTION OF THE DIDCOT SCIENCE BRIDGE, ROAD BRIDGE
OVER THE APPLEFORD RAILWAY SIDINGS AND ROAD BRIDGE OVER
THE RIVER THAMES, AND ASSOCIATED WORKS BETWEEN THE A34
MILTON INTERCHANGE AND THE B4015 NORTH OF CLIFTON HAMPDEN,
OXFORDSHIRE (APPLICATION NO: R3.0138/21**

PLANNING INSPECTORATE REFERENCE:

APP/U3100/V/23/3326625 and NATTRAN/SE/HAO/286 (DPI/U3100/23/12)

**Proof of evidence of
ANNA MARY SAVAGE
(Air Quality)**

Note: This proof of evidence is of primary relevance to the Inquiry into the called-in Planning Application, but addresses objections raised by remaining Objectors to the Statutory Orders in paragraphs 3.10, 3.35 and 3.45 of this proof of evidence.

1 INTRODUCTION AND QUALIFICATIONS

- 1.1 I am Anna Mary Savage and I am an Air Quality Technical Director at AECOM. I have worked at AECOM since February 2017. I am a Chartered Scientist and full member of the Institute of Air Quality Management and Institution of Environmental Sciences. I have a Masters (distinction) in Environmental Sciences from the University of Nottingham, gained in 1999 and a Bachelor of Science with Honours degree (1st class) in Environmental Biology from the University of Birmingham in 1997.
- 1.2 I have 23 years' experience in the air quality field, including 15 years' experience in air quality consultancy, working with AECOM and previously at Transport Research Laboratory. Prior to this, my roles included Air Quality Lead at Transport for London, roles at the Greater London Authority and London Borough of Camden. I also conducted research in air quality at the University of Hertfordshire on completion of my masters. My technical area of expertise relates to monitoring and modelling of the air quality impacts from road traffic sources and I have managed and delivered assessments for many large-scale projects. At AECOM, I have delivered work for more than 30 road schemes for clients, including the A40 Smart Corridor, Access to Witney, Banbury Roundabout and Watlington Relief Road for Oxfordshire County Council, Melton Mowbray bypass for Leicestershire County Council, HS2 Phase 2b and multiple schemes for Transport for London, including the Silvertown Tunnel Scheme. I currently manage the air quality team based in the south (18 staff) and I am responsible for leading the team's public sector workstream.
- 1.3 My evidence relates to my involvement in the Scheme since December 2019 as Air Quality Technical Lead. I was responsible for leading the air quality baseline monitoring work, construction and operational assessments and production of the Environmental Statement (ES) Chapter 6 – Air Quality and associated appendices. Since submission of the planning application, I have responded to queries relating to the Scheme's air quality assessment including conducting sensitivity testing around Appleford. I attended the Planning and Regulation Committee meetings to respond to various air quality questions as required.

Scope of Evidence

- 1.4 This proof of evidence has been prepared regarding air quality impacts relating to:
- 1.4.1 The called-in planning application by Oxfordshire County Council for the dualling of the A4130 carriageway, construction of the Didcot Science Bridge, road bridge over the Appleford Railway Sidings and road bridge over the River Thames, and associated works between the A34 Milton Interchange and the B4015 north of Clifton Hampden, Oxfordshire (Application No: R3.0138/21) (the **Planning Application**);
- 1.4.2 The Oxfordshire County Council (Didcot Garden Town Highways Infrastructure – A4130 Improvement (Milton to Collett Roundabout), A4197 Didcot to Culham Link Road, and A415 Clifton Hampden Bypass) Compulsory Purchase Order 2022 (the **CPO**);
- 1.4.3 The Oxfordshire County Council (Didcot to Culham Thames Bridge) Scheme 2022 (the **Bridge Scheme**); and
- 1.4.4 The Oxfordshire County Council (Didcot Garden Town Highways Infrastructure– A4130 Improvement (Milton to Collett Roundabout), A4197 Didcot to Culham Link Road, and A415 Clifton Hampden Bypass) (Side Roads) Order 2022 (the **SRO**) (the CPO, SRO and Bridge Scheme taken together referred to as the **Orders**).

- 1.5 The Planning Application was submitted, and the Orders were made, to facilitate the delivery of the Access to Didcot Garden Town Highway Improvements (the **Scheme**) which consists of a highway Scheme approximately 11km in length, including converting 1.8km of single carriageway to dual carriageway, 6.8km of new single carriageway and approximately 20km of new and/or improved off-carriageway cycling and pedestrian infrastructure. Connections into the existing public rights of way network will also be provided. The Scheme also includes three over bridges.
- 1.6 The Orders were made by Oxfordshire County Council in its capacity as acquiring authority (the **Acquiring Authority**) on 21 December 2022 and submitted to the Secretary of State for Transport on 26 January 2023.
- 1.7 The Planning Application was submitted to the Local Planning Authority (**LPA**) by Oxfordshire County Council in its capacity as applicant (the **Applicant**) on 4 October 2021 and called-in by the Secretary of State for Levelling Up, Housing and Communities for his determination on 25 July 2023.
- 1.8 The Planning Application and the Orders are now due to be considered by an Inspector at conjoined Public Inquiries scheduled to open on 20 February 2024. This proof of evidence has been prepared in connection with those Inquiries.
- 1.9 The purpose of my evidence is to explain the air quality assessments of the Scheme that have been undertaken, and to respond to local concerns raised about the air quality impacts of the Scheme.
- 1.10 My proof of evidence includes this main document (AS1) and an appendix (AS2).
- 1.11 It should be read in conjunction with other separate but interrelated proofs of evidence submitted on behalf of the Acquiring Authority and the Applicant, including:
 - 1.11.1 Strategic Need and Benefits, Highway Issues, Scheme Selection and Alternatives, prepared by Aron Wisdom of Oxfordshire County Council;
 - 1.11.2 Local Transport and Connectivity Plan, prepared by John Disley of Oxfordshire County Council;
 - 1.11.3 Technical Traffic and Highways Engineering – A4130 Widening and Didcot Science Bridge, prepared by Andrew Blanchard of AECOM;
 - 1.11.4 Technical Traffic and Highways Engineering - Culham River Crossing and Clifton Hampden Bypass, prepared by Karl Chan of AECOM;
 - 1.11.5 Traffic Modelling, prepared by Claudia Currie of AtkinsRéalis;
 - 1.11.6 Environmental Impact Assessment, prepared by Alex Maddox of AECOM;
 - 1.11.7 Noise and Vibration, prepared by Andrew Pagett of AECOM;
 - 1.11.8 Climate Change, prepared by Chris Landsburgh of AECOM;
 - 1.11.9 Landscape and Visual Impact, prepared by Jane Ash of AECOM;
 - 1.11.10 Planning, prepared by Bernard Greep of Stantec;
 - 1.11.11 Negotiations and Acquisition prepared by Steven Moon of Gateley Hamer; and
 - 1.11.12 Compulsory Purchase Justification prepared by Timothy Mann of Oxfordshire County Council.
- 1.11 I confirm that the evidence that I have prepared in respect of the Inquiries is given in accordance with the guidance of my professional institution and I can confirm that the opinions expressed are my true and professional opinions.

