West Berkshire Council

West Berkshire Pre-Submission Local Plan - Air Quality Assessment

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Executive Summary

WSP has been commissioned to undertake an assessment of the likely air quality impacts at human and ecological receptors with the implementation of West Berkshire Council's (WBC) Pre-Submission Local Plan for the period 2017 – 2037.

The assessment focussed on the predicted changes in pollutant levels (i.e. the impacts) at ecological and human receptors alongside affected roads at the end of the Pre-Submission Local Plan period. These predictions are based on air quality modelling using traffic model forecasts without and with the Pre-Submission Local Plan. Well-established air quality modelling techniques and published vehicle emissions and ambient pollutant forecasts were used in the assessment, in accordance with published best practice guidance and agreement with WBC and Natural England.

It should be noted that the forecasts used for background pollutant levels were limited to the year 2030, i.e. much sooner than the end of the Pre-Submission Local Plan period; and vehicle emissions utilised are expected to be more conservative that the most recently released datasets in terms of electric vehicle percentages. Consequently, the assessment is considered to be conservative given that there is no account of further reductions in background pollutant concentrations in the intervening years, and vehicle emissions are expected to be lower than assumed.

Findings for Ecological Receptors

Ecological receptors include officially designated sites with interest features (i.e. plants and animals) that are sensitive to changes in air pollutant levels. Designated sites include those of international importance, as protected by international law, and those that are of national and local importance – including locations with and without statutory protection.

Screening was undertaken to determine the potential air quality impacts of the Pre-Submission Local Plan within designated sites, including: Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites (collectively referred to as 'Habitat sites'), and Sites of Special Scientific Interest (SSSI). The assessment addressed these impacts within and outside of WBC's administrative area.

The screening for the Habitat sites informed the 'Stage 1 Screening for the Local Plan Habitats Regulations Assessment', which concluded that there are no Likely Significant Effects and no further analysis is required at 'Stage 2 Appropriate Assessment'. Consequently, the air quality assessment focused on the potential air quality impacts at SSSIs only - specifically: Greenham and Crookham Commons, Snelsmore Common, Hollies Down, and Lardon Chase.

Annual mean concentrations of nitrogen oxides and ammonia, and nutrient nitrogen deposition were predicted at the SSSIs without and with the Pre-Submission Local Plan.

The impacts were determined in relation to published Critical Levels for pollutant concentrations, and lower Critical Load for nitrogen deposition.

The assessment for the SSSIs showed that potential effects due to changes in nitrogen oxides concentrations and nitrogen deposition can be discounted on the following bases:

- The Critical Level for annual mean nitrogen oxides is met (not exceeded) in 2037, both without and with the Pre-Submission Local Plan.
- Whilst the lower Critical Load value is exceeded in 2037, both with and without the Pre-Submission Local Plan, there is an overall decrease in nitrogen deposition between the 2017 baseline and 2037 even with the Pre-Submission Local Plan.

The assessment found that the Critical Level for ammonia is exceeded, with changes exceeding 1% of the Critical Level due to the Pre-Submission Local Plan. Further advice on this was sought from Natural England. The advice received (based on discussions with the SSSI site managers) concluded that despite the indicated changes, there would be no significant effect.

Findings for Human Receptors and Public Health

Human receptors include residential properties, schools, care homes and medical premises. The predicted concentrations of nitrogen dioxide and particulate matter (PM_{10} and $PM_{2.5}$) at representative receptors have been compared to relevant air quality standards. These standards include legislated air quality strategy objectives, the recently legislated 2040 target for annual mean $PM_{2.5}$, and non-statutory WHO guideline limits. The magnitudes of impacts on pollutant levels at individual receptors have been determined in relation to the relevant air quality standards. This has then enabled the effects in-terms of the impacts at individual receptors and - more broadly - in-terms of public health across the borough to be evaluated.

The assessment predicts that air quality strategy objectives will be met at all receptors in the future, both without and with the implementation of the Pre-Submission Local Plan. 90.5% and 90.0% compliance with the 2040 target for $PM_{2.5}$ was determined without and with the Pre-Submission Local Plan respectively. The overall effect of the Pre-Submission Local Plan at human receptors is negligible.

Reductions in pollutant concentrations are predicted at across the borough between 2017 and 2037 with the Pre-Submission Local Plan. This suggests that the forecast growth in traffic is largely offset by the anticipated reduction in vehicle emissions, due to future improvements in the vehicle fleet. Between the beginning and end of the Pre-Submission Local Plan period, reduction in relative risk of mortality attributable to nitrogen dioxide air pollution is expected, with locations predicted to be within the Public Health England ‘low’ (most locations) or ‘medium’ (very few locations) exposure bands. A reduction in relative risk of mortality attributable to particulate air pollution is also expected, with all locations predicted to be within the Public Health England ‘low’ exposure band. Furthermore, all Pre-

Submission Local Plan site allocations are within the ‘low’ exposure band in-terms of nitrogen dioxide and particulate concentrations.

A further analysis to determine how the impacts are distributed in-terms of the English Indices of Multiple Depravation was undertaken. This indicates that the most deprived areas do not experience disproportionate adverse effects with the Pre-Submission Local Plan, with some indication of improvement at the most deprived receptor locations.

Postscript

Since preparing the report, some refinements were made to the Pre-Submission Local Plan and these were agreed in November 2022 (just before the Regulation 19 consultation stage). These changes included:

- A change in the Local Plan period, which now covers 2017 – 2039
- The removal of some site allocations, such as those within Burghfield.
- Reductions in quantum for some allocations, such as for the north-east Thatcham sites.
- Inclusion of some allocations which were assumed to be 'rolled over' (such as Sandleford) within the future reference case.

As such, the assessment is of the Pre-Submission Local Plan prior to these final refinements and is likely to represent a conservative assessment of the effects of the Pre-Submission Local Plan. However, once the revised West Berkshire Strategic Transport Model traffic forecasts for 2039 become available, further analysis will be required to confirm that there are no significant differences from the predictions for 2037.

1 Introduction

1.1.1. WSP has been commissioned to undertake an assessment of the likely air quality impacts at ecological and human receptors with the implementation of West Berkshire Council's (WBC) Pre-Submission Local Plan for the period 2017 – 2037.

1.1.2. It should be noted that since preparing this report, some refinements were made to the Pre-Submission Local Plan and these were agreed in November 2022 (just before the Regulation 19 consultation stage). These changes included:

- A change in the Local Plan period, which now covers 2017 – 2039
- The removal of some site allocations, such as those within Burghfield.
- Reductions in quantum for some allocations, such as for the north-east Thatcham sites.
- Inclusion of some allocations which were assumed to be 'rolled over' (such as Sandleford) within the future reference case.

1.1.3. As such, this assessment is of the Pre-Submission Local Plan prior to these final refinements and is likely to represent a conservative assessment of the effects of the Pre-Submission Local Plan. However, once the revised West Berkshire Strategic Transport Model (WBSTM) traffic forecasts for 2039 become available, further analysis will be required to confirm that there are no significant differences from the predictions for 2037.

Ecological Assessment

1.1.4. Screening was undertaken to determine the potential air quality impacts of the Pre-Submission Local Plan within designated sites, including: Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites (collectively referred to hereafter as 'Habitat sites'), and Sites of Special Scientific Interest (SSSI). The assessment has addressed these impacts within and outside of WBC's administrative area. The process considered data from traffic modelling and information from the Air Pollution Information Service (APIS)[1], and involved extensive consultation with Natural England. An overview of this screening process is provided in **Section 5.2** (page 38).

1.1.5. The screening for the Habitat sites was used to inform the Stage 1 Screening for the Local Plan Habitats Regulations Assessment (HRA)[2], which concluded that there are no Likely Significant Effects (LSE) and no further analysis is required at Stage 2 Appropriate Assessment. Consequently, the quantitative air quality assessment that is presented in this report focuses on the potential air quality impacts at the SSSIs only.

[1] Centre for Ecology & Hydrology (CEH), Air Pollution Information System (APIS). Available at: https://www.apis.ac.uk/

[2] WSP Report 70077159-001: West Berkshire Local Plan Review (Information to Inform) Habitats Regulations Assessment Stage 1 (Screening) - Air Quality

1.1.6. The qualitative assessment has involved the prediction of concentrations of nitrogen oxides (NOx) and ammonia (NH_3), and nitrogen (N) deposition rate (including the contribution of NH_3 to total N deposition) within the SSSI, for each scenario.

1.1.7. The predicted total concentrations/deposition rates were compared to the relevant Critical Level (CLe) and lower Critical Load (CLo) for the most sensitive interest feature for each SSSI, as given in APIS. The predicted changes in concentrations and deposition rates (i.e. the impacts) due to the Pre-Submission Local Plan were then determined.

1.1.8. The greatest impacts are likely alongside roads which experience the largest changes in traffic. The changes represented in the WBSTM traffic data account for the additional trips from the proposed site allocations, changes in demand, trip redistribution and the effects of traffic mitigation schemes.

1.1.9. The impacts of the Pre-Submission Local Plan ‘alone’ and ‘in-combination’ with other plans and projects have been assessed. The ‘in-combination’ assessment has included all committed development, development allocated through the Pre-Submission Local Plan and background growth up to the end of 2037. It has accounted for official forecasts of changes in the overall vehicle fleet composition and background concentrations of NOx and NH_3 and background N nutrient deposition over the Local Plan period.

1.1.10. To support the assessment and following consultation with Natural England, baseline monitoring was undertaken to determine annual mean nitrogen dioxide (NO_2) concentrations within areas not covered by WBC air quality monitoring, such as the Greenham and Crookham Commons SSSI.

1.1.11. The results of the air quality assessment have been interpreted by WSP ecologists to determine the potential for adverse impacts as a result of WBC’s Pre-Submission Local Plan.

Human and Public Health Assessment

1.1.12. For the human and Public Health assessments, concentrations of NO_2 and particulate matter (PM_{10} and $PM_{2.5}$) were predicted at sensitive receptors within 50 metres (m) of the kerb of roads included within the WBSTM.

1.1.13. The results for each pollutant were compared against UK Air Quality Standards, Environment Act (2021) 2040 targets and World Health Organisation (WHO) Global Air Quality Guidelines (AQGs).

1.1.14. The results for both the SSSI and human receptors have been utilised within the Sustainability Appraisal (SA) being produced by WBC.

1.1.15. The proposed site allocations accounted for in this assessment are shown in **Figures 1-1** to **1-9** (contained within the accompanying Section 1 Figure Book).

2 Legislation, Policy and Guidance

2.1 Air Quality Legislation

2.1.1. A summary of the relevant air quality legislation is provided below.

Air Quality Standards Regulations 2010[3]

2.1.2. The Air Quality Standards Regulations 2010 transpose the ratified EU legislation from Directive 2008/50/EC[4] into English law. This Directive sets legally binding limit values for concentrations in outdoor air of major air pollutants that impact public health such as PM_{10}, $PM_{2.5}$ and NO_2. The limit values for NO_2 and PM_{10} are the same concentration levels as the relevant AQS objectives and the limit value for $PM_{2.5}$ is a concentration of 25µg/m^3. However, Regulation 2 of the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020[5] updates the Air Quality Standards Regulations 2010 to include a limit value for $PM_{2.5}$ from 2020. At the time that the Air Quality Standards Regulations 2010 were made the limit value for this pollutant was under review by the European Commission.

2.1.3. The Regulations also set the CLe for the protection of vegetation as shown in **Table 2-1** below. CLes are defined by the United Nations Economic Commission for Europe[6] (UNECE) as:

"concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur according to present knowledge".

Table 2-1 – Relevant Air Quality Objectives and Standards

Pollutant	Concentration (µg/m³)	Measured As	Objective
Nitrogen dioxide (NO_2)	40	Annual mean	Not to be exceeded
	200	1-hour (hourly) mean	Not to be exceeded more than 18 times a year
	40	Annual mean	Not to be exceeded

[3] The Air Quality Standards Regulations 2010 – Statutory Instrument 2010 No 1001
[4] Directive 2008/50/EC https://www.legislation.gov.uk/eudr/2008/50/contents
[5] The Environmental (Miscellaneous Amendments) (EU Exit) Regulations 2020 - Statutory Instrument 2020 No.000
[6] Defra (2006). Critical Loads Advisory Group November 1996. (https://uk-air.defra.gov.uk/assets/documents/reports/empire/acidrain/clair.html

Pollutant	Concentration (µg/m³)	Measured As	Objective
Particulate matter less than 10 micrometres in diameter (PM_{10})	15	Annual mean	World Health Organisation (WHO) guideline level.
	50	Daily mean	Not to be exceeded more than 35 times a year
Particulate matter less than 2.5 micrometres in diameter ($PM_{2.5}$)	20	Annual mean	Not to be exceeded
	10	Annual mean	Environment Act 2021 concentration target (to be met by 2040)
	5	Annual mean	World Health Organisation (WHO) guideline level.
Nitrogen oxides (NO_x)	30	Annual mean	Not to be exceeded

2.1.4. Ambient NO_x concentrations, comprising mainly nitrogen monoxide and NO_2, are of concern in relation to protected ecological sites which have features that are sensitive to changes in NO_x.

European Union (Withdrawal) Act 2018

2.1.5. Following the UK withdrawal from the European Union, the European Union (Withdrawal) Act 2018 codified all EU legislation in force at that time into UK law. This included all applicable air quality standards and emission standards.

Environment Act 1995

2.1.6. Under Part IV of the Environment Act 1995, local authorities must review and document local air quality within their area by way of staged appraisals and respond accordingly, with the aim of meeting the air quality objectives defined in the Regulations. Where the objectives are not likely to be achieved, an authority is required to designate an Air Quality Management Area (AQMA). For each AQMA the local authority is required to draw up an Air Quality Action Plan (AQAP) to secure improvements in air quality and show how it intends to work towards achieving air quality objectives in the future.

The Environment Act 2021

2.1.7. The Environment Act 2021 was passed as part of the process to disengage UK law from EU law following the UK's withdrawal from the EU. The Act affirmed UK obligations for the protection and enhancement of biodiversity along with the protection of habitats and ecologically designated sites. The Act mandated the creation of at least one new target value in each policy area, with the new air quality target focused on $PM_{2.5}$. The Act also legislated for the creation of the Office for Environmental Protection as an overseeing authority.

2.2 Air Quality Policy

2.2.1. A summary of the national planning policy relevant to air quality and designated ecological sites is provided below.

Air Quality Strategy for England, Scotland Wales and Northern Ireland 2007

2.2.2. The Government's policy on air quality within the UK is set out in the Air Quality Strategy for England, Scotland, Wales and Northern Ireland (AQS)[7]. The AQS provides a framework for reducing air pollution in the UK with the aim of meeting the requirements of European Union legislation[8].

2.2.3. The UK Government and the devolved administrations are committed to the long- term goal expressed in the EU's 6th Environmental Action Plan to "*reach the long-term objective of no-exceedence of critical loads and levels"*[9]. The AQS specifically outlines CLe's for the protection of vegetation and ecosystems. These are drawn from the Air Quality Standards Regulations which the Secretary of State must ensure are not exceeded.

2.2.4. For the pollutants considered in the human assessment, there are both long-term (annual mean) and short-term standards. In the case of NO_2 and $PM_{2.5}$, the short-term standard is for a 1-hour averaging period, whereas for PM_{10} it is for a 24-hour averaging period. These periods reflect the varying impacts on health of differing exposures to pollutants, for example temporary exposure on the pavement adjacent to a busy road, compared with the exposure of residential properties adjacent to a road.

[7] Department for Environment, Food and Rural Affairs (Defra) and the Devolved Administrations (2007). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volumes 1 and 2)
[8] The UK formally left the EU on 31st January 2020. It is expected that a review of the current air quality legislation will be completed this year and that new air quality legislation for the UK will be brought forward.
[9] https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2001L0081:20130701:EN:HTML

Air Quality Plan

2.2.5. In 2017, the Government set out their Air Quality Plan for NO_2 in UK[10]. This included a supporting document listing those authorities with air quality directions due to non-compliance with EU limit values based on Pollution Climate Mapping (PCM). WBC was not included within this list of local authorities.