2 AIR QUALITY ASSESSMENT

- 2.1 This section explains the air quality assessment and outcomes, which support the planning application for the Scheme. It does so first by referencing the assessment contained in the Environmental Statement (Chapter 6), and then addresses the consideration of that assessment undertaken by the District Councils before finally considering any relevant changes since publication of the ES.
- 2.2 In summary, the assessment shows that there are no exceedances of air quality objectives in current legislation and as there will be no significant air quality effects during construction or operation, the Scheme is compliant with policy.

The air quality assessment as contained in ES Chapter 6 (Air Quality)

- 2.3 The ES air quality assessment is contained in the following Core Documents (CD): Chapter 6 (Air Quality) of the ES (CD A.15), Appendix 6.1 Model Verification and Appendix 6.2 Local Air Quality Assessment Results (CD A.17), and associated Figures 6.1 to 6.4 (CD A.16). References to the relevant sections, tables and figures of those documents are given throughout this proof.

Legislative/Policy Framework (Section 6.2)

Air Quality legislation

- 2.4 Paragraphs 6.2.2 to 6.2.6 of the ES chapter set out the relevant air quality legislation in the UK at the time of the assessment. The requirements to meet limit values for pollutants within European Union (EU) Legislation as provided in the Ambient Air Quality Directive have been transcribed into UK legislation by the Air Quality Standards Regulations 2010 and more recent updates. These requirements are retained in UK law through the EU (Withdrawal) Act 2018 and the UK remains legally obliged to meet EU limit values.
- 2.5 The Environment Act 1995 (**the Act**) provides health based objective values for a number of pollutants within the national Air Quality Strategy (**AQS**). For this assessment, the relevant objectives for nitrogen dioxide (**NO₂**) and fine particulates (**PM₁₀**) are shown in Table 6.1 of the ES. These include an annual mean objective value of 40 µg/m³ for concentrations of both NO₂ and PM₁₀.
- 2.6 Under the Act, local authorities are required to manage local air quality through a process called Local Air Quality Management (**LAQM**) and work towards meeting AQS objective values. Where a local authority identifies exceedances of the AQS objectives and where there is relevant exposure (such as residential properties, schools or hospitals), they are required to declare an Air Quality Management Area (**AQMA**) and prepare and implement an Air Quality Action Plan (**AQAP**).
- 2.7 The UK government has also developed other plans and strategies to tackle air pollution including the Clean Air Strategy and the UK plan to tackle roadside NO₂ concentrations.

Planning policy

- 2.8 Paragraphs 6.2.10 to 6.2.13 outline the relevant air quality sections of the National Planning Policy Framework (**NPPF**) at the time of the air quality assessment (July 2021). Paragraph 186 of the NPPF sets out that: "*Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.*"

- 2.9 As outlined in Paragraph 6.2.14, the Planning Practice Guidance (**PPG**) [PPG9] provides additional support to the NPPF to assist authorities to decide whether air quality is relevant to an application. For example, an assessment should consider the air quality baseline and whether the proposed development significantly changes air quality during construction and operation.
- 2.10 Local planning policies are outlined in paragraphs 6.2.16 to 6.2.22. Policy EP1 of the South Oxfordshire District Council (**SODC**) Local Plan (LP) (page 186 of CD G.1) aims to protect public health and local amenity from the impacts of poor air quality and pollution. Policy EP1 also states that air pollution should be minimised and any adverse effects should be mitigated. The policy states that development will only be permitted where it does not exceed air pollution levels set by European and UK regulations. Development policies 23 and 24 of the Vale of White Horse District Council (**VOWHDC**) Local Plan Part 2 (CD 6.2.7) also seek to protect local amenity from the effects of pollutants including dust, emissions, and other pollutants. Development policy 26 of the VOWHDC LP Part 2 (page 105) states that developments that are likely to have an impact on local air quality, including those in, or within relative proximity to, existing or potential AQMAs will need to demonstrate measures or mitigation that are incorporated into the design to minimise any impacts.

Methodology

- 2.11 The air quality assessment methodology is outlined in Section 6.4 of the ES. The assessment considered impacts during the construction and operation of the Scheme to determine the overall significance of impacts of the Scheme on selected sensitive receptors.
- 2.12 The assessment was conducted in accordance with the methodology and guidance set out in the National Highways Design Manual for Roads and Bridges (**DMRB**) LA105 Air Quality and technical guidance issued by Department for Environment Food and Rural Affairs (**Defra**) at the time of assessment (LAQM.TG16). Given the size and scale of the Scheme, a detailed level of assessment was triggered following DMRB LA105 criteria.
- 2.13 The air quality assessment used the commercially available model: ADMS-Roads (v5.0.0.1) to predict oxides of nitrogen (**NO_x**), NO₂ and PM₁₀ concentrations during construction and operation at representative sensitive receptors located within 200m of the Scheme or roads affected by wider changes in traffic (the affected road network, referred to as the **ARN**). The assessment considered two types of sensitive receptors as below:
- Public exposure receptors – locations where the annual mean objective values apply, such as houses, schools and hospitals. These included existing buildings as well as proposed committed development sites. Receptors were chosen to represent locations where concentrations are expected to be highest (i.e. closest to the road). Model predictions were made at the lowest point of exposure (e.g. 1.5m for a ground floor property).
 - Ecological receptors – these included local, national and internationally designated ecological habitats sensitive to nitrogen. At each identified designated site located within 200m from the ARN, NO_x concentrations were modelled and nitrogen deposition calculated from this output at a transect of points at 0m height and 10m intervals up to 200m from the road.
- 2.14 The locations of these selected receptors are shown in Figure 6.2 of the ES.
- 2.15 The modelling assessment was conducted for a baseline year of 2019, an opening year of 2024 for a situation without and with the scheme in place and for a situation during peak construction in 2023. Traffic data were provided by the Applicant's transport consultants in the format of annual average daily traffic (**AADT**) flow, period flows, percentage heavy duty vehicles and average vehicle speeds with speed bands for each road link in the model. The purpose of the 2019 baseline model was to compare the model outputs against monitoring data for the same year, through a process called model verification. Based on this process, adjustment factors were applied to the model outputs for each assessment year. This process of verification gives greater confidence in the

final results. The model was found to perform within acceptable limits as provided in Defra's technical guidance (LAQM.TG16), with an uncertainty value of around $\pm 2 \mu\text{g}/\text{m}^3$, (approx. 5% of the annual mean objective value). Appendix 6.1 to the ES [CD A.17] provides details of the outcome of the model verification.

- 2.16 A key element of the air quality operational assessment methodology involved taking into account the rate of improvement in air quality over time as cleaner vehicles enter the national vehicle fleet. The "gap analysis" methodology outlined within DMRB LA105 on the assessment of future NO_x and NO_2 projections was followed for this assessment (see paragraph 6.5.5 in the ES). This involved reviewing the long-term trends (**LTT**) in concentrations and applying an adjustment factor to take account of the gap between current projected vehicle emission reductions and projections to the annual rate of improvements in ambient air. This methodology provides a relatively conservative prediction of future concentrations.
- 2.17 A compliance risk assessment was conducted in line with DMRB LA105 to determine if the impacts due to the Scheme would influence the UK's ability to comply with EU Limit Values as given in the EU (Withdrawal) Act 2018.
- 2.18 Construction dust impacts were considered in a qualitative manner following DMRB LA105. This assessment identified the sensitivity of the surrounding area (up to a distance of 200m) to dust and particulate emissions and the level of dust risk associated with the Scheme.

Study area

- 2.19 Paragraph 6.6.2 states that the detailed modelling study area focused on the ARN which was defined as those roads that exceed one or more of the traffic screening criteria set out in DMRB LA105, reproduced within paragraph 6.4.13. Model predictions were made at selected receptors located within 200m of the ARN as mentioned above.
- 2.20 The study area for the construction dust assessment is outlined in paragraph 6.6.3 and it considered all sensitive receptors within 200m of identified construction activities.

Baseline

- 2.21 Section 6.7 provides details of the baseline air quality situation in the study area, from published sources and from information gathered from a monitoring study for the Scheme.
- 2.22 There are no AQMAs close to the Scheme. The nearest AQMAs are in Abingdon, around 3.5km north west of the Scheme, Oxford City AQMA, 5km to the north and Wallingford AQMA, 8.5km to the south east. These AQMAs were declared due to exceedances of the NO_2 annual mean AQS objective.
- 2.23 Monitoring data from SODC and VOWHDC demonstrated that measured NO_2 concentrations declined year on year (data in the ES Chapter 6, Tables 6.8 and 6.9 show trends from 2014-2019). More recent data provided in the Council's 2023 Annual Status Report (ASR) (see Appendix AS2) shows this continued decline in concentrations (Table A.4 of the ASR). Pages 29 and 30 state that NO_2 levels across the districts were below the objective in 2021 and 2022. There is limited measured particulate matter data in the districts, but background concentrations are well below relevant AQS objectives and a short-term survey in Marcham in 2022 showed that concentrations were low (Table 3 in the 2023 ASR).
- 2.24 As there were few local authority monitoring sites located close to the Scheme, AECOM conducted a 6-month NO_2 diffusion tube monitoring survey from December 2019 to June 2020 at 27 sites. The purpose of the survey was twofold, firstly to better understand the baseline NO_2 levels close to the Scheme and secondly to provide data to verify the performance of the air quality model used to assess Scheme air quality impacts. The survey results were affected by Covid-19 during the latter months and data were reviewed and adjusted accordingly to represent an annual mean for the 2019 baseline year. None of the monitoring sites recorded NO_2 concentrations above the annual mean

AQS objective value, with the highest concentrations found on the A4130 near the proposed Science Bridge. The results of the monitoring were provided in a technical note issued in November 2020 to the Applicant and are summarised in Table 6.10 in the ES. The location of all local authority and Scheme monitoring sites near the Scheme are illustrated on a map in Figure 6.1.

Scheme impacts

- 2.25 The results of the local air quality modelling for the assessed years are provided in Section 6.10 and Appendix 6.2. The assessment predicted that modelled pollutant concentrations were below the relevant AQS objectives at sensitive receptors during peak construction and in the Scheme opening year with and without the Scheme in place.
- 2.26 Paragraph 6.10-6.10.15 provide the results of the construction dust assessment. This assessment concluded that there was a potentially large construction dust risk due to the scale of the Scheme and length of construction works and a high risk of effects at 102 individual receptors identified to be located within 100m of works. This information is presented on a constraints plan in Figure 6.3.
- 2.27 During peak construction in 2023, there were increases in heavy duty vehicles predicted along the A4130 east of Milton Interchange but the impact on modelled concentrations at receptors along this road was found to be imperceptible (a change of less than 1% of the AQS objective) (see paragraph 6.10.7). There were no designated ecological habitats within 200m of a construction route. Results are provided for all selected receptors in Table 1 of Appendix 6.2.
- 2.28 In the opening year of operation of 2024, concentrations of both NO₂ and PM₁₀ (and therefore PM_{2.5} as a component of PM₁₀) were predicted to be below the relevant AQS objectives at all selected receptors. With the Scheme in operation, the highest predicted annual mean NO₂ concentration in 2024 at an existing property, was 24.5 µg/m³ at receptor R13 to the north of Sutton Courtenay. A reduction in annual mean concentrations was predicted at this property due to changes in traffic as a result of the Didcot to Culham River Crossing section of the Scheme. An imperceptible change in annual mean NO₂ concentrations was predicted at just over a third of the representative receptors modelled. Improvements in annual mean concentrations were predicted at around half of the selected sensitive receptors, including those close to the A4130, south-east of the Didcot Science Bridge, in Sutton Courtenay, Culham, Appleford and Clifton Hampden. There were increases in concentrations at 16 selected receptors close to the new road at the southern end of Appleford, Clifton Hampden and Little Baldon.
- 2.29 The results are summarised in Table 6.15 and provided for all assessed receptors in Table 2 of Appendix 6.2 and in Figure 6.4. The headline results are presented in Table 6.15 of the ES which is reproduced below, where DM is Do Minimum, i.e. results without Scheme and DS is Do Something, with Scheme.

Table 1. Summary of selected modelled annual mean NO₂ concentrations during operation of the Scheme (from ES Table 6.15)

Area	Village	Receptor ID	NO ₂ concentration (µg/m ³)			
			2019 Base	2024 DM (LTT)	2024 DS (LTT)	Change from DM to DS
Clifton Hampden Bypass (CHB)	Burcot	R45	11.8	10.4	10.2	-0.2
	Berinsfield	R49	17.8	15.9	16.4	0.5
	Clifton Hampden	R38	24.8	22.4	14.6	-7.8

Area	Village	Receptor ID	NO ₂ concentration (µg/m ³)			
			2019 Base	2024 DM (LTT)	2024 DS (LTT)	Change from DM to DS
	Clifton Hampden	R56	12.9	11.3	13.1	1.9
	Little Baldon	R103	17.6	16.0	18.5	2.4
Culham to Didcot River Crossing (RIV)	Appleford	R75	14.2	12.7	16.0	3.3
	Long Wittenham	R32	12.9	12.0	10.7	-1.3
	Sutton Courtenay	R57	15.5	14.3	14.5	0.2
Didcot Science Bridge (DSB)	Didcot	R97	19.2	16.7	17.5	0.8
A4130 Widening (WID)	Milton	R4	17.8	16.3	15.7	-0.6

2.30 The compliance risk assessment included a review to determine if there were any road links within the ARN that were part of Defra's national pollution climate mapping (**PCM**) model which is used to report to the EU on compliance with the NO₂ limit value. Paragraph 6.7.15 concludes that there was only one PCM road link (the A4130) located close to the study area, but that this was outside the ARN so did not need to be further assessed. It was noted that annual mean NO₂ concentrations in the PCM model at this road were below 40 µg/m³.

2.31 Predictions of NO_x concentrations and nitrogen deposition were made at designated ecological sites including Clifton Hampden Wood and Clifton Hampden Meadows, which both had small reductions in nitrogen deposition due to the Scheme. The headline results are provided in Table 6.16 and in full within Table 3 of Appendix 6.2. The results have been interpreted taking account of Natural England guidance and show that the change in nitrogen deposition rates due to the Scheme was 1% of the critical load at all sites except at a veteran oak tree (receptor E1) near Clifton Hampden. Further details of impacts at this site are presented in Chapter 9 (Biodiversity) by the Scheme Ecologists.