Clean Air Strategy

2.2.6. Defra published the Government's Clean Air Strategy[11] in 2019. This sets out measures, which aim to reduce emissions from all sources of air pollution, making air healthier to breathe, protecting nature and boosting the economy. The Strategy also proposes tough new goals to cut public exposure to airborne particulate matter, as per the recommendation made by the WHO. Furthermore, the Strategy confirms that the Government will set new legislation to 'create a stronger and a more coherent framework for action to tackle air pollution. This will be underpinned by new England-wide powers to control major sources of air pollution, in line with the risk they pose to public health and the environment, plus new local powers to take action in areas with an air pollution problem. These will support the creation of Clean Air Zones to lower emissions from all sources of air pollution, backed up with clear enforcement mechanism.' New enforcement powers will also be given at a national and local level, across all sectors of society. The Strategy also outlines the Government's intentions to reduce emissions of NO_x and NO_2 from road traffic and concentrates specifically on emissions of NH_3 from agriculture.

National Planning Policy Framework

2.2.7. The Government's overall planning policies for England are described in the National Planning Policy Framework[12]. The core underpinning principle of the Framework is the presumption in favour of sustainable development, defined as:

"… meeting the needs of the present without compromising the ability of future generations to meet their own needs."

2.2.8. One of the three overarching objectives of the NPPF is that planning should "*contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.*"

[10] Air quality plan for nitrogen dioxide (NO_2) in UK (2017): air quality directions. Available at: https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017 (Accessed March 2022).
[11] Defra (January 2019). Clean Air Strategy 2019.
[12] Ministry of Housing, Communities and Local Government (February 2019). National Planning Policy Framework.

2.2.9. In relation to air quality and sensitive ecological receptors, the following paragraphs in the document are relevant:

Paragraph 170: *"Planning policies and decisions should contribute to and enhance the natural and local environment by: …e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans."*

Paragraph 180: *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."*

Paragraph 181: "*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."*

2.2.10. The Government published a new NPPF[13] for consultation on the 22nd December 2022. In relation to air quality and sensitive ecological receptors, the following paragraphs in the document are relevant:

Paragraph 107: *"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."*

Paragraph 177: "*Planning policies and decisions should contribute to and enhance the natural and local environment by: … e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by,*

[13] Ministry of Housing, Communities and Local Government (December 2022). National Planning Policy Framework: draft text for consultation.

unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;"

Paragraph 188: *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."*

Paragraph 189: "*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."*

Ban on the Sale of Petrol and Diesel Vehicles

2.2.11. On the 18th November 2020, the government announced[14] that, by 2030, the sale of new petrol and diesel cars and vans will be banned in the UK, except for those which have a capability to drive significant distances with zero tailpipe emissions (such as hybrid vehicles). Additionally, by 2035, the sale of new hybrid vehicles will also be banned. The phasing out of conventional petrol and diesel cars and vans brings this change forward, when compared to the deadlines previously announced (2040 and 2035 in July 2017 and February 2020, respectively).

2.3 Air Quality Guidance

2.3.1. The following guidance has been referred to in the assessment of air quality effects.

Local Air Quality Management Technical Guidance

2.3.2. Defra Local Air Quality Management Review and Assessment Technical Guidance LAQM.TG(22)[15] explains a number of common processes that should be followed in the management and assessment of local air quality. These include common standards for

[14] UK Government press release (18/11/20). Available at: https://www.gov.uk/government/news/government-takes-historic-step-towards-net-zero-with-end-of-sale-of-new-petrol-and-diesel-cars-by-2030 [Accessed November 2021]
[15] Defra (2022) Part IV The Environment Act 1995 and Environment (Northern Ireland) Order 2002 Part III, Local Air Quality Management Technical Guidance LAQM.TG(22)

monitoring of pollutants in ambient air and the calibration of dispersion modelling against existing or new monitoring.

Natural England's Approach to Advising Competent Authorities on the Assessment of Road Traffic Emissions under the Habitats Regulations

2.3.3. This guidance was produced primarily for Natural England officers to provide advice to assessors but subsequently issued as general published guidance[16]. The guidance provides advice primarily to ecologists, however, includes some guidance screening road links and on thresholds of traffic flows to trigger assessment.

Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites

2.3.4. This guidance was produced by the Institute of Air Quality Management (IAQM)[17] specifically for air quality practitioners assessing designated ecological sites. The guidance provides a summary of the tools and methods applicable to the assessment of air quality impacts on designated ecological sites and provides a summary of recent case law for many aspects of assessment and type of site.

AQTAG(06) Technical Guidance on Detailed Modelling Approach for an Appropriate Assessment for Emissions to Air

2.3.5. This guidance[18] was produced by Defra and the Devolved Authorities specifically for the assessment of industrial emissions, however, is fully applicable to the assessment of the impacts on designed ecological sites from traffic emissions. The guidance provides factors and constants for the calculation of rates of deposition from various different types of pollutant. Much of the methodology outlined within the IAQM's designated sites guidance has been derived from AQTAG(06).

CIEEM Advisory Note: Ecological Assessment of Air Quality Impacts

2.3.6. The Ecological Assessment of Air Quality Impacts guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM)[19] is intended to take ecologists (and air quality specialists) through the issues that they should consider in order to make an

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[16] Natural England's Approach to Advising Competent Authorities on the Assessment of Road Traffic Emissions under the Habitats Regulations (NEA001) (June 2018). Available at: http://publications.naturalengland.org.uk/publication/4720542048845824#:~:text=This%20internal%20operational%20Guidance%20Note%20describes%20how%20Natural,Natural%20England%E2%80%99s%20own%20approach%20when%20applying%20the%20 Accessed December 2022].

[17] IAQM (May 2020) Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites Available at: https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf [Accessed 27/03/22]

[18] AQTAG(06). Available at: http://bailey.persona-pi.com/Public-Inquiries/A465-English/8%20Air%20Quality/8.2.2%20-%20AQTAG06_Technical%20Guidance%20Assessment%20emissions%20to%20air%20Mar2014.pdf [Accessed December 2022]

[19] CIEEM (January 2021) Advisory Note: Ecological Assessment of Air Quality Impacts [Accessed November 2021].

informed judgement as to the ecological effects of changes in pollution concentrations and deposition rates. The approaches set out build on the advice and guidance from Natural England and IAQM but focus on the ecologist's role to interpret the numerical output of air quality assessments to reach evidence-based conclusions on ecological significance.

Joint Nature Conservation Committee Report No.665 Nitrogen Futures

2.3.7. The Joint Nature Conservation Committee (JNCC) report[20] provides the summary of research undertaken on the future projections for nutrient nitrogen deposition and ambient NH_3 concentrations in the UK. The figures provided are for the whole of the UK with no spatial disaggregation and the future projections applied in the assessment follow the precautionary modelled scenario assuming that the National Emissions Ceilings Regulations (NECR) targets will not be met.

Land-use Planning & Development Control: Planning for Air Quality

2.3.8. Environmental Protection UK (EPUK) and IAQM have published joint guidance[21] that offers comprehensive advice on: when an air quality assessment may be required; what should be included in an assessment; how to determine the significance of any air quality impacts associated with a development; and, the possible mitigation measures that may be implemented to minimise these impacts.

National Planning Practice Guidance – Air Quality

2.3.9. This guidance[22] provides a number of guiding principles on how the planning process can take into account the impact of new development on air quality, and explains how much detail air quality assessments need to include for proposed developments, and how impacts on air quality can be mitigated. It also provides information on how air quality is taken into account by local authorities in both the wider planning context of Local Plans and neighbourhood planning, and in individual cases where air quality is a consideration in a planning decision.

[20] Joint Nature Conservation Committee (2020) Report No. 665 Nitrogen Futures [Online] https://hub.jncc.gov.uk/assets/04f4896c-7391-47c3-ba02-8278925a99c5, accessed February 2022
[21] Environmental Protection UK and Institute of Air Quality Management (Version 1.2 Updated January 2017). Land Use Planning & Development Control: Planning for Air Quality
[22] Ministry of Housing, Communities & Local Government (March 2014). National Planning Practice Guidance

3 Baseline Conditions

3.1 Location

3.1.1. Located in Berkshire, approximately 38 miles from central London, West Berkshire is situated north and south of the M4 motorway to the west of Reading. West Berkshire makes up over half of the geographical area of the county of Berkshire, covering an area of 272 square miles. The land use is predominantly rural, with urban areas dispersed throughout the district. The largest urban areas in the district are Newbury and Thatcham, where around 69,667 (44%) of West Berkshire residents live. Approximately 31,444 (20%) of residents live in the suburban area adjoining Reading borough. Approximately 57,354 (36%) of people live in rural settlements[23]. As such, cars are a key method of transport for local movement within more rural areas that experience more limited public transport options, however there are good transport links from the major urban centres.

3.1.2. Within the district, the M4 and the A34 meet. These roads provide direct links to key locations, including: London, Reading, Southampton, Portsmouth, Bristol, Oxford and Swindon. West Berkshire has good rail links, with London less than an hour by train and connections via Reading to all the mainline routes throughout the country. The area also has very good links to international transport, with Heathrow and Southampton airports in relatively close proximity.

3.2 Emissions Sources

3.2.1. Air quality within WBC's administrative area is primarily influenced by emissions from road traffic. Local air quality is also influenced by agriculture, manufacturing and to a lesser extent, industrial installations within the district with emissions to air.

3.2.2. Road traffic has been identified as the biggest single contributor to poor air quality within WBC's administrative area. Car and van ownership within the district is high with 87.6% of households owning a vehicle (the average for England is 74.2%)[24]. The areas located either side of the main road corridors and typically congested areas are the worst affected areas with respect to poor air quality.

3.2.3. Within the district there are three large industrial installations that are permitted by the Environment Agency[25] and have the potential to influence local air quality:

- AWE Aldermaston – Combustion in excess of 50MW, manufacturing of inorganics and metals and production of carbon by incineration/graphitisation;

[23] Complete information on West Berkshire available at https://westberks.gov.uk/research [Accessed December 2022]
[24] RAC Foundation - Car ownership rates per local authority in England and Wales Available at: https://www.racfoundation.org/assets/rac_foundation/content/downloadables/car%20ownership%20rates%20by%20local%20authority%20-%20december%202012.pdf [Accessed November 2022]
[25] Environment Agency. Public Registers. [online] https://environment.data.gov.uk/public-register/view/search-industrial-installations

- AWE Burghfield – Production of carbon by incineration/graphitisation and general permitted releases to air; and
- Burghfield Power Station (SSEPG (Operations) Limited) – A gas fired power plant permitted for combustion in excess of 50MW.

3.2.4. There are additional Environment Agency permitted processes within the district, however these relate to landfilling and processing of waste, with no specified permits relating to emissions to air.

3.2.5. There are a number of smaller industrial installations with emissions to air that are permitted and regulated by WBC[26].

3.2.6. As all of the regulated industrial installations are required under permit terms to mitigate pollutant emissions to air, it is unlikely that these sources in themselves will give rise to poor air quality.

3.3 Local Air Quality Management

3.3.1. WBC has two AQMA, the Newbury AQMA and the West Berkshire Thatcham AQMA. The Newbury AQMA was declared in 2009 for exceedances of both the NO_2 1-hour and annual mean AQS; and the Thatcham AQMA was declared in 2011 for exceedances of the NO_2 annual mean AQS.

3.3.2. WBC publishes Annual Summary Reports (ASR) which summarise monitored pollutant concentrations and any air quality actions and associated progress. For this assessment, the 2021 ASR[27] (i.e., containing data for 2020) has been used as there are inconsistences with historic data contained within the 2022 ASR. Details of the monitoring undertaken by WBC are given below.

3.3.3. Currently, WBC Berkshire does not have a publicly accessible Air Quality Action Plan (AQAP), however the 2021 and 2022 ASRs outline the actions to improve air quality within the district. Measures include:

- Continued installation of electric vehicle (EV) charging points;
- Cycling and walking infrastructure improvements;
- Road improvements;
- Expansion of monitoring capability;
- Implementation of air quality conditions in the planning process;
- Anti-idling schemes; and
- Continuation of the School Streets programme which aims to cut down on traffic through trip reductions around schools.

[26] West Berkshire Pollution Prevention and Control - Public Register - October 2022, Available at: https://publicprotectionpartnership.org.uk/freedom-of-information-foi-and-public-registers [Accessed November 2022]

[27] WBC (2021). 20221 Air Quality Annual Status Report (ASR) for West Berkshire. Available at: https://publicprotectionpartnership.org.uk/media/2345/west-berkshire-asr-2021.pdf [Accessed November 2022]

3.4 Review of Available Data

Background Concentrations

3.4.1. Estimated background concentrations obtained from Defra[28] for annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations (**Appendix C**) meet the AQS objectives.

3.4.2. The WHO updated its air quality guidelines (AQG) in 2021 in response to the real and continued threat of air pollution to public health. The AQG for annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations are 10, 15 and 5 µg/m^3 respectively. Estimated annual mean background concentrations for 2019 exceed AQG limits across the district. For PM_{10} and $PM_{2.5}$, sources other than road transport make up over 90% of background concentrations. These non-road contributed concentrations alone are predicted to exceed the AQG for both PM_{10} and $PM_{2.5}$. Similarly for background NO_2, even without the contributions from road sources, concentrations exceed the WHO AQG's.

Local Authority Air Quality Monitoring Data

3.4.3. WBC undertakes monitoring of annual mean NO_2 concentrations across the district using passive diffusion tubes located adjacent to roads at kerbside and roadside, and at urban centre and urban background locations. There is also one roadside automatic monitoring station (CM1) which monitors 1-hour and annual mean NO_2 concentrations within the Newbury AQMA. PM_{10} and $PM_{2.5}$ concentrations are not monitored.

3.4.4. Details of monitoring for the period 2016 to 2020 inclusive are provided in **Appendix D** (pages 161 to 164) and **Figures 3-1** to **3-4** (contained within the accompanying Section 3 Figure Book). Baseline air quality conditions as interpreted from the monitoring data are discussed below.

NO_2 Concentrations

3.4.5. Between 2018 and 2020, the AQS objectives for NO_2 were met throughout the district, with the last exceedance of 40µg/m^3 at CM1 in 2017.

3.4.6. It should be noted that the COVID-19 pandemic during 2020 means that the 2020 monitoring data are not considered to be representative of a 'typical' year. It is possible that some of the improvements in local air quality experienced during 2020 due to reduced activity may be partially sustained due to the changes in working and travel patterns post-COVID, as well as the uptake of the electric vehicles. Notwithstanding the influence of the COVID-19 pandemic, there was a downward trend in annual mean NO_2 concentrations at the majority of locations between 2016 and 2019, with annual variations taking place due to effects such as changes in traffic flow and meteorological conditions.

3.4.7. The WHO AQG for annual mean NO_2 concentrations (10µg/m^3) has been exceeded at all monitoring locations within all years, except at 2 Pounds Cottages in 2020 (exact location

[28] Available at: https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html [Accessed November 2022]

not given in the ASR), where the annual mean concentration was 9.6µg/m^3. However, it should be noted that the data capture was 75% and the first three months of the year was missing, and with no annualisation taking place, it is likely that 10µg/m^3 would have been exceeded.

3.5 Ecological Background Concentrations and Deposition Rates

3.5.1. To better understand baseline conditions across the study area, modelled background NO_x and NH_3 concentrations and N deposition rates were sourced from Defra and APIS[29] respectively and compared to the relevant CLe's and CLo's for the most sensitive interest feature at each SSSI. The CLe's and CLo's are included in **Appendix E Table E-1** (page 166).

NOx concentrations in relation to the Critical Level

3.5.2. The relevant CLe's and background NO_x concentrations, sourced from Defra, are provided in **Appendix E Table E-2** (page 169).

3.5.3. Background concentrations fall well below the CLe of 30µg/m^3 for annual mean NO_x at all sites when considering the maximum concentration within each SSSI. The highest background NO_x concentration of 16.7µg/m^3 is at the edge of the Holies Down SSSI. The lowest concentration is 13.5µg/m^3 within Greenham and Crookham Commons SSSI. As such, there is substantial headroom between background annual mean NOx concentrations and the CLe at all SSSI that are included in this assessment.

NH_3 concentrations in relation to the Critical Level

3.5.4. The relevant CLe's and background NH_3 concentrations, sourced from the APIS, are provided in **Appendix E Table E-3** (page 170). Typically, a CLe of 1µg/m^3 is applied where lichens and bryophytes are present due to their particular sensitivity to changes in NH_3 concentrations. A CLe of 3µg/m^3 is applied for higher plants, which are less sensitive to NH_3 levels.

3.5.5. Background annual mean NH_3 concentrations currently exceed the CLe of 1µg/m^3 at all SSSI. The highest concentration is 1.84µg/m^3 at the Holies Down SSSI, with the lowest concentration of 1.25µg/m^3 at the Greenham and Crookham Commons SSSI.