Mitigation

2.32 Paragraphs 6.4.6, 6.8.3, 6.9.3 and 6.9.4 state that potential dust effects would need to be mitigated by the application of industry standard measures within a Construction Environment Management Plan (**CEMP**) and associated Dust Management Plan (**DMP**) to avoid any significant effects during the construction phase. This may require monitoring close to dusty activities (paragraph 6.11.1) These conditions are outlined in the draft conditions document within condition number 9. This requires "A Dust

Management Plan to set out measures to reduce, mitigate and monitor construction dust and air quality effects.

- 2.33 No mitigation or further monitoring are required during the operational phase of the Scheme (paragraph 6.9.5 and 6.11.2) as no significant effects were reported.

Assessment of likely significant effects

- 2.34 The assessment of significance was conducted in line with DMRB LA105. As stated in paragraph 6.4.43, this was based on:

- Effects on public exposure receptors;
- Effects on designated ecological habitats and advice from the Scheme Ecologists; and
- Outcomes of the compliance risk assessment.

- 2.35 As modelled pollutant concentrations are predicted to be below the relevant AQS objectives at all selected public exposure receptors, then the assessment did not trigger the judgement of significance (paragraphs 6.4.31 to 6.4.35). The impacts from vehicle emissions associated with construction and operational phases are therefore concluded to be not significant for human health.

- 2.36 The process of assessing significance considers whether the nitrogen deposition rates are under the critical load and whether the change is less than 1% of the critical load (paragraph 6.4.40). The Scheme Ecologist assessed the impacts on the designated ecological habitats and concluded that the air quality effects due to the Scheme were not significant (paragraph 6.10.25).

- 2.37 The compliance risk assessment concluded that the ARN did not overlap with the PCM network, so no further assessment was required to consider the significance of compliance.

Overall conclusions

- 2.38 Section 6.12 of the ES outlines a summary of the Scheme impacts.
- 2.39 The Scheme air quality assessment concluded that there were no predicted exceedances of the relevant AQS objective values in the opening year of the Scheme at selected receptors. There was also no risk to compliance with the EU limit values.
- 2.40 Therefore, the overall conclusion was that there were no significant air quality effects at any of the representative sensitive receptors with the Scheme during construction or operation.
- 2.41 The Scheme was considered to be in accordance with national policies in the NPPF and local development policies given in the VOWHDC Part 2 (CD G.2.7) and SOLP (CD G.1). This is subject to the inclusion of conditions to secure a DMP as part of the CEMP prior to the commencement of each phase of the development.

Review of assessment

- 2.42 The Air Quality Officer for SODC and VOWHDC reviewed the assessment and made no observations on the chapter nor has requested any further information or clarification. The County Council's Health Improvement Practitioner also reviewed the assessment and did not raise any objections, subject to the implementation of measures to reduce air quality and dust emissions during the construction process (CD F.1 paragraph 170).
- 2.43 The Planning and Regulation Committee meeting on 17-18 July 2023 (CD F.2) addressed the impacts of the Scheme on air quality. In the written minutes (CD F.2), on page 9, Ng Chien Xen, an independent transport economist stated that the report showed no significant impacts on air quality if the Scheme was built. However, there were a number of parties who raised concerns regarding air quality. These are addressed in Section 3 of my proof, but include the following individuals and organisations:

- Ms Vicky Johnson from Appleford;
 - Dr Caroline Baird from Culham;
 - Appleford Parish Council (Mr Greg O'Broin) and the Neighbouring Parish Councils Joint Committee;
 - Mr Chris Hancock from Appleford;
 - Mr Richard Tamplin, a retired planning inspector;
 - Ms Mandy Rigault from Nuneham Courtenay;
 - Councillor Constance; and
 - Councillor Bennett.
- 2.44 Air quality was specifically addressed in paragraph 160-170 of the Officer's report of the Planning and Regulation Committee (CD F.1) which stated that the assessment was considered robust and no significant effects were expected for human health and ecological sites.
- 2.45 Paragraph 67 of the Report and Annexes to the Planning and Regulation Committee on 27 September 2023 (CD F.5) provided information regarding the review of the air quality assessment. This report re-iterated the officer's advice in the July report (CD F.1).

Changes since publication

- 2.46 Since the publication of the ES, there have been changes to national planning policy and updates to the NPPF in September and in December 2023. The new NPPF (published in December 2023) does not alter the conclusions in the ES as it does not introduce any new policies or change the fundamentals in respect of air quality considerations.
- 2.47 The new Environment Act 2021 has come into force since publication of the ES. This includes a national long-term target for annual mean PM_{2.5} concentrations to meet a value of 10 µg/m³ by 2040 set out in the Environmental Targets (Fine Particulate Matter) (England) Regulations 2022. The Environmental Improvement Plan 2023 outlines how the Government aims to achieve this target as this is a national responsibility rather than a local requirement due to the large contribution of PM_{2.5} from background sources. Background levels of PM_{2.5} were already below or around the long-term target of 10 µg/m³ in 2019 and modelled predictions from the updated sensitivity test conducted as part of this proof showed that the highest concentration at a receptor close to the road was 10.6 µg/m³ in the 2024 opening year. Recent monitoring by VOWHDC in 2022 shows levels were below this target in Marcham (Table 3 of the Council's ASR). The nearest national monitoring sites run by Defra are in Oxford city centre and levels in 2023 were also below the target. Therefore, it is very likely that as concentrations continue to decline, the new national target would be met by 2040 throughout the study area.
- 2.48 More recent NO₂ monitoring data has been published since the ES. Within SODC and VOWHDC's joint ASR for air quality (June 2023), the Council shows that air quality continues to improve and that there are now three years of compliance with the NO₂ annual mean AQS objective in the Abingdon, Marcham, Henley and Watlington AQMA's from 2020-2022 (Table A.4). As there are 5 years of compliance in the Wallingford AQMA, the Council plans to revoke the AQMA in 2024. This intention is stated in Section 2 (p2) of their 2023 ASR. The relevant sections of this document are provided in Appendix AS2.
- 2.49 Defra issued a new version of their guidance (LAQM.TG22) in August 2022 although this provided no changes to the recommended modelling methodologies. In November 2023, a new version of Defra's Vehicle Emissions Factors Toolkit was released and in January 2024, National Highways issued an update to its modelling tools based on this new information. This includes an update to the speed-based emission factors and changes to the vehicle fleet composition based on more recent policy and evidence. To consider this update, a sensitivity test was conducted to re-run the air quality models. These results show similar values to those reported in the ES with no exceedances of the NO₂ objective value predicted. In addition, the new tools include the ability to model PM_{2.5} for the first time. The results of this updated model run for PM₁₀ are similar to those reported in the ES, with concentrations on average slightly lower. For PM_{2.5}, concentrations with

the Scheme in place in 2024 are predicted to be on average $9.3 \mu\text{g}/\text{m}^3$ across all selected existing receptors, with a maximum concentration of $10.6 \mu\text{g}/\text{m}^3$.