N Deposition and relevant Critical Loads

3.5.6. The relevant CLo's and background N deposition rates, sourced from the APIS, are provided in **Appendix E Table E-4** (page 171). There are widespread baseline exceedances of the relevant CLo's. The magnitude of the exceedance is controlled by the lower CLo which is determined by most sensitive interest feature within the site. For example, at Holies Down and Lardon Chase SSSI the lower CLo is 15 kg N/ha/yr and this is

[29] APIS provides estimated background concentrations of NOx (from Defra), and concentrations of NH3 and rates of N deposition as a three-year average (2017 – 2019) (from FRAME), based on modelling.

exceeded by between 10% and 17%. At Greenham and Crookham Commons, and Snelsmore SSSI, the lower CLo is 10 kg N/ha/yr, with exceedances ranging between 60% and 81% above the lower CLo.

3.6 Ecological Air Quality Monitoring

3.6.1. Monitoring of annual mean NO_2 concentrations using diffusion tubes was undertaken between October 2021 and October 2022 in the vicinity of the Greenham and Crookham Commons SSSI. The aim was to see if the 'on the ground' concentrations at locations of interest (as indicated by Natural England) and near to roads at the edge of the site and determine if the modelled concentrations were realistic and to ascertain any fall off in concentrations from the road.

3.6.2. Monitoring locations are shown in **Figures 3-7** to **3-10** (contained within the accompanying Section 3 Figure Book) and **Appendix F** (pages 175 to 178) and included three transects, four individual locations and co-located at WBC's CM1 monitoring site in Newbury. Three monitoring transects (MT1, MT2 and MT3) and four single locations (L1 at Crookham Hill, L2 on the A339, L3 on Burys Bank Road and L4 behind a dense vegetation at the edge of the SSSI) were agreed with Natural England. In addition, diffusion tubes were co-located with the CM1 automatic monitor in Newbury to enable a comparison with the diffusion tubes and if possible, use it to create a local bias adjustment factor[30].

3.6.3. The diffusion tubes at MT1 and MT2 were placed at a height of 2.5m on poles to deter interference from cattle. The diffusion tubes MT3 was placed on stakes around 0.8m off the ground. All other locations used a height of 1.8m where possible on lamppost and other street furniture. The tubes were located as close as possible to the edge of the SSSI, with the transects placed at smaller distances apart nearer the road and further apart when moving away from the road.

3.6.4. The monitoring indicated low concentrations at MT1 and MT2, below the Defra background NO_2 mapping for 2021 and approaching the forecast 2030 values. Other locations were indicated concentrations slightly above the Defra background for 2019, with substantially higher concentrations roadside/kerbside sites.

3.6.5. There was no evidence of a falloff in concentrations going away from the road at the MT1 and MT2 transects – insofar that some concentrations increased slightly away from the road. The maximum concentration across these transects was 7.0µg/m^3 at MT2 85m from the road. These sites are upwind of Burys Bank Road, so it is possible that as it's the major source of emissions, that the wind may be effective in dispersing the pollutants. Another potential option is that there are some other contributions locally, such as from the New Greenham Business Park, however it is likely to be a combination of both.

[30] A local bias adjustment factor was not possible at the time of reporting as the CM1 data had not been validated.

3.6.6. The maximum surveyed 2021 NO_2 concentration[31,32] in the vicinity of the SSSI was 18.7µg/m^3 at L1, which was located at kerbside to the west of Crookham Road and slightly outside of the SSSI designation.

3.6.7. The highest 2021 NO_2 concentration[33] within the SSSI was 7.4µg/m^3 at L4, inside the SSSI behind a vegetation barrier on Burys Bank Road, to the west of MT1 and MT2. At MT3, there was the typical fall off with distance, with NO_2 concentrations ranging from 9.9µg/m^3 closest to the A339, to 8.2µg/m^3 100m further back, MT3 is downwind of the A339 and within trees, so this is to be expected.

3.6.8. Using the Defra NOx to NO_2[34] calculator, a primitive conversion from NO_2 to NOx was undertaken for 2022 using no background concentrations. All locations were well under the NOx CLe (30µg/m^3) within the SSSI. At MT1 and MT2, the highest concentration is estimated to be 10.0µg/m^3 at MT2 (85m), 11.3µg/m^3 at L5 and 15.8µg/m^3 at MT3 0m. The concentration at L3 and L4 (either side of a vegetation barrier on Burys Bank Road) were 15.7µg/m^3 and 11.2µg/m^3 respectively. The maximum concentration in the vicinity of the SSSI was L1, a kerbside location with an estimated NOx concentration of 32.9µg/m^3.

3.6.9. As such, it is reasonable to conclude that no monitored location within the SSSI is likely to exceed the NOx CLe in 2021. It was decided that the diffusion tubes would not be used in the model verification process due to the difference in time periods between the tube exposure and the 2017 baseline year. This has the potential to introduce additional uncertainty to both the monitored and modelled concentrations and using the existing monitoring network would result in a more conservative ecological assessment (at least in terms of NOx and NO_2 emissions from road vehicles).

3.7 Public Health Indicator

3.7.1. According to Public Health Indicator D.01[35] the fraction of mortality attributable to particulate air pollution (2020 - new method[36]) in West Berkshire was 5.8% in 2020. This is lower than the average for the south-east of England region (6.0%) and higher than the England average (5.6%) as a whole. In comparison to neighbouring south-eastern local authorities, the fraction of mortality for West Berkshire is higher than Test Valley (5.6%), Vale of White Horse (5.7%) and South Oxfordshire (5.7%), but lower than Reading (6.8%), Wokingham (6.3%) and Basingstoke and Deane (5.9%).

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[31] Annualised and bias adjusted
[32] Excluding the Co-location study with CM1 within the Newbury AQMA
[33] Annualised and bias adjusted
[34] Defra NOx to NO_2 calculator v8.1 (August 2020). Available at: https://laqm.defra.gov.uk/air-quality/air-quality-assessment/nox-to-no2-calculator/
[35] Public Health Outcome Framework https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/3/gid/1000043/pat/6/par/E12000008/ati/401/are/E07000213/iid/93861/age/230/sex/4/cat/-1/ctp/-1/yrr/1/cid/4/tbm/1 [Accessed November 2022]
[36] The new method includes updated concentration-response function (CRF) values for $PM_{2.5}$ following the Committee on the Medical Effects of Air Pollutants (COMEAP) recommendations and updated Defra background mapping.

3.7.2. The new method only has one year of data (2020) and therefore it is not possible to extract a trend, however given the indicator is related to the 1 x 1 km Defra background concentrations across each district, it is expected that the fraction of mortality will decrease in line with the gradual reduction in background concentrations.

4 Dispersion Modelling Methodology

This section of the report outlines the key modelling methodologies and information that are common to both the human and ecological assessments, plus any variations there may be of the common aspects.

4.1.1. The model used for this assessment is the ADMS-Roads (version 5.0.0.1) atmospheric dispersion model. ADMS-Roads uses detailed information regarding traffic flows on the local road network, surface roughness, and local meteorological conditions to predict pollutant concentrations at specific receptor locations, as determined by the user. Additional details of the ecological and human modelling methodology and model verification can be found in **Appendix G** (pages 180 to 189) and **Appendix H** (pages 191 to 195) respectively, with the key details outlined below.

4.1.2. Meteorological data, such as wind speed and direction, is used by the model to determine pollutant transportation and levels of dilution by the wind. Meteorological data used in the model was obtained from the Met Office observing station at Odiham for 2017. This station is considered to provide representative data for the assessment and a wind rose for 2017 can be found in **Appendix G**.

4.1.3. The broad methodology for the ecological assessment involved screening of traffic data according to the HRA Stage 1 Screening guidance provided by Natural England.

4.2 Traffic Data and Assessment Scenarios

4.2.1. Traffic data from the West Berkshire Strategic Transport Model (WBSTM) was processed for input to the dispersion model. Three scenarios were modelled for the ecological assessment, which are:

- 2017 Baseline;
- 2037 Reference; and
- 2037 Pre-Submission Local Plan.

4.2.2. 2017 is the most recent year for which suitable monitoring data and meteorological data are available to enable verification of the model results, and so this year has been used as the baseline year for this assessment. 2037 represents the end of the Pre-Submission Local Plan period[37].

4.2.3. The traffic data for the Reference scenario include background local and regional growth up to 2037, and committed developments within the district, but does not allow for the forecast growth in traffic as a result of the implementation of the Pre-Submission Local Plan.

[37] The Local Plan period was changed to cover 2017 – 2039 just before the Regulation 19 consultation stage, therefore, this assessment was undertaken using 2037 as the Local Plan end point

4.2.4. The traffic data (S1R2 Mit2 v1a) for the Pre-Submission Local Plan scenario include the Reference scenario traffic data plus the Pre-Submission Local Plan generated traffic (including from the proposed site allocations and including windfall development).

Ecological Context

4.2.5. As agreed with Natural England, the above scenarios can be used to derive the following comparisons:

- 'Alone' compares the Pre-Submission Local Plan scenario against the Reference scenario; and
- 'Realistic in-combination' compares the Pre-Submission Local Plan scenario against the 2017 Baseline.

4.2.6. For this assessment, the primary consideration is the 'alone' comparison, with minor reference to the 'realistic in-combination' comparison[38]. Additionally, the years by which the rate of improvement has been retarded provides context on the impact of the Pre-Submission Local Plan 'alone' and how it affects the expected improvements in pollutant concentrations within the sites.

4.3 Study Area

4.3.1. The study area (see **Figure 4-1** (contained within the accompanying Section 4 Figure Book 1)) comprises all roads within WBC's administrative area and those outside of the district up to a distance of 1km. To facilitate a manageable dispersion model, five geographically distinct models were created as detailed below. To maintain consistency with the human modelling and model verification process, for each scenario, all model zones were run and then combined in post-processing. This also allows for the contributions from road links in nearby zones to be included within the modelled concentrations. The five zones are outlined geographically in **Figure 4-2** (contained within the accompanying Section 4 Figure Book 1) and listed individually below. The breakdown of each zone includes the broad areas it covers, plus any SSSI which are being assessed:

1) Newbury Zone, incorporating the urban area of Newbury, up to Thatcham and the urban fringe.
2) Thatcham, Greenham, Wash Common and Sandleford Zone, incorporating the area around Thatcham, Greenham, Wash Common and Sandleford; and Greenham and Crookham Commons SSSI.

[38] The 'realistic in-combination' comparison presented within this assessment differs from some interpretations of the different 'in-combination' that is required for assessments that are undertaken in accordance with the HRA Regulations (it should be noted that the HRA Regulations are not applicable to this to this assessment). This is because the 'realistic in-combination' comparison does not assess all cumulative growth occurring in the with Pre-Submission Local Plan scenario and additionally, some interpretations include no improvement in emission factors or background concentrations. This 'realistic' approach was used for the SSSI assessment as the 'in-combination' approach is somewhat unrealistic given the likelihood of fleet renewal and additional growth outside of West Berkshire, plus it does not allow for the quantification of the impacts of the Pre-Submission Local Plan.

3) West Berks All Other Areas – North, West and South Zone, incorporating the urban areas of Hungerford Hungerford, the areas north, west and south of Newbury, including Hungerford, Kintbury, Lamborune and Chieveley; and Snelsmore Common SSSI.
4) West Berks All Other Areas – East and North East Zone, incorporating the areas east and north-east of Newbury and Thatcham which includes Theale, Calcot, Pangbourne, Cold Ash/Hermitage, Lardon Chase SSSI; and Holies Down SSSI.
5) West Berks All Other Areas – South East Zone, incorporating the areas south-east of Newbury and Thatcham.

4.4 Emission Factors

4.4.1. Vehicle emission factors for use in the assessment have been obtained using Defra's Emissions Factors Toolkit (EFT) version 11.0 (November 2021)[39] and Air Quality Consultants CREAMv1a tool[40] (February 2020) for NH_3.

4.4.2. The EFT allows for the calculation of emission factors arising from road traffic for years including and after 2018. For predictions of future year emissions, the EFT takes into account factors such as anticipated advances in vehicle technology and changes in vehicle fleet composition, such that vehicle emissions are assumed to reduce over time. CREAMv1a allows for the calculation of NH_3 emission factors arising from road traffic for years including and after 2013.

4.4.3. As the 2017 baseline year is not included within EFT v11.1, the 'Euro Compositions' tool was used. The fleet mix from EFT v9 was extracted and used within the EFT v11.1 tool. Therefore, the fleet that was present within 2017 is replicated within the new tool that included up-to-date emission factors for the vehicle fleet.

4.4.4. Assuming the end of the Local Plan period is 2037, more representative fleet mix data was sought to reduce unrealistic conservatism within the assessment. Bureau Veritas (the operators of the Defra LAQM helpdesk) was consulted on the fleet mix post-2030 within the EFT in terms of electric vehicle (EV) percentage and the data source. This is because for air quality assessments, the years between 2031 and 2050 are not officially supported due to deviations from the National Atmospheric Emissions Inventory (NAEI) datasets[41]. However, Bureau Veritas advised that post-2030, the fleet mix had been calculated by the Department for Transport (DfT) by 'blending' the NAEI and DfT Transport Analysis Guidance (TAG)

[39] Defra Emissions Factors Toolkit, version 11.0. Available at: https://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html [Accessed November 2022]
[40] Air Quality Consultants (February 2020) Calculator for Road Emissions of Ammonia (CREAM) V1A
[41] The EFT v11.0 User Guide states that emission factors for years beyond 2030 are provided in support of climate assessments and appraisals only. Notably, "Where emissions are to be used after 2030 to inform air quality assessments, the appropriate caveats around the limitations of the analysis must be included to accompany the assessment."

Databook[42,43]. As such, it can be assumed to be a reliable source of projection data as it is used within a wide range of local, regional and national modelling and decision-making processes. The 'blending' process was designed to achieve parity with the TAG Databook v1.18 by 2050. As such, all years pre-2050 are conservative when compared to the TAG Databook fleet.

4.4.5. The EFT blended projections predict that for urban roads in 2037, 21.6% of the car fleet[44] will be electric. In comparison, the two most recent versions of the TAG Databook predict that 29% and 57% of cars (in v1.19 and v1.20 respectively) are predicted to be EVs in 2037. Therefore, it is likely that at least the more conservative v1.19 projections will be realised, which in themselves are not as conservative as the data within the EFT used in this assessment.

4.4.6. Therefore, for the EFT, the year selected was 2037, whilst 2035 was used within CREAMv1a; however, a modified fleet based on the extracted EFT fleet mix was used to best represent 2037. These inputs will therefore provide more realistic outputs when compared to the typical assessment approach, although when compared to TAG Databook projections they remain conservative in terms of EVs numbers.

4.4.7. Each road link was assigned as either 'urban'[45], rural or as a motorway (including high speed dual carriageways). This therefore controlled the modification of the CREAMv1a fleet to be in line with EFTv11 in 2037 and provide representative flows for each road link type. The assignment of road types is show in **Figure 4-3** (contained within the accompanying Section 4 Figure Book 1).

4.5 Background Concentrations and N Deposition

Background NOx and NO_2 Concentrations

4.5.1. Background concentrations for the study area have been taken from the national maps provided by Defra[46]. These maps provide estimated annual mean background concentrations for the whole of the UK at a grid resolution of 1 x 1 km, for all years between 2018 and 2030. However, for the baseline year, the previous version of the maps has been used to provide background concentrations for 2017. A comparison was undertaken between the 2017 and 2018 versions of the basemap and there were minimal differences across all sectors.

4.5.2. A key assumption is that background concentrations will reduce over time. Many local authorities are finding that the results of their local monitoring do not always support this

[42] DfT TAG Databook used within the EFT assumed to be v1.18, with the current version being v1.20. Available at https://www.gov.uk/government/publications/tag-data-book
[43] TAG provides information on the role of transport modelling and appraisal, and how the transport appraisal process supports the development of investment decisions to support a business case.
[44] The car fleet refers to just cars and no other vehicles and therefore differs from the overall vehicle fleet which contains all vehicles on the road.
[45] Defined by DfT as areas with a population of 10,000 or more.
[46] https://uk-air.defra.gov.uk/data/laqm-background-home

assumption, with many areas showing that pollutant concentrations have remained fairly stable over recent years. In West Berkshire, however, there has been a reduction in monitored NO_2 concentrations in recent years and, consequently, it is reasonable to apply Defra's estimates for 2030 in the case of the 2037 scenarios.