- 2.50 The ES assumed an opening year of 2024 and applied the gap analysis approach to take account of the fact that the rate of reduction in NO_2 concentrations has previously been slower than anticipated. Given that the Scheme would now open in a later year, more recent evidence shows that there has been a continued improvement in vehicle emissions and much greater reductions in pollutant concentrations, particularly since the Covid-19 lockdown. This would mean that if the Scheme was to be assessed for a future opening year, levels would be lower than those reported in the ES.

Conclusion

- 2.51 The air quality assessment in Chapter 6 of the ES concluded that there would be no significant air quality effects during construction or operation of the Scheme and that the Scheme was compliant with planning policy.
- 2.52 This conclusion remains the position in light of updates to policy and legislation since the ES, along with updated air quality data, the new Emissions Factors Toolkit and associated tools and guidance.

3 RESPONSE TO REPRESENTATIONS AND OBJECTIONS CONCERNING AIR QUALITY

- 3.1 This section provides responses to concerns raised by a number of parties, including Rule 6 parties to the call-in Inquiry, call-in representations and objections to the Orders.
- 3.2 My responses are grouped according to the issues raised.

Issue 1: General environmental concerns relating to the Scheme

Comments made

- 3.3 Catherine Small's call-in representation (CD N.1) on 8 September 2023 noted that the Scheme was contrary to current environmental goals and the aim of the Applicant to discourage the use of cars in favour of public transport to reduce carbon impacts and improve air quality.
- 3.4 Antony and Gwendoline Mockler's call-in representation on 22 September 2023 (CD N.4) outlined that the dualling of the A4130 would cause pollution and health impacts which ruins the objective of the development.
- 3.5 In their Objection to the Orders on 17 February 2023 (CD J.2), Mr and Mrs Aries raised concerns regarding increases in traffic related pollution due the proximity of their house on the A415 to the new A415 connection and the Clifton Hampden bypass.

Response

- 3.6 The overall conclusion of Chapter 6 of the ES is that concentrations of local air quality pollutants are below the AQS objectives set out in UK legislation and air quality is therefore considered to be good across the region. There are some locations where there are increases in concentrations due to the Scheme, but the majority of modelled locations are predicted to experience a benefit in air quality or no change. For example, predicted annual mean NO₂ concentrations at properties close to Mr and Mrs Aries' house on the A415 in Clifton Hampden are around 12 µg/m³ with and without the Scheme, which is well below the relevant AQS objective of 40 µg/m³.
- 3.7 Overall, although the Scheme is predicted to result in both improvements and increases in concentrations, because pollutant concentrations are below the AQ objectives across the modelled area, it is my opinion that the impacts are not significant. The modelling has been reviewed in light of new updates to tools and guidance, and I consider that the methodology has followed relevant guidance and that the results are robust and reliable.

Issue 2: The air quality assessment methodology is inadequate and not in line with guidance

Comments made

- 3.8 On 7 February 2022, C J Hancock on behalf of Appleford Parish Council raised a written 'statement of objection on the basis of air quality and health' to Chapter 6 – Air Quality of the ES (CD E.1). This was on the basis that the Planning Application failed to comply with Local and County planning policies, namely SODC policy EP1, ENV12, VOWHDC Development Policies 23 and 26 in regard to air quality, pollution and amenity (reasons 1.1 and 1.2). The statement also suggested that the Scheme failed to follow NPPF policy (paragraph 2.2).

Response

- 3.9 In response to Appleford Parish Council's representation, AECOM provided a Regulation 25 air quality response on 27 October 2022 (response to 2.1 in CD B.2 Appendix S). This set out that the methodology followed the relevant National Highways Guidance, NPPF and relevant policies. The traffic data used for the assessment included all committed

schemes in the outputs, so I can confirm that this is in line with policy and guidance. As pollutant concentrations are below the AQ objectives across the modelled area, it is my opinion that the impacts are not significant. The modelling has since been reviewed in light of new updates to tools and guidance, and I consider the methodology and results are robust and reliable. I confirm that any changes in policy or data since this Regulation 25 response does not change the conclusion of the assessment.

Comments made

- 3.10 Sutton Courtenay Parish Council's written Objection to the Orders dated 7 March 2023 (CD J.9) generally reflects the Objections made by the Joint Committee of Neighbouring Parish Councils of Appleford, Clifton Hampden & Burcot, Culham, Nuneham Courtenay and Sutton Courtenay (NPC-JC) (CDJ.25). On page 3 of the NPC-JC's letter it states that as the impacts on air quality are based on computer predicted values there is no evidence that these values reflect local levels. It also states that impacts from active landfill and gravel works have not been included within the air quality assessment. Additional concerns were raised orally regarding flaws in the air quality modelling at the 17-18 July 2023 Planning & Regulation Committee by Dr Caroline Baird from Culham.

Response

- 3.11 The air quality assessment presented in the ES followed methodology set out in accepted guidance for road schemes produced by National Highways and Defra. The assessment used a commercially available air quality model that has been independently validated for its use to assess road traffic emissions. The model outputs for the Scheme were verified using local monitoring data and the model was used to predict future pollutant concentrations using recognised tools from National Highways and Defra to reflect current understanding of the local vehicle fleet and background concentrations. The model was found to perform reasonably and within acceptable limits as per Defra's guidance. I can therefore confirm that the methodology followed was robust and reliable, and following a more recent review taking into account new tools and guidance, I confirm that this is still valid.
- 3.12 As no information on yearly emissions from landfill and gravel works was made available, the contribution from these sources and other local fugitive sources was included within the background pollution levels as part of the modelling results. I consider that in the absence of site specific data that this methodology is appropriate and suitable to assess current and future local pollution levels and impacts.

Issue 3: Issues relating specifically to Appleford

3a: Impact on air quality in Appleford

Comments made

- 3.13 Frances Reid, an Appleford resident in a call-in representation on 3 October 2023 (CD N.20) stated that the new road would create air pollution which is unhealthy and unacceptable (second paragraph of her email).
- 3.14 Appleford residents Ian Palmer, Adrian Wear and Vicky Johnson provided call-in representations of 28 September (CD N.14), 3 October (CD N.22) and 28 September 2023 (CD N.8) respectively. Mr Palmer also provided a written statement to the 17-18 July 2023 Planning and Regulation Committee meeting (CD F.2). Vicky Johnson also raised her objection orally at the 17-18 Planning Committee meeting as did Chris Hancock, an Appleford resident. Their representations included the claims that the Scheme contradicted the Applicant's current policy to lower emissions, reduce vehicle usage and establish homes and schools away from major roads. Ms Johnson and Mr Wear also disagreed with the air quality assessment's conclusion that there would be no significant air quality effects expected for human health.

- 3.15 Ms Johnson and Mr Wear also noted that the air quality assessment states that there will be higher traffic flows and speeds on the proposed road which could lead to higher emissions and concentrations of pollutants.
- 3.16 Ian Cook, an Appleford resident, provided a call-in representation on 29 September 2023 (CD N.10). In the first point of his email, he stated that the information submitted did not materially address the negative impacts on the residents of Appleford to pollution.
- 3.17 NPC-JC provided a written response in January 2023 (page 48 on CD E.69) to AECOM's response (CD B.2 Appendix S). It noted that the assessment showed that emissions fall rapidly by distance and that based on the sensitivity test of HGV traffic on Main Road that the model is insensitive to changes in conditions, which was of particular concern (section S5).
- 3.18 Appleford Parish Council in a written objection to the Orders on 20 March 2023 (CDJ.11) stated that the new road will cause pollution and emissions which would be damaging to local health and well-being.
- 3.19 The Statement of Case from NPC-JC (CD L.6) provided in December 2023 re-iterates concerns over the impact on air quality and assessment presented in the ES. It notes on p29 that the air quality assessment states that "*Higher traffic flows and speeds expected on proposed roads could lead to higher emissions and concentrations of NO₂ NO_x & PM*", but they say that the full extent of the harm is not revealed in the ES. They state that due to these flaws, the impacts have been underestimated and are therefore in conflict with Local Plan policy.

Response

- 3.20 The overall conclusion of the Chapter 6 of the ES is that concentrations of local air quality pollutants are below the AQS objectives set out in UK legislation and air quality is good across the study area, including in Appleford. The assessment utilised the data from the traffic modelling and was conducted in line with national guidance. I therefore consider that the assessment was in-line with guidance at the time and met national and regional policies in SODC and VOWHDC. I also consider that the methodology was robust and that the predicted impacts associated with the Scheme are overall not significant.
- 3.21 The air quality model has been verified and outputs have been adjusted to take account of the differences of the model to monitored concentrations (including sites within Appleford) to provide greater confidence in the results. The methodology used the gap analysis approach to take account of the fact that there had been a slow rate of decline in ambient monitored levels at the time of the assessment. This approach results in lower future predictions. Therefore, I conclude that the predictions for the 2024 opening year are considered to be relatively conservative. In addition, since this time, monitored concentrations have decreased substantially as shown in the Districts' 2023 ASR (see Appendix AS2) and are lower than those reported in the 2019 baseline assessment in the ES.
- 3.22 Within the village of Appleford, the air quality assessment predicted that there would be improvements in NO₂ concentrations at residential properties close to the Main Road due to the Scheme, with some increases in concentrations predicted at properties near the railway line such as Hall Farm. Overall, as pollutant concentrations are low, I can confirm that none of these impacts were considered significant for health. The improvements in concentrations predicted at properties along the Main Road are primarily because traffic levels are predicted to reduce along this road. The new road is further from these properties and levels of pollutants fall rapidly with distance from the roadside, so by 200m from the road, concentrations are typically within background levels. There is also a relatively high component of pollution from background sources (particularly for particulates) not just directly from local emission sources. Therefore, small changes in the numbers of vehicles a day, or changes to alignments often do not have a noticeable impact on pollutant concentrations which are reported as an average value across a year.

3b. The assessment does not take account of other emissions sources in Appleford

Comments made

- 3.23 In Appleford Parish Council's 'statement of objection' to the Planning Application of February 2022 (CD E.1), it was raised in paragraph 2.6 that the assessment failed to include existing emissions from industrial activities around Appleford sidings.
- 3.24 NPC-JC also followed up in its response in January 2023 (CD E.69) that the adoption of standardised sector emissions is insufficient to represent the combined and cumulative effects of the Scheme in addition to existing emissions.

Response

- 3.25 In AECOM's written response on 27 October 2022 (CD C.2 Appendix S) to Appleford Parish Council's statement of objection to the Planning Application (CD E.1), it was outlined in the response to 2.6 that the contributions from other non-road (background) sources were taken account in the air quality model from modelled values from background sources as provided by Defra. This method is considered a best practice approach and is line with current guidance in the absence of any specific data on yearly emissions from other sources such as at Appleford sidings which were not available for the assessment. I have addressed this point earlier in paragraph 3.12.

3c: The elevation of the new HIF1 road in Appleford has not been considered in the assessment

Comments made

- 3.26 Appleford Parish Council in its 7 February 2022 'statement of objection' to the Planning Application (CD E.1) noted that the modelling was conducted at ground level when this section of the Scheme is to be elevated. It stated that this meant pollutants will distribute more widely across Appleford and the impacts would be higher than reported in the assessment (para 2.8).
- 3.27 In response to AECOM's response of 27 October 2022 (CD B.2 Appendix S), in January 2023 the NPC-JC (CD E.69) noted that the additional modelling by AECOM did not show a sensitivity to the road elevation and that the values along Main Road are "*all insensitive to the proximity of the HIF1 road*". They stated that this was because predictions were focused on traffic on the Main Road, not facades of buildings facing the proposed Scheme.
- 3.28 Vicky Johnson, an Appleford resident provided a call-in representation on 28 September 2023 (CD N.8). At the bottom of page 1, she stated that the air quality model did not account for the raised road. Parish Councillor Greg O'Broin also raised a similar concern orally at the 17-18 July Planning and Regulation Committee meeting.

Response

- 3.29 In AECOM's response to NPC-JC (CD B.2 Appendix S), it was accepted that the assessment was conducted at ground level (response to 2.8). I can confirm that this is standard practice following the National Highways DMRB LA105 Guidance and is considered a worst-case approach. A sensitivity test was modelled at an elevation of 5m and 10m and reported in AECOM's response of 27 October 2022 (CD B.2 Appendix S). This showed that if the road was modelled at height, pollutant concentrations at the properties nearest to the Scheme would be lower due to greater dispersion from vehicle emissions.
- 3.30 I note that the air quality assessment considered impacts on residential properties along the Main Road at locations both facing the Scheme and the Main Road itself, so took account of changes in traffic flows on both roads.

3d: The gradient of the new HIF1 road in Appleford has not been considered in the assessment

Comments made

- 3.31 In the response to AECOM's regulation 25 response, NPC-JC stated that the assessment did not also take account of the gradient of the flyover at Appleford sidings and impact from emissions of fully laden vehicles as they accelerate up this section (section S5). This would affect pollution in Appleford but also Sutton Courtenay. NPC-JC stated that the ES is therefore deficient and not in compliance with the EIA Regulations 2017.

Response

- 3.32 I acknowledge that the gradient of the road was not modelled as the methodology using the National Highways emissions spreadsheet and the ADMS-Roads model do not allow for a gradient to be specified in the methodology. However, I note that whilst there may be increases in emissions from vehicles accelerating uphill, this tends to be balanced out by reductions in emissions from vehicles decelerating downhill, resulting in a neutral overall impact.

3d: Lack of monitoring data

Comments made

- 3.33 In its statement of objection to the Planning Application on 7 February 2022, Appleford Parish Council (CD E.1) stated that there were no adequate measurements of NO₂ and PM_{2.5} at property in Appleford with just one single roadside measurement location which meant there was no reliable basis to predict the changes to Appleford's air quality (paragraph 2.4). It stated that therefore the dispersion model cannot be calibrated to real data so is unreliable.
- 3.34 NPC-JC followed up its statement in January 2023 stating that the baseline monitoring was not agreed between the Applicant and Appleford Parish Council (paragraph 2.1) and no opportunity was taken to do any monitoring in 2022. They also stated that no monitoring of PM_{2.5} has been undertaken and that no justification was provided in relation to the local discrepancies in the verification process in Appleford which ignored the proximity of proposed roads to properties (paragraph 2.4 and 2.5).
- 3.35 Appleford Parish Council in an objection to the Orders on 20 March 2023 (CD J.11) stated that no evidence or analysis other than the modelling was provided on the distribution of NO₂, PM₁₀ or PM_{2.5}.
- 3.36 Vicky Johnson (CD N.8) and Adrian Wear (CD N.22) as written call-in representations stated that as no pollution monitoring has taken place in Appleford, therefore, no real data had been considered so the application findings from the assessment are unreliable. Chris Hancock, an Appleford resident addressed the committee orally at the 17-18 July 2023 Planning and Regulation Committee meeting to raise concerns on air quality and lack of pollution monitoring. Also at the 17-18 July meeting, Councillor Constance asked about monitoring for the Scheme.
- 3.37 The SOC from NPC-JC (CD L.6) provided in December 2023 stated on page 29 that no pollution monitoring was undertaken for dwellings close and facing toward the Scheme route in Appleford and the consultant states "*no site specific information was available*". The air quality dispersion model therefore could not be calibrated to real data. They stated that the results are therefore unreliable for local circumstances and did not reflect the locations of dwellings facing the Scheme.