4.5.3. It should be noted that the background maps present both the total estimated background concentrations and the individual contributions from a range of emission sources (for example, motorways, aircraft, domestic heating etc). When detailed modelling of an individual sector is required as part of an air quality assessment (such as motorways, trunk roads etc), the respective contribution(s) can be subtracted from the overall background estimate to avoid the potential for double-counting.

4.5.4. As the WBSTM covers nearly all roads within the district and the traffic data from this model has been utilised within the assessment, it is necessary to undertake 'in-square' sector removal of motorways, trunk roads and primary A-roads to avoid the potential for double counting.

4.5.5. To enable representative and consistent background concentrations at different distances along a transect, regardless of their location, an interpolation process has been applied to the background concentrations post sector removal. This will reduce the instances of 'step-changes' between grid squares, even when receptors may be next to each other. The interpolation utilises a bilinear interpolation and a 1km zone of influence (takes into account the that the Defra background concentrations are based on the average of 1 x 1 km grid squares). The interpolation uses the geometry of the 1 x 1 km grid (centred on a 'XXX500, YYY500' point) to do a linear interpolation of whatever values are set. The principle of the interpolation is to use the standard geometry of the square to provide a relative weighting for any point between 4 of Defra's mapped points.

4.5.6. Emissions from other source types such as agriculture, building heating systems and industrial installations, are captured within the background concentrations.

4.5.7. Table 4-1 details the range of interpolated background ambient NOx concentrations at each SSSI. There are reductions in concentrations between 2017 to 2037 (which utilised 2030 Defra background data[47]) as a result of local and national policies to improve air quality, namely increasing the proportion of electric vehicles (EVs) within the vehicle fleet.

[47] 2030 is the last year for which Defra publish background concentrations. To provide a level of conservatism and robustness, the 2030 backgrounds have been utilised for 2037 and backgrounds have not been adjusted/projected to 2037

Table 4-1 - Ambient Background NOx Concentration Ranges for SSSI

SSSI	2017 Background NOx Concentration Range (µg/m³)	2037 (2030) Background NOx Concentration Range (µg/m³)
Greenham And Crookham Commons	13.5 – 15.6	8.9 – 6.3
Snelsmore Common	13.8 – 15.0	8.0 – 8.5
Lardon Chase	14.2 – 15.6	9.1 – 10.3
Holies Down	15.8 – 16.8	10.4 – 11.1

Background NH_3 and N Deposition – Ecology Only

4.5.8. The N deposition rates for the 5km grid squares containing the SSSI have been obtained from the APIS website (and are shown in **Appendix E** (pages 166 to 173)).

4.5.9. These have then been assigned to each of the modelled transects based on locations, whilst also applying professional judgement. The deposition rates for 2017–2019 have been factored forward to 2030 based on the trend data provided for the Business as Usual (BAU) case within the Nitrogen Futures document.

4.5.10. The BAU case assumes the implementation of UK wide measures but no spatial targeting and also assumes that the National Emissions Ceilings Regulations (NECR) targets will not be met. The following factors have been applied:

- Background NH_3 concentrations: +0.08% year on year; and
- Background N deposition: -1.04% year on year.

4.5.11. The above approach is considered to represent a conservative assessment of likely background concentrations of NH_3 and N deposition. In addition, it does not allow for any degree of reduction that may occur between 2030 and 2037 (as there are no forecasts available).

4.5.12. Under the BAU case presented within the Nitrogen Futures document, NH_3 concentrations are projected to rise by 0.08% each year between 2018 and 2030[48]. As such the

[48] No changes to background ambient NH3 concentrations are included post 2030 as no projections are available.

background ambient NH_3 concentrations will typically not increase when rounded to one decimal place and are as follows:

- Greenham and Crookham Commons, ranging from 1.3 to 1.7 µg/m³ in both 2017 and 2037;
- Snelsmore Common, 1.7µg/m³ in both 2017 and 2037;
- Lardon Chase, 1.8µg/m³ in both 2017 and 2037; and
- Holies Down, 1.8µg/m³ in 2017 and ranging from 1.8 to 1.9 µg/m³ in 2037.

4.5.13. Based on the above, background ambient NH_3 concentrations exceed the CLe for NH_3 (1 µg/m³ for areas with lichens and bryophytes).

4.5.14. Background N deposition is variable across the district and the 10 kg N/ha/year lower CLo (Greenham and Crookham Commons and Snelsmore Common SSSI) and 15 kg N/ha/year lower CLo (Lardon Chase and Holies Down SSSI) will be exceeded in 2017.

4.5.15. Under the BAU case presented within Nitrogen Futures[49], there is predicted to be an overall reduction in N deposition year on year of 1.04% across all sites. As such, in 2037, the background N deposition rate for Lardon Chase is just below the lower CLo, at 14.55 kg N/ha/year. For Holies Down, one area exceeds the lower CLo (15.40 kg N/ha/year), while another is below (14.55 kg N/ha/year). For both Greenham and Crookham Commons and Snelsmore Common SSSI, the background N deposition rate is well above the lower CLo.

4.6 Model Verification

4.6.1. Modelling was verified against WBC monitoring of annual mean NO_2. The ADMS-Roads dispersion model has been widely validated for this type of assessment and is considered to be fit for purpose. Model validation undertaken by the software developer will not have included validation in the vicinity of the district.

4.6.2. To determine the performance of the model at a local level, a comparison of modelled results with the results of monitoring carried out within the study area was undertaken. This process of verification aims to minimise modelling uncertainty and systematic error by correcting modelled results by an adjustment factor to gain greater confidence in the final results, and was carried out following the methodology specified in Chapter 7 Section 4 of LAQM.TG(22). The verification showed that the model under-predicted pollutant concentrations at all locations to varying degrees. This was then compensated for through a process of model adjustment to bring the model more into line with the monitored concentrations.

Ecological Assessment

4.6.3. For the ecological modelling, one adjustment factor was derived. This utilised locations outside of major urban areas and on the urban fringe. A factor of 2.63 has been used for the

[49] No changes to background N deposition rates are included post 2030 as no projections are available.

ecological assessment. Further details on the ecological model verification can be found in **Appendix G** (pages 180 to 189) and the locations used within the assessment can be found in **Figure 4-4** (contained within the accompanying Section 4 Figure Book 1).

Human and Public Health Assessment

4.6.4. For the ecological modelling, four adjustment factors were derived. These are:

- Newbury Urban Area = 1.58;
- Thatcham = 2.3;
- Theale and Calcot = 1.25; and
- Outside Major Urban Areas = 2.88.

4.6.5. Further details on the human model verification can be found in **Appendix H** (pages 191 to 195) and the locations used within the assessment can be found in **Figures 4-5** to **4-9** (contained within the accompanying Section 4 Figure Book 1).

4.7 Selection of Sensitive Receptors

Ecological Assessment

4.7.1. Transects for each Designated Site were created during the consultation process with Natural England and focused on identified key areas and where concentrations were expected to be highest or show the greatest change with the Pre-Submission Local Plan.

4.7.2. Annual mean NO_2 and NH_3 concentrations have been calculated along a series of transects running perpendicular to the roads running through/within at least 200m (where the site allows) of the SSSI at a height of 0m to represent ground level. The transects (42 in total) are shown on **Figures 4-10** to **4-18** (contained within the accompanying Section 4 Figure Books 1 and 2**)**. The receptor spacing along each transect was 10m and start at the edge of the SSSI, with the start of the transect denoted by the use of 0m.

Human and Public Health Assessment

4.7.3. In terms of locations that are sensitive to pollutants emitted from engine exhausts, these include places where members of the public are likely to be regularly present over the period of time prescribed in the AQS. For instance, on a footpath where exposure will be transient (for the duration of passage along that path) comparison with the AQS objective for 1-hour mean NO_2 concentrations may be relevant. At a school or residential property, where exposure is likely to occur over longer periods, comparison with AQS objectives for 24-hour and annual mean concentrations is more appropriate. Box 1.1 of LAQM.TG(22) provides examples of the locations where the air quality objectives should/should not apply.

4.7.4. To enable the comparison against the Indices of Multiple Depravation, all sensitive receptors within 50m of a road with a traffic flow of more than 100 AADT within the WBSTM have been included. These receptors will experience the greatest changes in traffic flows and/or composition, and therefore NO_2 and particulate matter concentrations, as a result of the implementation of the Pre-Submission Local Plan.

4.7.5. As such, 27,275 receptors that are sensitive to the to the long-term AQS objectives. These receptors are derived from Ordnance Survey (OS) AddressBasePlus data and been snapped to the façade (within the OS Mastermap layer) adjacent to the nearest road[50] and it has been assumed that all receptors are at a height of 1.5m. As such, this will provide a worst-case representation of receptors such as those within flats.

4.7.6. Of these receptors, there are 179 locations included where there are communities/groups of people who are considered particularly vulnerable to changes in air pollution. These vulnerable communities/groups include:

- Schools;
- Day centres;
- Residential institutions/care homes;
- Play areas
- Hospitals/healthcare facilities; and
- Creches/nurseries/pre-schools.

4.7.7. An overview of the whole district showing the distribution of human receptors and the applied verification factors is shown in **Figure 4-19** (contained within the accompanying Section 4 Figure Book 2**)**.

4.7.8. Concentrations were also predicted at receptor points within the proposed site allocations to assess the likely exposure of future occupants to poor air quality. A grid set at a 25m resolution was used for all proposed site allocations, with a modelled height of 1.5m. Concentrations at proposed site allocations are reported for 2037 with the Pre-Submission Local Plan.

4.8 Limitations and Assumptions

4.8.1. There are uncertainties associated with both measured and predicted concentrations. The model (ADMS-Roads) used in this assessment relies on input data (including predicted traffic flows), which also have uncertainties associated with them. The model itself simplifies complex physical systems into a range of algorithms. In addition, local micro-climatic conditions may affect the concentrations of pollutants that the ADMS-Roads model will not take into account.

4.8.2. The ‘facading’ of receptors places the receptors closest to the nearest road (or nearest major road), so where buildings are large and contain multiple receptors, the receptors may be placed in the same location and are at the same height. As such, concentrations are likely to be conservative as they are closer to the source that they are in reality.

4.8.3. To reduce the uncertainty associated with predicted concentrations, model verification has been carried out following guidance set out in LAQM.TG(22). As the model has been

[50] Where it is clearly apparent that a different road link than the one closest to a façade will have a greater impact on pollutant concentrations, the receptor will have been manually moved to the façade closer to that road.

verified against local monitoring data and adjusted accordingly, there can be reasonable confidence in the predicted concentrations. However, outside the major urban areas of Newbury, Thatcham and Calcot/Theale, there is more sporadic WBC monitoring and therefore the factor may not be representative of all locations. In addition, it has not been possible to verify particulate matter concentrations as WBC do not undertake any particulate matter monitoring, there for the guidance set out in LAQM.TG(22) has been followed.

4.8.4. The Environment Act 2021 includes an annual mean concentration target of 10µg/m^3, to be achieved by 2040. This has been included within this assessment, but it should be noted that the background concentrations and other tools post-2030 have not been released yet, nor has a robust framework for assessment against the Environment Act 2021 targets.

4.8.5. In relation to public health impacts, it has not been possible to identify individuals who are vulnerable to changes in air quality where they are present/reside outside of one of the communities outlined within **Section 4.7** (page 35). These include pregnant women, people over 65 years of age and persons suffering from cardiovascular and respiratory diseases (e.g. asthma). In terms of morbidity, Public Health England's Air Pollution Tool does not take into account of live births between now and the forecast year, only the effects of the existing population over time.

4.8.6. There is ongoing research into particulate matter emissions relating to EVs (such as additional tyre/road wear and resuspension of particles due to additional vehicle weight) and therefore it is possible that particulate matter emission factors for EVs may be revised in the future.

4.8.7. The WBSTM (PTV VISUM) and the Newbury and Thatcham (VISSIM) sub models have each been developed by WSP transport consultants on behalf of WBC in accordance with DfT and TAG current at the time of development. All three models have also been calibrated and validated against observed traffic flow and journey time data in accordance with DfT guidance to ensure that they are sufficiently robust for the purposes of assessment.

5 Ecological Assessment Scope and Methodology

5.1 Scope

5.1.1. The scope of the ecological assessment has been determined in the following way:

- Consultation with the Natural England, the Environment Agency, Planning and Environmental Health Departments at WBC to agree the scope of the assessment and the methodology to be applied;
- Desk study to identify sensitive ecological receptors both within the district and in adjacent Local Authorities
- Review of site-specific data from APIS and Natural England.
- Review of the traffic data provided by WSP; and
- A screening exercise to determine the ecological sites to be assessed further.

5.1.2. The scope of the assessment includes consideration of the potential impacts of air quality on ecological receptors resulting from:

- Emissions to air from the with the implementation of the Pre-Submission Local Plan; and
- The potential redistribution of traffic on the local road network with the implementation of the Pre-Submission Local Plan as a result of variables such as changes in demand, the capacity of the road/journey times, resulting in car users seeking an alternative route.

5.2 Initial Screening Exercise

5.2.1. A qualitative, yet robust, screening exercise[51] was undertaken prior to the commencement of any detailed atmospheric modelling to provide a preliminary risk-based assessment to identify:

- Any areas where potential air quality effects at both ecological receptors can be screened out as insignificant'
- Roads and/or Habitat sites and SSSI that require further assessment to determine the likely effects of the LPR on ecological sites 'in-combination' with other plans and projects, both within the local authority's administrative area and within neighbouring authorities.

5.2.2. The screening approach acknowledged that there are several pathways (such as direct exposure to ambient are and direct/indirect exposure through deposition) by which airborne pollutants generated by road transport may result in potential effects on sensitive ecological receptors:

- Changes in NOx concentrations in relation to the CLe;

[51] Not to be confused with Habitats Regulations Stage 1 (Screening).

- Changes in NH_3 concentrations in relation to the CLe; and
- Changes in N deposition in relation to the site relevant lower CLo.

5.2.3. The initial screening assessment was completed through:

- Review of the WBC Information to Inform Habitats Regulations Assessment (HRA) Stage 1 Screening Report[52] with the project ecologist (WSP) to identify those sites that are sensitive to changes in NO_x and NH_3 concentrations and N deposition rates. This included all Habitat sites within 10km of WBC's Local Plan allocations and all SSSI within WBC's administrative area.
- Review of all proposed allocations and committed developments within and outside of WBC between 2017 and 2037 with the project transport consultant (WSP) to identify those areas and roads likely to be most affected by changes in annual average daily traffic (AADT).
- A multi-stage consultation process with Natural England to discuss the AADT changes with the Local Plan and determine which Habitat sites and SSSI require further assessment. An agreed 'nugatory' threshold (50 AADT 'alone') for further consideration owing to potential sensitivity to changes in pollutant concentrations[53].

5.2.4. Finally, those Habitat sites and SSSI identified by Natural England as potentially sensitive to changes in air quality and situated proximate to roads that were likely to experience a notable change in AADT flows were screened in for further assessment. Similarly, those Habitat sites and SSSI deemed unlikely to be affected by the WBC Local Plan were screened out of the air quality assessment. The above process was conducted, and outcomes agreed, through consultation with Natural England.

Habitats Sites Scoped Out

5.2.5. From the review of the WBC HRA Stage 1 Screening Report and consultation with Natural England[54] on the sensitivities of the relevant sites, **Table 5-1** (page 40) identifies the Habitat sites within 10km of the proposed site allocations that were screened out of the assessment:

[52] WSP (2021) West Berkshire Local Plan Review, (Information to Inform) Habitats Regulations Assessment Stage 1 (Screening) - Air Quality
[53] The approach was adopted in consultation with Natural England and has been used by WSP for other Local Plans (such as for Bracknell Forest). The 50 AADT threshold is considered to identify AADT changes which could be considered 'nugatory' and where further detailed dispersion modelling would not be considered likely to accurately identify the process contribution of the Pre-Submission Local Plan to any in-combination assessment.
[54] Initial consultation meeting with Natural England on habitats sites occurred on 08/05/2021. Confirmation of sites to be screened out received from Marc Turner via email on 16/06/2021

Table 5-1 – Habitats Sites Screened out of the Air Quality Assessment

Habitat Site	Rationale
Hackpen Hill SAC	Not within 200m of any road likely to experience a change in traffic as a result of WBC Local Plan.
Hartslock Wood SAC	Not within 200m of any road likely to experience a change in traffic as a result of WBC Local Plan.
Kennet & Lambourn Floodplain SAC	Desmoulin`s whorl snail (Vertigo moulinsiana) is not considered likely to be impacted through changes to habitat composition or structure, or changes to substrate, as a result of WBC Local Plan.
Kennet Valley Alderwoods SAC	Not within 200m of any road likely to experience a change in traffic as a result of WBC Local Plan.
River Lambourn SAC	Given the fluvial nature of the environment, any nitrogen deposited within the river will be washed downstream (as opposed to depositing and accumulating in one spot) and, therefore when combined with the buffering effect of groundwater-derived base flows, highly unlikely to result in LSE. Furthermore, a Natural England advisor and the Environment Agency[55] have advised effects on marginal riparian vegetation, outside of the river channel, are considered unlikely.
Thames Basin Heaths SPA	Only the corner of Thames Basin Heaths SPA falls within 10km of WBC's administrative area. Furthermore, there are only two proposed site allocations (HSA15 and HSA16, both within Burghfield Common) which fall within 10km of the SPA. It is the transport consultant's opinion that the number of houses within these two potential allocations (160 dwellings), and likely trip generation, is unlikely to trigger a change of 50 AADT on the identified roads within SPA. Given the location of the sites, it is expected that the majority of traffic to travel north/south to Reading and Basingstoke, respectively, or towards Tadley with AWE as a major employer in the area. Furthermore, the habitat located either side of Bramshill Road consists of conifer plantation and management of the plantation means that it is unlikely to support heathland over the time period covered by the Local Plan.

[55] Confirmation received via email from Graham Scholey on 28/10/2021

Habitats Sites Scoped In

5.2.6. All Habitat sites within 10km of WBC Local Plan allocations are outlined within **Table 5-1** above (i.e. those scoped out of the assessment). As such, there are no Habitat sites have been screened in for further assessment, as agreed with Natural England.

Sites of Specific Scientific Interest

5.2.7. There are 27 SSSI within WBC's administrative area that are 200m from the kerb of a road included within the WBSTM.

5.2.8. These SSSI were subjected to a multi-phase screening assessment to determine which should be assessed further. **Table 5-2** below identifies the SSSI considered and the steps taken to determine if detailed assessment was required. The above screening approach and associated outcomes were agreed during a meeting with Natural England on 25 November 2021.

Table 5-2 – SSSI Considered Within the Screening Process and Sites to be Included Within Air Quality Assessment

SSSI	>50 AADT 2-way Alone?	APIS – Site sensitive to any relevant pollutant?	Screen In/Out Based on Initial AADT and APIS Screening	Natural England Site Specific Opinion for Detailed Assessment
Aldermaston Gravel Pits	Yes	Yes	In	No further assessment required
Bowdown and Chamberhouse Woods	Yes	Yes	In	No further assessment required
Boxford Chalk Pit	No	No	Out	N/A
Brimpton Pit	Yes	No	Out	N/A
Chilton Foliat Meadows	Yes	Yes	In	No further assessment required
Coombe Wood, Frilsham	No	Yes	Out	N/A
Decoy Pit, Pools & Woods	Yes	Yes	In	No further assessment required
Easton Farm Meadow	Yes	Yes	In	No further assessment required

SSSI	>50 AADT 2-way Alone?	APIS – Site sensitive to any relevant pollutant?	Screen In/Out Based on Initial AADT and APIS Screening	Natural England Site Specific Opinion for Detailed Assessment
Enborne Copse	Yes	Yes	In	No further assessment required
Fognam Chalk Quarry	Yes	Yes	In	No further assessment required
Freeman's Marsh	Yes	Yes	In	No further assessment required
Greenham and Crookham Commons	Yes	Yes	In	Further assessment required - This site supports heathland and acid grassland habitats which are sensitive to changes in air quality. Nutrient deposition will tend to promote a shift in the nature of heathy vegetation towards more grass-dominated communities and promote growth of encroaching birch, pine and gorse.
Holies Down	Yes	Yes	In	Further assessment required - Moderate sensitivity to aerial nutrient deposition. Over the long term this will promote a shift in the character of the vegetation from highly diverse herb-rich grassland towards less species-rich grass-dominated communities.
Inkpen Common	No	Yes	Out	N/A
Inkpen Crocus Fields	No	Yes	Out	N/A
Irish Hill Copse	No	Yes	Out	N/A

SSSI	>50 AADT 2-way Alone?	APIS – Site sensitive to any relevant pollutant?	Screen In/Out Based on Initial AADT and APIS Screening	Natural England Site Specific Opinion for Detailed Assessment
King's Copse	No	Yes	Out	N/A
Lardon Chase	Yes	Yes	In	Further assessment required - Moderate sensitivity to aerial nutrient deposition. Over the long term this will promote a shift in the character of the vegetation from highly diverse herb-rich grassland towards less species-rich grass-dominated communities.
Old Copse, Beenham	Yes	Yes	In	No further assessment required
Redhill Wood	Yes	Yes	In	No further assessment required
River Kennet	Yes	No	Out	N/A
Snelsmore Common	Yes	Yes	In	Further assessment required - Some evidence that aerial nutrient deposition is already having impacts here. The site is suffering from widespread vigorous growth of birch which then shades the heathland habitat causing loss of associated plants.
Stanford End Mill and River Loddon	No	Yes	Out	N/A
Sulham and Tidmarsh Woods and Meadows	Yes	Yes	In	No further assessment required
Thatcham Reed Beds	Yes	Yes	In	No further assessment required

SSSI	>50 AADT 2-way Alone?	APIS – Site sensitive to any relevant pollutant?	Screen In/Out Based on Initial AADT and APIS Screening	Natural England Site Specific Opinion for Detailed Assessment
West's Meadow, Aldermaston	Yes	Yes	In	No further assessment required
Woolhampton Reed Bed	No	Yes	Out	N/A

5.2.9. The first stage of the screening process was to determine which sites exceeded the 50 AADT nugatory threshold and have sensitive interest features. The second stage was to consult Natural England[56] regarding the sites met these criteria, to determine those requiring detailed assessment. Consequently, Natural England determined[57] that four SSSI would require detailed assessment:

- Greenham and Crookham Commons;
- Snelsmore Common;
- Holies Down; and
- Lardon Chase.

5.3 NOx Concentrations and Critical Levels

5.3.1. Emissions of NOx from vehicles using the local road network, both now and in the future, can have both a direct and indirect effect on sensitive ecological receptors.

5.3.2. NOx may directly enter a plant via the stomata (as NO or NO_2), where it can have phytotoxic effects. Lower plants such as lichens and bryophytes are particularly vulnerable to direct damage from NOx concentrations, as they often receive the majority of their nitrogen inputs directly from the atmosphere; many of such species are adapted to living in low-nutrient habitats with no soil, such as on rocks or trees. NOx can also deposit onto soil and, following transformation, enrich the soil as a nitrate, leading to eutrophication, as discussed later. The role of NOx in causing direct harm to vegetation versus its potential role as a precursor to N deposition is not distinguished in the Air Quality (England) Regulations described in **Section 2** (page 13).

5.3.3. The negative effects of NH_3 on vegetation occur through direct damage and death of sensitive species, an increase in vulnerabilities to environmental conditions (drought,

[56] Natural England represented by Marc Turner (Senior Planning Adviser) and Eleanor Oborne (Lead Adviser)
[57] Email confirmation from Marc Turner advising of the final sites for assessment following internal discussion with Graham Steven (09/07/2021)

desiccation and frost) or pest and pathogen attack, and reduced root growth and mycorrhizal infection leading to reduced nutrient uptake. NH_3 can put under-storey species at risk (such as mosses and lichens) though shading from the increases in dominant over-storey nitrophiles. This is compounded as nitrogen enrichment favours fast growing, taller species with rapid N assimilation rates leading to changes in species assemblages to favour N loving species.

5.3.4. The CLes above which direct adverse effects on vegetation and ecosystems may occur were sourced from the APIS website and are shown in **Table 5-3**. These are applicable to both the habitats sites and SSSI.

Table 5-3 – Critical Levels relevant to Vegetation and Ecosystems (APIS, 2018)

Pollutant	Objective		Averaging period
Nitrogen oxides (NO_X)	30µg/m³		Annual mean
	75µg/m³		24-hour mean
Ammonia (NH_3)	3µg/m³ (with uncertainty of 2-4 µg/m³)	Higher Plants	Annual mean
	1µg/m³	Lichens and Bryophytes	Annual mean

5.3.5. There is limited published evidence for any directly toxic effect of NOx and NH_3 on animals and therefore direct effects on animals are not usually included in ecological impact assessments, which focus on the effects on vegetation. The effects on animals are sometimes indirectly included in an assessment where species are dependent on particular habitats for their survival; an assessment may therefore focus on effects on supporting habitat[58].

5.4 N Deposition and Critical Loads

5.4.1. In addition to the direct effect of gaseous emissions, vegetation and ecosystems can also be affected by N deposition. The impacts of increased N deposition can vary, dependant on the existing habitat (e.g. whether it is nutrient rich or nutrient poor), however can include changes in species composition (especially in nutrient poor ecosystems with a shift towards species associated with higher nitrogen availability), reduction in species richness, increases in plant production, a decrease or loss of species better adapted to low-nutrient conditions and increases in nitrate leaching. N deposition can also contribute to the acidification of habitats, although the effects are less pronounced than comparable levels of

[58] English Nature Research Reports Number 580. The ecological effects of diffuse air pollution from road transport. A report prepared for English Nature by Keeley Bignal, Mike Ashmore and Sally Power (2004).

sulphur deposition. The effects of acidification can often take much longer to present than those of N deposition due to the loading required to make a change in soil pH and the effect of ‘tipping points’ that need to be reached before conditions become intolerable for a number of species.

5.4.2. In the UK, CLo’s are used to assess the potential impact of changes in N deposition as a result of new development. CLo’s have been established for a range of habitat types, reflecting the variation in ecosystem response, and are based on empirical evidence, mainly observations from experiments and gradient studies. These include assessments of ‘dose-response relationships’ whereby the effects of experimentally altering rates of N deposition on a range of habitats are observed and assessed. Further details regarding CLo’s relevant to the SSSI are provided in **Appendix E Table E-1** (page 166).

5.4.3. In recent years, increasing attention has been given to NH_3 emissions from road vehicles and their potentially significant contribution to total N deposition within the vicinity of roads[59]. As legislators and vehicle manufacturers have focused on a reduction in NOx production through catalytic conversion, so this process has resulted in an increase in vehicle emissions of NH_3. The role of NH_3 to total N deposition was, therefore, accounted for within this assessment. Further details regarding NH_3 emissions from road traffic including assumptions regarding future NH_3 emissions applied within the modelling are provided within **Section 4.4** (page).

5.5 Results processing

5.5.1. The assessment has been undertaken with reference to the following documents: the methodology contained within IAQM’s Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites, AQTAG(06) and Natural England’s Internal Guidance on advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (although no habitats sites are being assessed, it is still a useful source of information).

Calculation of N deposition

5.5.2. The modelling utilised the plume depletion function within ADMS-Roads. The deposition velocity for low vegetation from the IAQM’s guidance was utilised within the modelling (see **Table 5-4** below). The deposition velocities for both pollutants were applied to calculate the contribution of roadside NO_2/NH_3 to total N deposition. These contributions were then added to the relevant APIS deposition rates (see **Appendix E** (pages 166 to 173)) to calculate total N deposition at each receptor.

[59] Air Quality Consultants (February 2020*) Ammonia Emissions from Roads for Assessing Impacts on Nitrogen-sensitive Habitats*. Available at: https://www.aqconsultants.co.uk/CMSPages/GetFile.aspx?guid=3aa4ec2e-ee4e-4908-bc7a-aeb0231b4b37. Accessed 09/09/20)

Table 5-4 – Deposition Velocities

Site	Vegetation Type	Deposition Velocity (m/s)
N deposition	Low vegetation (e.g. grassland)	0.0015
NH_3 deposition		0.020

6 Ecological Modelling Results and Interpretation

6.1 Modelled Results for SSSI

6.1.1. Numerical results of the air quality assessment at SSSI sites based on the dispersion modelling are presented in **Appendix I** (pages 197 to 271), namely **Table I-1** (NO_x) (page 197), **Table I-2** (NH_3) (page 211) and **Table I-3** (N deposition) (page 232). Where distances are referred to in the tables, these relate to the distance into the site from the boundary, where 0m represents the edge of the SSSI. **Figures 6-1** to **6-9** (contained within the accompanying Section 6 Figure Book) show the modelled transect locations, as well as key metrics (such as CLe and 1% threshold exceedances) at each point along the transect.

6.1.2. Three levels of analysis are described:

- The initial screening based on predicted changes which exceed 1% of the relevant CLe (for NO_x concentrations) and/or CLo for N deposition

6.1.3. A second level of analysis was undertaken which considered:

- The last distance at which the total NOx concentrations exceed the CLe of 30µg/m³;
- The last distance at which CLo's of N deposition are above the lower value of the CLo range for all relevant vegetation types; and
- The distance to which the last exceedances of the CLe and/or CLo occur in conjunction with a change greater than 1% of the relevant CLe/CLo.

6.1.4. A final analysis considered the results of the ecological air quality monitoring which was undertaken at key locations following consultation with Natural England.

6.1.5. It was agreed with Natural England that the most applicable scenario for assessment is the 'alone' scenario. However, the 'realistic in-combination' allows realistic future changes in vehicle emissions and background concentrations to be considered. As such, the 'realistic in-combination' assumes a degree of retardation to the rate of these future improvements (NOx concentrations and N deposition) and provides scenarios which could realistically occur. This is important when looking at what may be the impact of air quality on a SSSI now and comparing to how any impacts may change between 2017 and 2037.

Table 6-1 - Summary of Potential for Adverse Effects within SSSI and Need for Further Assessment

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
Greenham and Crookham Commons SSSI								
Greenham T1	Unit 1 - Airbase: Dwarf shrub heath	N	Y	Y	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe up to and including 60m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe, up to and including 90m inside the site. There is a 'realistic in combination' worsening of more than 1% against the CLe along the entirety of the transect. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of greater than 1% up to and including 60m inside the site. There is an in combination decrease in the rate of nutrient N deposition of greater than 1%.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
Greenham T2	Unit 1 - Airbase: Dwarf shrub heath	N	Y	Y	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe up to and including 30m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe. There is an "in combination" worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of greater than 1% up to and including 30m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T3	Unit 1 - Airbase: Dwarf shrub heath	N	Y	Y	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe up to and including 20m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe, up to and including 40m inside the site. There is a 'realistic in combination' worsening of more than 1% against the CLe along the entirety of the transect. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of greater than 1% up to and including 30m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T4	Unit 1 - Airbase: Dwarf shrub heath	N	Y	Y	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe up to and including 20m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe, up to and including 40m inside the site.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								There is a 'realistic in combination' worsening of more than 1% against the CLe along the entirety of the transect. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of greater than 1% up to and including 20m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T5	Unit 1 - Airbase: Dwarf shrub heath	N	Y	Y	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe up to and including 20m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe, up to and including 20m inside the site. There is a 'realistic in combination' worsening of more than 1% against the CLe along the entirety of the transect. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of greater than 1% up to and including 20m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T6	Unit 1 - Airbase: Dwarf shrub heath	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of less than 1%. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
Greenham T7	Unit 5 - Clarkes Gully: Broad-leaved, mixed and yew woodland	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe, up to and including 60m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe along the whole transect. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' decrease in the rate of nutrient N deposition, with decreases greater than 1% up to and including 80m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T8	Unit 4 - Newbury DC: Dwarf shrub heath	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe, up to and including 80m inside the site.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
	and Unit 5 - Clarkes Gully: Broad-leaved, mixed and yew woodland							There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe up to and including 240m inside of the site, with an improvement of less than 1% for the rest of the transect. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' decrease in the rate of nutrient N deposition, with decreases greater than 1% up to and including 140m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T9	Unit 4 - Newbury DC: Dwarf shrub heath	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe, up to and including 70m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe up to and including 200m inside of the site, with an improvement of less than 1% for the rest of the transect. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' decrease in the rate of nutrient N deposition, with decreases greater than 1% up to and including 120m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T10	Unit 5 - Clarkes Gully: Broad-leaved, mixed and yew woodland	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe, up to and including 50m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe along the whole transect. There is a