Response

- 3.38 I can confirm that AECOM conducted baseline NO₂ monitoring at 27 locations around the Scheme for 6 months in 2019-2022, including 4 monitoring sites in and within 1km of Appleford. The data collected and analysed were used to compare against the model

outputs, in a process referred to as model verification. In this process, differences between monitoring and modelled levels were reviewed, and adjustment factors were applied to the modelled outputs in line with the methodology given in Defra's technical guidance. I stated orally at the Planning and Regulation Committee meeting that monitoring was conducted for NO₂ during 2019-2020 across the study area.

- 3.39 As part of the model verification process, AECOM conducted a thorough review of the performance of the air quality model at each of the NO₂ monitoring sites to analyse the reasons for under and over predictions of the model at each site. The air quality team determined appropriate adjustment factors for the study area and reviewed whether different factors were required in different areas or zones. The results of the model verification showed that the performance of the model varied across the network, for example, the model was found to perform particularly well at monitoring sites along the A4130 dual carriageway. Following the review of the results at all monitoring sites, two model adjustment factors were calculated, one was applied to the majority of the road network (zone A which included Appleford) and the second (zone B) was applied to the A4130 dual carriageway specifically. Overall, I can confirm that with the data available, the air quality model was found to perform within reasonable parameters and uncertainty levels according to Defra's technical guidance and I therefore consider it to be robust.
- 3.40 With regards to PM_{2.5} monitoring, AECOM did not conduct any baseline monitoring of this pollutant, and I note that to do so is not standard practice for highway schemes given the large contribution from background sources for this pollutant and the expense of monitoring equipment available. No particulate monitoring was conducted by VOWHC or SODC during the time of the assessment, so no data were available to inform the assessment. Therefore, information on current and future levels of particulates were obtained from Defra's background maps for the assessment. Since publication of the ES, in 2022, VOWHDC conducted a short term PM₁₀ and PM_{2.5} survey within Marcham, which is located around 10km from the Scheme. This showed that PM_{2.5} levels were below the new national target of 10 µg/m³ (see Table 3 of the Council's 2023 ASR). As concentrations are continuing to decline, I consider that this information on particulates is sufficient to support the conclusions in the assessment.
- 3.41 AECOM did not conduct any further monitoring in 2022 as by this time the air quality assessment was complete, and the ES had been submitted. I note however, that pollutant concentrations are declining over time and the levels in 2022 will be lower than those in 2019 as shown by the Council's own monitoring data from the last few years (see paragraph 2.20 and Appendix AS2).

Issue 3e: Lack of mitigation for the Scheme

Comments made

- 3.42 Appleford Parish Council in its statement of objection to the Planning Application on 7 February 2022 (CD E.1) stated that no mitigation measures are specified in the ES and no monitoring of significant effects are proposed (paragraph 2.8).

Response

- 3.43 The assessment concluded that the air quality impacts due to the operation of the Scheme were not significant. Therefore, in line with the guidance, I can confirm that no mitigation measures would be required during Scheme operation.

Issue 4: Concerns regarding levels of particulates (PM_{2.5}), WHO targets and impacts on health

Comments made

- 3.44 In its 7 February 2022 statement of objection to the Planning Application (CD E.1), in Section 2, paragraphs 2.1-2.3, Appleford Parish Council raised concerns that were no attempts to model PM_{2.5} which meant the assessment was incomplete. It raised concerns on their impact on health. It also stated that the ES did not address concerns over the

levels of emissions of NO₂, PM₁₀ and PM_{2.5} as identified by the World Health Organisation (WHO) in 2021 and UK Health Security Agency (HSA). Appleford Parish Council noted that in recognition of the growing concern of the effect of particulates on health, the Environment Act 2021 gives the Secretary of State power to set a target for PM_{2.5}.

- 3.45 Appleford Parish Council in an objection to the Orders on 20 March 2023 (CDJ.11) stated that air quality levels on Main Road were already in excess of WHO limits.
- 3.46 At the 17 -18 July 2023 Planning and Regulation Committee meeting, Councillor Bennett asked a query about exceedances of the 2021 PM_{2.5} WHO guidelines (CD F.2).
- 3.47 Vicky Johnson, an Appleford resident provided a call-in representation on 28 September 2023 (CD N.8). At the bottom of page one, she stated that the air quality model did not follow advice from the UK HSA given to Oxfordshire County Council to address non threshold pollutions i.e., using WHO best information.
- 3.48 The Statement of Case from NPC-JC (CD L.6) provided in December 2023 reiterated the advice from UK HSA to consider non-threshold pollutants (page 30).

Response

- 3.49 The air quality assessment followed National Highways DMRB LA105 guidance which takes into account the current UK AQS objectives within UK legislation. The National Highways guidance and associated tools did not include a requirement to model PM_{2.5} at the time of assessment, as the UK currently meets the relevant objectives. However, since the publication of the ES, the new Environment Act 2021 and subsequent The Environmental Targets (Fine Particulate Matter) (England) Regulations 2022 set out more stringent targets for PM_{2.5}. I can confirm that these targets were not considered in the assessment as this was conducted prior to these Regulations. However, the results presented in the ES chapter show that based on background concentrations and limited monitoring data available, predicted PM_{2.5} concentrations would very likely be below the new UK annual mean target of 10 µg/m³ by 2040. Since publication, I have considered updated modelled predictions from a sensitivity test using new tools from National Highways as these now provide the ability to model PM_{2.5}. I have reviewed this new evidence which shows that the highest annual mean PM_{2.5} concentration at a receptor close to the road was 10.6 µg/m³ in 2024. As pollutant concentrations continue to decline, this gives further evidence that levels will be below the national target in 2040.
- 3.50 The WHO guidelines introduced in 2021 are recommended levels for all nations to work towards and are not included in any existing legislation within the UK. However, it is accepted that the current and future predicted background pollutant concentrations are close to or exceed these guidelines at many locations in Oxfordshire, even without the Scheme in place, so these guidelines will be challenging to meet across the country. I can conclude that the Scheme itself would not have a noticeable impact on particulate concentrations due to the high contribution from background.

Issue 5: Impacts in Abingdon AQMA and in Nuneham Courtenay were not assessed

Comments made

- 3.51 Richard Tamplin raised concerns orally on the 17-18 July Planning and Regulation Committee meeting regarding impacts of additional traffic generated by the Scheme in Abingdon town centre, and the impacts this may have on Abingdon AQMA. In the minutes for the meeting (CD F.2), on page 16, he noted that the ES did not address traffic or environmental impacts in Abingdon. At the meeting, Mandy Rigault additionally noted that impacts of traffic due to the Scheme through Nuneham Courtenay village were not considered.