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' decrease in the rate of nutrient N deposition, with decreases greater than 1% up to and including 90m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T11	Unit 4 - Newbury DC: Dwarf shrub heath	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe, up to and including 80m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe up to and including 220m inside of the site, with an improvement of less than 1% for the rest of the transect. There is a 'realistic in combination' worsening of more than 1% against the CLe.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' decrease in the rate of nutrient N deposition, with decreases greater than 1% up to and including 140m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T12	Unit 5 - Clarkes Gully: Broad-leaved, mixed and yew woodland	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe, up to and including 40m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe up to and including 120m inside of the site, with an improvement of less than 1% for the rest of the transect. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								'alone' decrease in the rate of nutrient N deposition of greater than 1% up to and including 80m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T13	Unit 5 - Clarkes Gully: Broad-leaved, mixed and yew woodland	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe, up to and including 80m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe up to and including 150m inside of the site, with an improvement of less than 1% for the rest of the transect. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' decrease in the rate of nutrient N deposition, with decreases greater than 1% up to and including 90m inside

Transect ID	**SSSI Unit and Habitat**	**Potential for adverse effects 'alone'**			**Potential for adverse effects 'realistic in-combination'**			**Comments**
		NOx	**NH_3**	**N dep.**	**NOx**	**NH_3**	**N dep.**	
								the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T14	Unit 3 – Foxhold: Dwarf shrub heath	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' improvement of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' improvement of less than 1% against the CLe. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' decrease in the rate of nutrient N deposition of less than 1%. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T15	Unit 3 – Foxhold: Dwarf shrub heath	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' improvement of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe up to and including 10m inside the site, then an improvement of less than 1% for the rest of the transect. There is an 'in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' decrease in the rate of nutrient N deposition of less than 1%. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T16	Unit 3 – Foxhold: Dwarf shrub heath	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe up to and including 80m, no change from 90m to 130m then an improvement of less than 1% for the rest of

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								the transect. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of less than 1%. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T17	Unit 2 – Crookham Common: Dwarf shrub heath	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of less

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								than 1%. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T18	Unit 2 – Crookham Common: Dwarf shrub heath	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of less than 1%. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T19	Unit 2 – Crookham Common:	N	Y	Y	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe up to and including 20m inside the site.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
	Dwarf shrub heath							There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe up to and including 90m inside the site. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of greater than 1% up to and including 30m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T20	Unit 2 – Crookham Common: Dwarf shrub heath	N	Y	Y	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe up to and including 20m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of more than 1%

Transect ID	SSSI Unit and Habitat	Potential for adverse effects ‘alone’			Potential for adverse effects ‘realistic in-combination’			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								against the CLe up to and including 90m inside the site. There is a ‘realistic in combination’ worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an ‘alone’ increase in the rate of nutrient N deposition of greater than 1% up to and including 10m inside the site. There is an ‘in combination’ decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T21	Unit 2 – Crookham Common: Dwarf shrub heath	N	Y	Y	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an ‘alone’ worsening of more than 1% against the CLe up to and including 20m inside the site. There is a ‘realistic in combination’ improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an ‘alone’ worsening of more than 1% against the CLe up to and including 90m inside the site. There is a ‘realistic in combination’ worsening of more than 1% against the CLe.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of greater than 1% up to and including 50m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1% at all locations except for the site edge, where there is an increase of greater than 1%.
Greenham T22	Unit 2 – Crookham Common: Dwarf shrub heath	N	Y	Y	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe up to and including 60m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe up to and including 140m inside the site. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								'alone' increase in the rate of nutrient N deposition of greater than 1% up to and including 80m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1% at all locations except for the site edge, where there is an increase of greater than 1%.
Greenham T23	Unit 2 – Crookham Common: Dwarf shrub heath	N	Y	Y	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe up to and including 20m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe up to and including 50m inside the site. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of greater than 1% up to and including 30m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								of greater than 1% at all locations except for the site edge, where there is an increase of greater than 1%.
Greenham T24	Unit 2 – Crookham Common: Dwarf shrub heath	N	Y	Y	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe up to and including 10m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe up to and including 20m inside the site. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of greater than 1% up to and including 10m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
Greenham T25	Unit 2 – Crookham Common: Dwarf shrub heath	N	Y	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe at only the edge of the site. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of greater than 1% at only the edge of the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T26	Unit 2 – Crookham Common: Dwarf shrub heath	N	Y	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe at only the edge of the site. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of less than 1%. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T27	Unit 2 – Crookham Common: Dwarf shrub heath	N	Y	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe at only the edge of the site. There is a 'realistic in combination' worsening of more than 1% against the CLe.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of greater than 1% at only the edge of the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T28	Unit 2 – Crookham Common: Dwarf shrub heath	N	Y	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of more than 1% against the CLe at only the edge of the site. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of greater than 1% at only the edge of the site. There is an 'in

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								combination' decrease in the rate of nutrient N deposition of greater than 1%.
Greenham T29	Unit 5 - Clarkes Gully: Broad-leaved, mixed and yew woodland	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe, up to and including 60m inside the site. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' improvement of more than 1% against the CLe up to and including 110m inside of the site, with an improvement of less than 1% for the rest of the transect. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' decrease in the rate of nutrient N deposition, with decreases greater than 1% up to and including 70m inside the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
Snelsmore Common SSSI								
Snelsmore T30	Unit 2 – Baylis: Broad-leaved, mixed and yew woodland	N	Y	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' decrease in the rate of nutrient N deposition of less than 1%. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Snelsmore T31	Unit 4 – Country Park: Broad-leaved,	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
	mixed and yew woodland							NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of less than 1%. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Snelsmore T32	Unit 7 – South East: Dwarf shrub heath	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is an 'in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is an 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of less than 1%. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Snelsmore T33	Unit 7 – South East: Dwarf shrub heath	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is an 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of less than 1%. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Snelsmore T34	Unit 7 – South East:	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037, except for up to and including 10m inside of the

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
	Dwarf shrub heath							site. There is an 'alone' improvement of less than 1% against the CLe up to and including 460m, no change from 460m to 1080m and then a worsening well below 1% from 1090m to 1160m (end of the transect). There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is an 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of greater than 1% only at the edge of the site. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Snelsmore T35	Unit 7 – South East: Dwarf shrub heath	N	N	N	N	Y	N	NOx – This transect has roads on both ends, with the A34 at 0m and the B4494 at 70m. The predicted concentrations are well below the CLe in 2037, except for up to and including 10m inside of the site (A34 end). There is an 'alone' improvement of more than 1% against the CLe at the site

Transect ID	SSSI Unit and Habitat	Potential for adverse effects ‘alone’			Potential for adverse effects ‘realistic in-combination’			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								edge (A34 end) and below 1% for the rest of the transect. There is a ‘realistic in combination’ improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an ‘alone’ worsening of less than 1% against the CLe. There is an ‘realistic in combination’ worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an ‘alone’ decrease in the rate of nutrient N deposition of less than 1% at the A34 end, with an increase of less than 1% at the B4494 end. There is an ‘in combination’ decrease in the rate of nutrient N deposition of greater than 1%.
Snelsmore T36	Unit 7 – South East: Dwarf shrub heath	N	N	N	N	Y	N	NOx – This transect has roads on both ends, with the B4494 at 0m and the A34 at 100m. The predicted concentrations are well below the CLe in 2037, except for up to and including 20m inside of the site (A34 end). There is an ‘alone’ improvement of less than 1% against the CLe.. There is a ‘realistic in combination’ improvement of more than 1% against the CLe.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is an 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo as the background rates are greater than the LCLo of 10 kg N/ha/yr. There is an 'alone' decrease in the rate of nutrient N deposition of less than 1% at the A34 end, with an increase of less than 1% at the B4494 end. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Lardon Chase SSSI								
Lardon Chase T37	Unit 1 – Grassland: Calcareous Grassland	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' improvement of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' improvement of less than 1% against the CLe. There is an 'realistic in combination' worsening of more than 1% against the CLe.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								N deposition – In 2037 the predicted rate of deposition within 10m of the site boundary is greater than the LCLo due to background rates being close to the LCLo of 15 kg N/ha/yr. There is an 'alone' decrease in the rate of nutrient N deposition of less than 1%. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Lardon Chase T38	Unit 1 – Grassland: Calcareous Grassland	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' improvement of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' improvement of less than 1% against the CLe. There is an 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the 20m of the site boundary is greater than the LCLo due to background rates being close to the LCLo of 15 kg N/ha/yr. There is an 'alone' decrease in the rate of nutrient N deposition of less than 1%. There is an 'in combination'

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								decrease in the rate of nutrient N deposition of greater than 1%.
Lardon Chase T39	Unit 1 – Grassland: Calcareous Grassland	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' improvement of less than 1% against the CLe up to and including 200m inside of the site, with no change for the rest of the transect. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' improvement of less than 1% against the CLe. There is an 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition within 20m of the site boundary is greater than the LCLo due to background rates being close to the LCLo of 15 kg N/ha/yr. There is an 'alone' decrease in the rate of nutrient N deposition of less than 1%. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
Lardon Chase T40	Unit 1 – Grassland: Calcareous Grassland	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe up to and including 30m inside of the site, with no change from 40 to 190m, then an improvement of less than 1% for the rest of the transect. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' improvement of less than 1% against the CLe. There is an 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is less than the LCLo. There is no change in the 'alone' rate of nutrient N deposition within the first 110m of the site, with decrease of less than 1% for the rest of the transect. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Holies Down SSSI								
Holies Down T41	Unit 1 – Holies	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1%

Transect ID	SSSI Unit and Habitat	Potential for adverse effects 'alone'			Potential for adverse effects 'realistic in-combination'			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
	Down: Calcareous Grassland							against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is an 'realistic in combination' worsening of more than 1% against the CLe. N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo due to background rates being close to the LCLo of 15 kg N/ha/yr. There is an 'alone' increase in the rate of nutrient N deposition of less than 1%. There is an 'in combination' decrease in the rate of nutrient N deposition of greater than 1%.
Holies Down T42	Unit 1 – Holies Down: Calcareous Grassland	N	N	N	N	Y	N	NOx – The predicted concentrations are well below the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is a 'realistic in combination' improvement of more than 1% against the CLe. NH_3 – The predicted concentrations are above the CLe in 2037. There is an 'alone' worsening of less than 1% against the CLe. There is an 'realistic in combination' worsening of more than 1% against the CLe.

Transect ID	SSSI Unit and Habitat	Potential for adverse effects ‘alone’			Potential for adverse effects ‘realistic in-combination’			Comments
		NOx	NH_3	N dep.	NOx	NH_3	N dep.	
								N deposition – In 2037 the predicted rate of deposition at the site boundary is greater than the LCLo due to background rates being close to the LCLo of 15 kg N/ha/yr. There is an ‘alone’ increase in the rate of nutrient N deposition of less than 1%. There is an ‘in combination’ decrease in the rate of nutrient N deposition of greater than 1%.

Ambient NO_x

6.1.6. **Appendix I Table I-1** (page 197) shows the results of the predictions of changes in ambient NO_x as a result of the Pre-Submission Local Plan. The results are discussed below.

Greenham and Crookham Common SSSI

6.1.7. The dispersion modelling indicated that in 2017, areas within the Greenham and Crookham Common SSSI are predicted to be in exceedance of the CLe, with a maximum distance of 50m from the boundary. In 2037 both without and with the Pre-Submission Local Plan, there are predicted sporadic exceedances of the CLe, but only at the boundary of the site (0m). In addition, due to traffic redistribution, there are areas which experience a reduction in concentrations, with the transects in the vicinity of the A339 (the southern area of the site) experiencing predicted decreases.

6.1.8. With the Pre-Submission Local Plan 'alone', there are increases in NOx concentrations which exceed 1% (relative to the CLe). However, at all locations which these occur, concentrations are predicted to be below the CLe. The predicted maximum retardation in improvements at distances away from the site edge is to be one year or less[60]. At 0m, the predicted maximum retardation in improvements is two years. It should be noted that there are also locations which do not experience a retardation in improvements compared to the 2037 Reference scenario and result in beneficial improvements in concentrations. However typically these beneficial changes result in improvements of less than 6 months when compared to the calculated rate of improvement in absence of the Pre-Submission Local Plan. The Pre-Submission Local Plan does not significantly delay future improvements in NOx concentrations.

6.1.9. The 'realistic in-combination' scenario shows that with the Pre-Submission Local Plan, there is a reduction in concentrations when compared with the 2017 baseline, which is due to the reduction in typical emissions across the vehicle fleet and background concentrations. All locations are predicted to benefit from concentration changes, with changes much greater than 1% (relative to the CLe) expected.

6.1.10. When the 2017 modelled concentrations are compared against the 2021 monitored concentrations, it is clear that the estimated NOx concentrations are much lower than predicted across the key locations within the SSSI. At the MT1 and MT2 monitoring transects in the north of the SSSI, the total estimated NOx concentrations are predicted to be similar to the NOx road contribution prior to adding of the Defra background concentrations. These monitoring locations do not experience the same fall off in concentrations that is predicted within the modelling, however the NOx road contribution is predicted to be similar further back into the site.

[60] For ease of comparison, the years referenced within the retardation calculations are rounded to the nearest 0.5 years.

6.1.11. At MT3, the modelled road NOx is much higher, however this is likely to be due to the temporary differences within the SSSI (the SSSI is higher than the road at that location) and the impact of vegetation on dispersion.

6.1.12. It is unlikely that there will be exceedances of the CLe outside of a small area in the vicinity of Crookham Road as location L1 indicated that there may be a CLe exceedance at the kerb (32.9µg/m³). As such, it's likely that the modelled concentrations are conservative given they are verified using a higher verification factor and have background concentrations added, but it should also be noted that this a comparison of the 2017 modelled and 2021 annualised concentrations. It is possible to annualise the monitored data back to 2017, however this is likely to introduce uncertainty given the variable impacts that COVID-19 restrictions had on traffic flows, and these are returning at variable rates and this may be detectable in some of the urban background sites used within the annualisation process.

Snelsmore Common SSSI

6.1.13. The dispersion modelling indicated that in 2017, areas within the Snelsmore Common SSSI are predicted to be in exceedance of the CLe. However, the distance to which the CLe is exceeded depends on the location inside the site. For transects T30 – T32, they are further away from the A35 and only have exceedances of the CLe at the site boundary. However, at T33 – T36 there are CLe exceedances further inside the site, ranging from 70m at T33 to 190m at T34. T34 is perpendicular from the A34 and at approximately 45 degrees from the B4494, so therefore the exceedance distance is somewhat inflated when compared to T30 – T32 (the edge of the site nearest to the B4494 is approximately 140m away from the last CLe exceedance).

6.1.14. In 2037 both without and with the Pre-Submission Local Plan, there are fewer predicted exceedances of the CLe. For transects T30 – T33, there are no exceedances, with concentrations well below the CLe. Both without and with the Pre-Submission Local Plan, the maximum CLe exceedance inside of T34 – T36 was 20m.

6.1.15. With the Pre-Submission Local Plan 'alone', there no locations where in NOx concentrations which exceed 1% (relative to the CLe). The changes in concentration are small, with concentration changes at ranging from increases of 0.1µg/m^3 to reductions of 0.5µg/m^3. There is predicted to be no retardation in improvements[61]. The Pre-Submission Local Plan does not delay future improvements in NOx concentrations.

6.1.16. The 'realistic in-combination' comparison shows that with the Pre-Submission Local Plan, there is a reduction in concentrations when compared with the 2017 baseline, which is due to the reduction in typical emissions across the vehicle fleet and background concentrations.

[61] For ease of comparison, the years referenced within the retardation calculations are rounded to the nearest 0.5 years.

All locations are predicted to benefit from concentration changes, with changes much greater than 1% (relative to the CLe) expected.

Lardon Chase SSSI

6.1.17. The dispersion modelling indicated that in 2017 and 2037 without and with the Pre-Submission Local Plan, no areas within the Lardon Chase SSSI are predicted to be in exceedance of the CLe.

6.1.18. With the Pre-Submission Local Plan ‘alone’, there no locations where in NOx concentrations which exceed 1% (relative to the CLe), with small improvements in concentrations. These concentration changes range from decreases of 0.3µg/m^3 to no change. No retardation in improvements is predicted. The Pre-Submission Local Plan does not significantly delay future improvements in NOx concentrations.

6.1.19. The ‘realistic in-combination’ comparison shows that with the Pre-Submission Local Plan, there is a reduction in concentrations when compared with the 2017 baseline, which is due to the reduction in typical emissions across the vehicle fleet and background concentrations. All locations are predicted to benefit from concentration changes, with changes much greater than 1% (relative to the CLe) expected.

Holies Down SSSI

6.1.20. The dispersion modelling indicated that in 2017 and 2037 without and with the Pre-Submission Local Plan, no areas within the Lardon Chase SSSI are predicted to be in exceedance of the CLe, except for the site edge (0m) at T42 in 2017.

6.1.21. With the Pre-Submission Local Plan ‘alone’, there no locations where in NOx concentrations which exceed 1% (relative to the CLe), with small increases in concentrations (0.1g/m^3 maximum). No retardation in improvements is predicted. The Pre-Submission Local Plan does not significantly delay future improvements in NOx concentrations.

6.1.22. The ‘realistic in-combination’ comparison shows that with the Pre-Submission Local Plan, there is a reduction in concentrations when compared with the 2017 baseline, which is due to the reduction in typical emissions across the vehicle fleet and background concentrations. All locations are predicted to benefit from concentration changes, with changes much greater than 1% (relative to the CLe) expected.

Ambient NH_3

6.1.23. **Appendix I Table I-2** (page 211) shows the results of the predictions of changes in ambient NH_3 as a result of the Pre-Submission Local Plan. The results are discussed below.

Greenham and Crookham Commons SSSI

6.1.24. Exceedances of the CLe (1µg/m^3) are predicted within the Greenham and Crookham Commons SSSI in 2017 and in 2037 both without and with the Pre-Submission Local Plan. This is due to the pre-existing background ambient NH_3 concentrations exceeding the CLe.

6.1.25. When assessed ‘alone’ the Pre-Submission Local Plan leads to changes greater than 1% in ambient concentrations of NH_3 at a number of transects (T1 – T5, T19 – T28). The maximum distance to which 1% exceedances have been identified is 140m at T22, but typically the distances are smaller.

6.1.26. There is the potential for ‘realistic in-combination’ increases to equate to more than 1% of the CLe for NH_3 at all distances along the transects within the SSSI. The maximum overall increase between the 2017 baseline case and 2037 with the Pre-Submission Local Plan is 1.05µg/m³ at T10 (0m), which reduces to 0.31µg/m³ at 10m.

Snelsmore Common SSSI

6.1.27. Exceedances of the CLe (1µg/m³) are predicted within the Snelsmore Common SSSI in 2017 and in 2037 both without and with the Pre-Submission Local Plan. This is due to the pre-existing background ambient NH_3 concentrations exceeding the CLe.

6.1.28. When assessed ‘alone’ the Pre-Submission Local Plan does not lead to changes greater than 1% against the NH_3 CLe. The maximum increase is 0.01µg/m³ at T31.

6.1.29. There is the potential for ‘realistic in-combination’ increases to equate to more than 1% of the CLe for NH_3 at all distances along the transects within the SSSI. The overall increase between the 2017 baseline case and 2037 with the Pre-Submission Local Plan is 0.84µg/m³ at T35 (0m), which reduces to 0.36µg/m³ at 10m.

Lardon Chase SSSI

6.1.30. Exceedances of the CLe (1µg/m³) are predicted within the Lardon Chase SSSI in 2017 and in 2037 both without and with the Pre-Submission Local Plan. This is due to the pre-existing background ambient NH_3 concentrations exceeding the CLe.

6.1.31. When assessed ‘alone’ the Pre-Submission Local Plan leads to very small reductions (less than two decimal places), however these are not greater than 1% against the NH_3 CLe.

6.1.32. There is the potential for ‘realistic in-combination’ increases which equate to more than 1% of the CLe for NH_3 at all distances along the transects within the SSSI. The maximum overall increase between the 2017 baseline case and 2037 with the Pre-Submission Local Plan is 0.1µg/m³ at T39 (0m), which reduces to 0.06µg/m³ at 10m.

Holies Down SSSI

6.1.33. Exceedances of the CLe (1µg/m³) are predicted within the Holies Down SSSI in 2017 and in 2037 both without and with the Pre-Submission Local Plan. This is due to the pre-existing background ambient NH_3 concentrations exceeding the CLe.

6.1.34. When assessed ‘alone’ the Pre-Submission Local Plan does not lead to changes greater than 1% against the NH_3 CLe. The maximum increase is 0.01% at T41 and T42.

6.1.35. There is the potential for ‘realistic in-combination’ increases which equate to more than 1% of the CLe for NH_3 at all distances along the transects within the SSSI. The maximum overall increase between the 2017 baseline case and 2037 with the Pre-Submission Local Plan is 0.06µg/m³ at T35 (0m), which reduces to 0.04µg/m³ at 10m.

Nitrogen deposition

6.1.36. **Appendix I Table I-3** (page 232) shows the results of the predictions of changes in the rate of N deposition as a result of the Pre-Submission Local Plan. The results discussed below.

Greenham and Crookham Commons SSSI

6.1.37. At the Greenham and Crookham Commons SSSI, the lower CLo value of 10 kg N/ha/year is predicted to be exceeded across the entire site in both 2017 and 2037 without and with the Pre-Submission Local Plan. The Pre-Submission Local Plan 'alone' will cause the rate of N deposition in some sections of the SSSI to increase by 1% relative to the lower CLo, where the last modelled exceedance was 80m inside of the site. There are also transects which experience a reduction in N deposition as a result of the Pre-Submission Local Plan 'alone', namely the transects in the vicinity of the A339 which experience decreases of 1% relative to the lower CLo, where the last modelled exceedance was 120m inside of the site.

6.1.38. Notwithstanding, due to forecast improvements in N deposition under the BAU case and reduction in NOx/NO_2 vehicle emissions, there is an overall reduction when the 'reasonable in-combination' comparison is used to consider the change between the 2017 base case and with the 2037 Pre-Submission Local Plan.

6.1.39. The rate of improvement and associated retardation due to the Pre-Submission Local Plan has been calculated. The rate of improvement is variable across the transects, with some locations not experiencing any retardation in improvement and seeing significant benefits. At distances greater than 0m inside of the site, the rate of improvement will be retarded by the Pre-Submission Local Plan ranges from:

- T1 to T6 – A maximum of 2.5 years retardation at 10m inside the site;
- T7 to T18 – A mix of N deposition decreases and locations where the rate of improvements retarded by less than one year. The decreases in N deposition result in a maximum improvement of 17.5 years at T11;
- T19 – A maximum of 2.5 years retardation at 10m inside of the site;
- T20 to T23 – A maximum of 7.5 years retardation at 10m inside the site, falling off to 3.5 years at 20m and one year by 70m.
- T24 to T28 – No instances of improvement being retarded by more than one year; and
- T29 – A decrease in N deposition resulting in an improvement of 3.5 years at 10m inside the site.

6.1.40. The variation in modelled N deposition and subsequent calculated retardation of improvements (including where there are large benefits with the Pre-Submission Local Plan) is controlled by the distribution of traffic as a result of the Pre-Submission Local Plan and therefore changes in traffic flows in the vicinity of the transects result in both retardation of improvement and improvements against the 2037 Reference scenario. This occurs distinctly on the links to the north and north-east of the SSSI (such as Burys Bank Road and Crookham Hill), where there are large increases as a result of redistribution and the Pre-Submission Local Plan Sites. Similarly, this also results on reductions in traffic flows on the A339 to the south of the SSSI.

Snelsmore Common SSSI

6.1.41. At the Snelsmore Common SSSI, the lower CLo value of 10 kg N/ha/year is predicted to be exceeded across the entire site in both 2017 and 2037 without and with the Pre-Submission Local Plan. The Pre-Submission Local Plan ‘alone’ does not cause the rate of N deposition to increase by 1% relative to the lower CLo, with the greatest increase in N deposition ‘alone’ being 0.05 kg N/ha/year (T31 0m). There are also some very small reductions in the N deposition rate, with a maximum decrease of 0.02 kg N/ha/year (T36 70m).

6.1.42. Notwithstanding, due to forecast improvements in N deposition under the BAU case and reduction in NOx/NO_2 vehicle emissions, there is an overall reduction when the ‘reasonable in-combination’ comparison is used to consider the change between the 2017 base case and with the 2037 Pre-Submission Local Plan.

6.1.43. The rate of improvement and associated retardation due to the Pre-Submission Local Plan has been calculated. The rate of improvement is variable across the transects, with some locations not experiencing any retardation in improvement and seeing significant benefits. At all modelled locations, the maximum retardation in improvement is less than one year at all locations, with many locations not experiencing any measurable change in improvement.

6.1.44. As with Greenham and Crookham Commons SSSI, the variation in modelled N deposition and subsequent calculated retardation of improvements (including where there are large benefits with the Pre-Submission Local Plan) is controlled by the distribution of traffic as a result of the Pre-Submission Local Plan. Compared to Greenham and Crookham Commons SSSI, this occurs in the vicinity of Snelsmore Common SSSI on a smaller scale in the vicinity of the site (around T34 to T36) where there are increases and decreases in traffic flows relative to the 2037 Reference case on the A34, plus predicted reductions on the B4494. This creates a situation where there is a mix of small increases and decreases in concentrations and deposition rates in the same area.

Lardon Chase SSSI

6.1.45. At the Lardon Chase SSSI, the lower CLo value of 15 kg N/ha/year is predicted to be exceeded at a maximum of 20m inside the site in across the entire site in both 2017 and 2037 without and with the Pre-Submission Local Plan. The Pre-Submission Local Plan ‘alone’ does not cause the rate of N deposition to increase by 1% relative to the lower CLo, with the greatest increase in N deposition ‘alone’ being 0.03 kg N/ha/year (T41 0m). The change in N Deposition is imperceptible at the vast majority of locations inside the site

6.1.46. Notwithstanding, due to forecast improvements in N deposition under the BAU case and reduction in NOx/NO_2 vehicle emissions, there is an overall reduction when the ‘reasonable in-combination' comparison is used to consider the change between the 2017 base case and with the 2037 Pre-Submission Local Plan.

6.1.47. The rate of improvement and associated retardation due to the Pre-Submission Local Plan has been calculated and the maximum retardation in improvement is less than one year at all locations, with many locations not experiencing any measurable change in improvement.

Holies Down SSSI

6.1.48. At the Holies Down SSSI, the lower CLo value of 15 kg N/ha/year is predicted to be exceeded across the entire site in both 2017 and 2037 without and with the Pre-Submission Local Plan. The Pre-Submission Local Plan 'alone' results in an N deposition reduction in most locations, but the benefit is less than 1% relative to the lower CLo. At other locations, there are imperceptible changes in N deposition.

6.1.49. Notwithstanding, due to forecast improvements in N deposition under the BAU case and reduction in NOx/NO_2 vehicle emissions, there is an overall reduction when the 'reasonable in-combination' comparison is used to consider the change between the 2017 base case and with the 2037 Pre-Submission Local Plan.

6.1.50. The rate of improvement and associated retardation due to the Pre-Submission Local Plan has been calculated. The rate of improvement is variable across the transects, with some locations not experiencing any retardation in improvement and seeing significant benefits. At all modelled locations, the maximum retardation in improvement is less than one year at all locations, with many locations not experiencing any measurable change in improvement.

6.1.51. The reductions in N deposition with the Pre-Submission Local Plan are primarily due to small reductions in traffic flows on the A329 and B4009 in the vicinity of the site.

6.2 Further Assessment and Ecological Interpretation

6.2.1. Following consultations with Natural England[62,63], it was agreed that further assessment of the potential for the adverse effects of N deposition 'alone' was needed. However, this would only be required just for the Greenham and Crookham Commons SSSI due to the lack of 'alone' impacts at the other SSSI. Therefore, no further assessment was required for any pollutant at Snelsmore Common SSSI, Lardon Chase SSSI and Holies Down SSSI.

6.2.2. The further assessment of the potential for N deposition 'alone' as detailed below was undertaken by WSP ecologists from both site and desk-based studies, and was done on a transect-by-transect basis where there is potential for increases in N deposition greater than 1% relative to the lower CLo. Only sites that have exceedances of the 1% at distances other than the site boundary have been assessed further.

[62] Discussion with Natural England officers via online call on 01/09/2021
[63] Consultation with Natural England officers via online call on 19/07/2022

Discussion of Modelled Result Trends

6.2.3. As discussed with the N deposition results, the results of the 'alone' scenario reflect the changes in traffic flow due to both the additional trips attributed to the Pre-Submission Local Plan Sites, mitigation schemes and general redistribution within the transport model. This does occur in the vicinity of the SSSI assessed within this assessment.

6.2.4. There is also a marked change in the primary modelled road source pollutants within total N deposition when moving to 2037. In 2017, the modelled NH_3 deposition would typically be around 80% of the NO_2 deposition at locations nearest to the road, with the NH_3 falling off quickly to half the NO_2 contribution after 70m typically. In 2037, NH_3 is the major contributor to total N deposition, with NH_3 typically contributing four times as much to total N deposition as NO_2 at locations nearest the road, with NO_2 not reaching parity even over longer distances. The modelled NH_3 outputs are not increasing by a large amount, however the reduction in NO_2 is large. This is expected due to the increase of EVs and the evolution of the vehicle fleet away from more polluting vehicle type classes (such as Euro 3 and 4). As such, there is interplay between inputs such as changes in vehicle flows over time, changes in flows as a result of the Pre-Submission Local plan, fleet composition, changes to background concentrations/deposition rates and emission factors. Each of these variables has its own impact on each modelled location depending on what varies in the vicinity and therefore there are unique patterns representing these inputs.

Greenham and Crookham Common SSSI - Unit 1 (Potential for Impacts at Transects T1 – T6)

Unit Description

6.2.5. Unit 1 – Airbase (unfavourable recovering) is a very large unit of 118 hectares and supports a very rich assemblage of notable plants, many of which are otherwise very rare in Berkshire. The Unit includes those parts of the SSSI closest to urban centres and car parking, as well as providing an extensive surfaced and unsurfaced path network. It is cattle grazed. This extensive area is therefore performing several functions in its management objectives and challenges. The Transect is in a location close to the north-west public access points and car parks, which brings additional anthropogenic pressures to this corner of the large unit including trampling and dog fouling.

Transect Specific Interpretation

6.2.6. T1: The Unit has been under intensive monitoring by SSSI managers over 2020, 2021 and 2022 for botanical features. This has presented a picture of complex pressures – mostly related to grazing, in combination with weather conditions, notably during wet winters. The associated changes on site reflect what could be considered negative effects from trampling, compaction and extended cold periods, but then linked to spring and summer opportunities for diverse species, including those associated with short turf. Indicators of nutrient nitrogen exceedance as provided for acid grassland communities by APIS (increase in graminoids, decline of typical species, decrease in total species richness) are therefore not in evidence within the Unit. Overall, the fluctuation of vegetation communities recorded between 2020-2022 would not seem strongly correlated to the near-continuous impact of traffic-derived air quality and would instead seem entirely dependent on the combination of site management practices and weather conditions, although these intertwined issues are made more complex by the recording of both positive and negative effects. The low % change (1.12% at 60m) relative to lower CLo reported from air quality modelling is considered to be negligible in this context. The 2022 Unit condition summary states that it continues to support a very rich assemblage of notable plants and that the principal influences on site vegetation are changing weather patterns, the grazing regime and the effects of trampling, combined with the positive effects of ongoing, but slow, removal of gorse.

- T2: As Transect 1 description for Unit 1. The low % change (1.12% at 30m) relative to lower CLo reported from air quality modelling is considered to be negligible in this context.
- T3: As Transect 1 description for Unit 1. The low % change (1.14% at 30m) relative to lower CLo reported from air quality modelling is considered to be negligible in this context.
- T4: As Transect 1 description for Unit 1. The low % change (1.41% at 20m) relative to lower CLo reported from air quality modelling is considered to be negligible in this context.
- T5: As Transect 1 description for Unit 1. The low % change (1.57% at 20m) relative to lower CLo reported from air quality modelling is considered to be negligible in this context.

Greenham and Crookham Common SSSI - Unit 2 (Potential for Impacts at Transects T19 – T24)

Unit Description

6.2.7. Unit 2 – Crookham Common (unfavourable no change), an extensive unit of 48ha bisected by a significant highway network and comprises wet woodland and heathland habitats with scrub. Transect location relates to the area of the Unit crossed by Crookham Common Road and Thornford Road and the associated junction. This location does provide a car parking area and major point of access to the SSSI, however it is notable that most users prefer to access Unit 1 at this point due to the established path network and more open habitats.