Response

- 3.52 The air quality assessment has used the traffic model provided by the Applicant's transport consultants. Whilst this did not include roads within Abingdon or Nuneham Courtenay, it did include traffic flows on the A415 from Culham to Abingdon and on the A4074 south of Nuneham Courtenay. As part of the air quality assessment, changes in traffic flow and speed on this road were compared against the traffic scoping criteria in DMRB LA105 guidance (paragraph 2.1 in the guidance). As the traffic changes anticipated due to the Scheme were small and below the criteria, the air quality impacts on this road were scoped out of the assessment and therefore were not assessed or reported. Based on the fact that these criteria were not exceeded, from my experience this would mean that any change in pollutant concentrations due to traffic changes would be imperceptible.
- 3.53 I also note that measured concentrations of NO₂ continue to decline within the Abingdon AQMA. The latest data from SODC and VOWHDC show that there have been compliances of the annual mean AQS objective within the AQMA for the last three years (Table A.4 of the Council's 2023 ASR). The Council does not monitor in Nuneham Courtenay but measured levels in villages within both districts and background levels are below AQS objectives. I can therefore confirm that this shows that local air quality in the area including in Abingdon and Nuneham Courtenay is improving and overall is considered to be generally good.

Issue 6: Monitoring of air quality and dust during construction of the Scheme**Comments made**

- 3.54 John Lee of Public Health in Oxfordshire County Council provided a comment orally at the 17-18 July Planning and Regulation Committee meeting that it was essential for dust and pollution monitoring to be conducted during construction and that mitigation measures within the DMP to be fully adhered to. This was particularly important for the most vulnerable people, e.g. children at the nursery and pre-school close to the proposed Scheme. This is noted in the minutes of the meeting (CD F.2) on page 22.

Response

- 3.55 The air quality assessment recommended that potential dust effects will need to be mitigated by the application of industry standard measures to be specified within the CEMP and the associated DMP. The salient conditions, which will be a requirement for the appointed contractor will need to comply with, are outlined within the draft conditions document. Draft condition number 9 states that the DMP needs to "*set out measures to reduce, mitigate and monitor construction dust and air quality effects*". I confirm that by putting in these mitigations in place, this should minimise the impacts on dust and particulates during the construction period.

Conclusion

- 3.56 I consider that the comments made about air quality have been appropriately addressed and responded to. None would alter the conclusions of the ES that there are no significant impacts on air quality due to the Scheme.

4 CONCLUSION AND SUMMARY PROOF OF EVIDENCE

- 4.1 In my proof of evidence I have provided a summary of the air quality assessment and outcomes reported in Chapter 6 of the ES to support the planning application for the scheme. I have also considered the assessment of the ES undertaken by the District Councils and potential impacts of any relevant changes since publication of the ES.
- 4.2 The air quality assessment considered planning policy within the NPPF and relevant environmental policies within the Local Plans of SODC and VOWHDC. The methodology and tools used followed guidance from National Highways and Defra available at the time to consider impacts during the construction phase and operation of the scheme. To do this, a commercially available model was used to predict NO_x, NO₂ and PM₁₀ concentrations from road traffic emissions at selected sensitive receptors. These receptors included those relevant to health (for example houses and schools) and ecological habitats. The air quality model was verified using monitoring data for the baseline year of 2019 and adjustment factors were applied to the model outputs for the assessment years to improve the confidence of the predictions. The model was found to perform within acceptable limits.
- 4.3 The results of the assessment were that there were no exceedances of AQS objectives in current legislation during peak construction (2023) or in the first designated year of opening (2024). The highest predicted annual mean NO₂ concentration at an existing property was 24.5 µg/m³ which is well below the 40 µg/m³ objective value. An imperceptible change in annual mean NO₂ concentrations was predicted at just over a third of the representative receptors modelled. Improvements in concentrations were predicted at around half of the selected sensitive receptors, including those close to the A4130, south-east of the Didcot Science Bridge, in Sutton Courtenay, Culham, Appleford and Clifton Hampden. There were increases in concentrations at 16 selected receptors close to the new road at the southern end of Appleford, Clifton Hampden and Little Baldon.
- 4.4 The overall conclusion of Chapter 6 of the ES was that there will be no significant air quality effects during construction or operation, and the Scheme is compliant with relevant planning policy at the time of assessment. It was recommended that a CEMP and DMP would be required as a condition to ensure that dust emissions are mitigation during the construction phase, but no additional mitigation was required during Scheme operation. I can confirm that this conclusion and recommendations remain valid.
- 4.5 The results of the assessment were reviewed by myself as technical air quality lead. I can conclude that the overall conclusion that the air quality impacts related to the Scheme are not significant remains valid.
- 4.6 Since publication of the ES, there have been no changes to planning policy that would change the conclusions of the assessment for air quality. A new target of 10 µg/m³ for PM_{2.5} to be met by 2040 has been set in the Environment Act 2021 and subsequently in The Environmental Targets (Fine Particulate Matter) (England) Regulations 2022. Based on recent evidence from monitoring data in the wider area and from a sensitivity test using the latest tools provided by National Highways which now incorporate PM_{2.5}, I can conclude that concentrations of this pollutant will be below this new level by the target date of 2040 and that the changes due to the Scheme will be very small or imperceptible.
- 4.7 Therefore, I can confirm that the changes since publication will not change the conclusion of the ES that there are no significant impacts on air quality due to the Scheme.
- 4.8 My proof of evidence also includes a response to comments raised by a number of parties on elements of the Scheme. I have responded to these issues in turn, including those related to overall concerns of air quality impacts from the Scheme, specific queries in Appleford, concerns on the level of PM_{2.5} and impacts on health and a need to monitor dust and particulates during the construction phase. The representations and objections raised have been appropriately addressed and responded to. None would alter the conclusions of the ES that there are no significant impacts on air quality due to the Scheme.

5 STATEMENT OF TRUTH AND DECLARATION

- 5.1 I confirm that, insofar, as the facts stated in my proof evidence are within my own knowledge, I have made clear what they are and I believe them to be true and that the opinion I have expressed represent my true and complete professional opinion.
- 5.2 I confirm that my proof of evidence includes all facts that I regard as being relevant to the opinions that I have expressed and that attention has been drawn to any matter which would affect the validity of those opinions.
- 5.3 I confirm that my duty to the Inquiry as an expert witness overrides any duty to those instructing or paying me, and I have understood this duty and complied with it in giving my evidence impartially and objectively, and I will continue to comply with that duty as required.
- 5.4 I confirm that, in preparing this proof of evidence, I have assumed that same duty that would apply to me when giving my expert opinion in a court of law under oath or affirmation. I confirm that this duty overrides any duty to those instructing or pay me, and I have understood this duty and complied with it in giving my evidence impartially and objectively, and I will continue to comply with that duty as required.
- 5.5 I confirm that I have no conflicts of interest of any kind other than those already disclosed in this proof of evidence.

ANNA MARY SAVAGE

30 January 2023