Transect Specific Interpretation

6.2.8. T19: The transect location is located through the footpath access network from the Crookham Common Road carpark and sites to the east, promoting public access. Preceding surveys by SSSI managers note that wet woodland trees occurring here include alder, oak and willow which tend to dominate and unless routinely cleared and that heathland habitats are not improving, although continue to support valuable species including sphagnum moss species. Where clearance within the Unit has occurred, dense tree cover is often replaced by dense vegetation, including birch saplings. Overall, the dominant woodland habitat is not considered responsive to predicted changes in nutrient nitrogen and any such indicator of change – suggested by APIS as ‘changes to ground vegetation’ – is more reactive to the overriding influence of sustained site management (or lack of it). The low % change (1.21% at 30m) relative to lower CLo reported from air quality modelling is considered to be negligible in this context, supported by the Unit condition assessment that *“current management is not sufficient enough to improve the heathland habitat”*.

- T20: As Transect 19 description for Unit 2, noting that this location is west of Crookham Common Road and contiguous with habitats of Unit 1, but largely comprising birch woodland. The low percentage change (1.38% at 10m) relative to lower CLo reported from air quality modelling is considered to be negligible in this context.
- T21: As Transect 19 description for Unit 2, noting that this location is east of Crookham Common Road and includes access roads and garden-edge areas of private and commercial properties. The low percentage change (1.08% at 50m) relative to lower CLo reported from air quality modelling is considered to be negligible in this context.
- T22: As Transect 19 description for Unit 2, noting that this location is east of Crookham Common Road comprises woodland habitat (no heathland priority habitat recorded) and the transect is not perpendicular to highway on this sharp corner. The low percentage change (1.07% at 80m) relative to lower CLo reported from air quality modelling is considered to be negligible in this context.
- T23: As Transect 19 description for Unit 2, noting that this location is north of Crookham Common Road and comprises woodland habitat (no heathland priority habitat recorded). The low percentage change (1.19% at 30m) relative to lower CLo reported from air quality modelling is considered to be negligible in this context.
- As Transect 19 description for Unit 2, noting that this location is south of Crookham Common Road and incorporates the footpath access network from the Crookham Common Road carpark and sites to the east, promoting public access. The low % change (1.27% at 10m) relative to lower CLo reported from air quality modelling is considered to be negligible in this context.

6.3 Ecological Conclusions

6.3.1. The results of the ecological modelling were discussed with Natural England, who in conjunction with the WSP ecologist concluded that there was no requirement to assess Snelsmore Common, Lardon Chase and Holies Down SSSI further as it was demonstrated that the Pre-Submission Local Plan is not predicted to have an adverse effect on these sites. As such, the Greenham and Crookham Commons SSSI was assessed further for potential adverse effects from N deposition relating to road vehicles.

6.3.2. The Greenham and Crookham Commons SSSI experiences a range of complex pressures depending on the location, however it is mostly related to grazing, weather conditions and in the case of Unit 1, extensive recreation.

6.3.3. Within Unit 1, there are no indicators that the near-continuous impact of traffic-derived air quality is having a detrimental impact on the unit and would instead seem entirely dependent on the combination of pressures outlined above. Within Unit 2, the site is dominated by wet woodland trees and when site clearance does occur, dense tree cover is often replaced by dense vegetation, including birch saplings. As such, site management is the key influence on site condition and the dominant habitat is not considered responsive to predicted changes in nutrient nitrogen. In addition, for the areas which are considered more sensitive to changes in nutrient nitrogen the Unit condition assessment stated that *"current management is not sufficient enough to improve the heathland habitat"*.

6.3.4. With the predicted modelled reductions in N deposition that occur between the 2017 baseline and 2037 both without and with the Pre-Submission Local Plan, any influence the emissions from road vehicles may currently have, is likely to reduce further.

6.3.5. The ecological monitoring undertaken within and in the vicinity of the Greenham and Crookham Commons SSSI shows that in 2021, NOx concentrations are likely to be well below the CLe at all key locations within Unit 1. For the rest of the SSSI, this will also be the case except for some kerbside locations which aren't typically representative of the SSSI boundary or the habitat inside of it. As such, the impact of road vehicles on the CLe is currently negligible. The NO_2 diffusion tubes cannot assess N deposition rates, but it does monitor the road NO_2 concentration component that is processed to be used within the total N deposition rate. The NO_2 contribution from roads is expected to fall with the increase in EVs and along with the improvement in background N deposition, the modelling predicts that this will offset the predicted increases in ammonia contributions from vehicles. As such, it can be concluded that as there are no clear impacts on the SSSI from road emissions, the improvement in NOx concentrations and N deposition rates in the coming years will mean that management and recreation are likely to remain the main pressures on the Greenham and Crookham Commons SSSI.

6.3.6. In summary, site specifics of Greenham and Crookham Commons SSSI are universally determined by site management, which has led to significant monitored habitat variation year-to-year. As agreed with Natural England[64], this means that air quality impacts are not significant in the context and no adverse effects which might be associated with air quality have been detected. So overall, the air quality effects of the Pre-Submission Local Plan on the Greenham and Crookham Commons SSSI are negligible, non-detectable and no further investigation is recommended.

[64] Consultation via online call on 19/07/2022

7 Human and Public Health Assessment Scope and Methodology

7.1 Scope

7.1.1. The scope of the assessment has been determined in the following way:

- Consultation with the Transport, Planning and Environmental Health Departments at WBC to agree the scope of the assessment and the methodology to be applied;
- Review of air quality data from WBC's latest review and assessment reports, Defra and the Environment Agency.
- Review of the traffic data provided by WBC's Pre-Submission Local Plan transport consultants, WSP;
- Desk study to identify existing sensitive receptors within the district alongside the roads that may be sensitive to changes in local air quality; and
- A review of the proposed site allocations to establish the location of new sensitive receptors.

7.1.2. The scope of the assessment includes consideration of the potential impacts on local air quality resulting from:

- Emissions to air from the increase in traffic forecast with the implementation of the Pre-Submission Local Plan; and
- The potential redistribution of traffic on the local road network with the implementation of the Pre-Submission Local Plan as a result in changes to the capacity of the road/journey times, resulting in car users seeking an alternative route.

7.1.3. These potential impacts on air quality have been considered in relation to both LAQM and public health, with reference to Public Health Indicator D.01[65], the fraction of mortality attributable to particulate air pollution.

7.1.4. In addition, the impacts of the Pre-Submission Local Plan have been compared against the English Indices of Depravation[66] to determine if residents within specific Indices of Multiple Depravation quintiles have been affected more than others.

7.1.5. The assessment also includes consideration of the potential exposure of future residents of the proposed site allocations to poor air quality.

[65] Public Health Outcomes Framework website. Available at: https://fingertips.phe.org.uk/profile/public-health-outcomes-framework [Accessed November 2022]
[66] Ministry of Housing, Communities & Local Government, English indices of deprivation 2019 website. Available at: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019 [Accessed November 2022]

7.2 Methodology

7.2.1. The common modelling methodologies are discussed along with the ecological modelling methodology in **Section 4** (page 28). Any elements that are distinctly different from the ecological modelling are outlined below.

Processing of Model Outputs

1) Determination of Total Annual Mean NO_2, PM_{10} and $PM_{2.5}$ Concentrations

7.2.2. To enable the determination of air quality impacts it was first necessary to multiply each of the ADMS-Roads model outputs by the appropriate adjustment factor from model verification and then combine with the appropriate background concentration. The basic formula for this is:

Total annual mean concentration (µg/m^3) = verification factor x model output annual mean road contribution (µg/m^3) + annual mean background concentration (µg/m^3)

7.2.3. For PM_{10} and $PM_{2.5}$ this is a simple process, just using the basic formula above. However, for total annual mean NO_2 concentrations it is necessary to account for atmospheric chemistry in converting model output NO_x to NO_2; the Defra NO_x to NO_2 calculator was therefore used to do this.

7.2.4. The resultant total annual mean pollutant concentrations are comparable with the relevant AQS objective (**Table 2-1** (page 13)).

7.2.5. $PM_{2.5}$ concentrations have also been assessed for compliance with the Environment Act 2021 annual mean concentration target (by 2040) of 10µg/m^3.

2) Determination of 1-hour Mean NO_2 and 24-hour Mean PM_{10} Statistics

7.2.6. Defra's LAQM.TG(22) advises that exceedances of the 1-hour mean NO_2 AQS objective (i.e. no more than 18 exceedances of 200µg/m^3 allowed in a year) are unlikely to occur where annual mean concentrations are below 60µg/m^3. This rule of thumb has therefore been applied in this assessment.

7.2.7. For determining compliance with the 24-hour mean PM_{10} AQS objective (i.e. no more than 35 exceedances of 50µg/m^3 allowed in a year), LAQM.TG(22) supports the use of the following empirical relationship:

The number of 24-hour mean PM_{10} exceedances of 50µg/m^3 = -18.5 + 0.00145 x annual mean^3 + (206 ÷ annual mean)

Note that this relationship is not valid for annual mean concentrations less than 14.8µg/m^3 and concentrations less than 17.0µg/m^3 should be considered to be indicative of zero exceedances.

3) Determination of Public Health Impacts

7.2.8. Following the completion of the modelling, the health impacts were determined. This was done with regard to Public Health Indicator D.01, as contained within Public Health England's Public Health Outcomes Framework[67], and the change in relative risk of mortality (RR) attributable to air pollution calculated. The RR coefficients as given in the joint Public Health England and Committee on the Medical Effects of Air Pollutants report 'Estimating Local Mortality Burdens associated with Particulate Air Pollution'[68] of 1.023 and 1.08 per 10µg/m^3 annual mean NO_2 and $PM_{2.5}$ respectively were used. This means that for each 10µg/m^3 change in annual mean NO_2 there is a change in RR of 2.3%. For $PM_{2.5}$, each 10µg/m^3 change represents a change in RR of 8%. To indicate the changes in RR for smaller changes in concentrations linear scaling has been applied.

7.3 Significance Criteria for Human Health

Impact Descriptors

7.3.1. The approach provided in the EPUK/IAQM guidance has been used within this assessment to assist in describing the air quality impacts associated with the implementation of the Pre-Submission Local Plan.

7.3.2. The EPUK/IAQM guidance recommends that the degree of an impact is described by expressing the magnitude of incremental change in pollution concentration as a proportion of the relevant assessment level and examining this change in the context of the new total concentration and its relationship with the assessment criterion, as summarised in **Table 7-1.**

Table 7-1 – Impact Descriptors for Individual Human Receptors

Long term average concentration at receptors in assessment year	% Change in concentration relative to the AQS objective/limit value			
	1	2-5	6-10	>10
75% or less of AQS objective	Negligible	Negligible	Slight	Moderate
76-94% of AQS objective	Negligible	Slight	Moderate	Moderate
95-102% of AQS objective	Slight	Moderate	Moderate	Substantial

[67] Available at: https://fingertips.phe.org.uk/profile/public-health-outcomes-framework
[68] Public Health England Committee on the Medical Effects of Air Pollutants (March 2022). Statement on quantifying mortality associated with long-term exposure to $PM_{2.5}$ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1061492/COMEAP_Statement_on_PM2.5_mortality_quantification.pdf

Long term average concentration at receptors in assessment year	% Change in concentration relative to the AQS objective/limit value			
	1	2-5	6-10	>10
103-109% of AQS objective	Moderate	Moderate	Substantial	Substantial
110% or more of AQS objective	Moderate	Substantial	Substantial	Substantial

Notes

AQS objectives for the relevant pollutants are provided in **Table 2-1** (page 13).

Where the %change in concentrations is <0.5%, the change is described as 'Negligible' regardless of the concentration.

When defining the concentration as a percentage of the AQO, 'without scheme' concentration should be used where there is a decrease in pollutant concentration and the 'with scheme;' concentration where there is an increase.

Where concentrations increase, the impact is described as adverse, and where it decreases as beneficial.

Determining the Significance of Effects

7.3.3. The EPUK/IAQM guidance notes that the criteria in **Table 7-1** (page) should be used to describe impacts at individual receptors and should be considered as a starting point to make a judgement on significance of effects, as other influences may need to be accounted for. The EPUK/IAQM guidance states that the assessment of overall significance should be based on professional judgement, taking into account several factors, including:

- The existing and future air quality in the absence of development;
- The extent of current and future population exposure to the impacts; and
- The influence and validity of any assumptions adopted when undertaking the prediction of impacts.

7.3.4. The EPUK/IAQM guidance states that for most road transport related emissions, long-term average concentrations are the most useful for evaluating the impacts. The guidance does not include criteria for determining the significance of the effect on 1-hour mean NO_2 concentrations or 24-hour mean PM_{10} concentrations. The significance of effects of 1-hour mean NO_2 and 24-hour mean PM_{10} concentrations arising from the operational phase has therefore been determined qualitatively using professional judgement and the principles described above.

The EPUK/IAQM guidance advises that *"Where the air quality is such that an air quality objective at the building facade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means. For people working at new developments in this situation, the same will not be true as occupational exposure standards are different, although any assessment may wish to draw attention to the undesirability of the exposure."*

7.4 Impact Evaluation for Public Health

7.4.1. The modelling results for all receptors have been reviewed and the level of risk categorised based on the bandings detailed within Public Health England's Air Pollution Tool[69]. Details of the bandings for both NO_2 and $PM_{2.5}$ are provided in **Table 7-2** below. An additional band (very high) has been added to signify where a location is considered to be in the high exposure band and there is an exceedance of the relevant AQS.

Table 7-2 – Modified Public Health England Exposure Bandings

Pollutant	Low	Medium	High	Very High
NO_2	<20.5µg/m^3	20.5 to 28.4µg/m^3	28.5 to 40.0µg/m^3	>40.0µg/m^3
$PM_{2.5}$	<12.5µg/m^3	12.5 to 13.4µg/m^3	13.5 to 20.0µg/m^3	>20.0µg/m^3

7.4.2. Following the completion of the modelling, the results have been reviewed against the 'risk categories' for NO_2 and $PM_{2.5}$ (as outlined above) to:

- Identify which 'exposure band' these communities fall within, both now and in the future, with the implementation of the Pre-Submission Local Plan; and
- Identify areas where the 'exposure band' is predicted to change (either positively or negatively) as a result the Pre-Submission Local Plan ('in-combination' with background growth and committed development/growth in neighbouring local authorities).

7.4.3. In additional to the modelled locations across WBC's administrative area and the proposed allocation sites, public health impacts were also evaluated at the identified vulnerable groups receptors.

[69] Public Health England Air Pollution Tool. Available at: https://www.gov.uk/government/publications/air-pollution-a-tool-to-estimate-healthcare-costs [Assessed November 2022]

8 Human and Public Health Modelling Results and Interpretation

8.1 Human Health and Local Air Quality Management

8.1.1. Key findings are presented below. Results for all modelled human receptors are illustrated in the set of figures: **Figure 8-1** to **Figure 8-545** which are contained within the supporting Section 8 Figure Books 1 to 30. **Figure 8-1** (contained within Section 8 Figure Book 1) shows the individual mapped zones as it was required to split up for mapping to enable some legibility of concentrations given the large area and number of receptors.

2017 Baseline

Annual Mean NO_2 Concentrations

8.1.2. In 2017, annual mean NO_2 concentrations are predicted to meet the AQS objective (40µg/m^3) at most receptors. Exceedances of the objective were predicted at 101 modelled receptors[70], most of which are close to the M4 motorway and major roads including the A4, A34, A340, and A329. Exceedances were also predicted at receptors on Chapel Street, within the Thatcham AQMA. The highest concentration is 59.7µg/m^3 and is located at a residential receptor location on Station Road, Pangbourne. This receptor is located adjacent to a roundabout.

8.1.3. The modelled 2017 concentrations can be found in the supporting figures (**Figures 8-2** to **8-35** contained within Section 8 Figure Books 1 and 2).

8.1.4. The WHO AQG for annual mean NO_2 (10µg/m^3) is not met at any modelled location in 2017.

1-hour Mean NO_2 Concentrations

8.1.5. In 2017, annual mean NO_2 concentrations predicted by the model were all below 60µg/m^3 at all of the assessment receptor. Therefore, the 1-hour mean objective for NO_2 (200µg/m^3 not to be exceeded more than 18 times a year) is predicted to be met at all of assessment receptors.

Annual Mean PM_{10} Concentrations

8.1.6. In 2017, annual mean PM_{10} concentrations are predicted to meet the AQS objective (40µg/m^3) at all modelled receptors. The highest predicted concentration is 20.6µg/m^3 at a residential receptor on Old Stanmore Road, East Ilsley.

8.1.7. The WHO AQG for annual mean PM_{10} (15µg/m^3) is met at 12,074 receptor locations, while not met at 15,201 receptor locations.

8.1.8. The modelled 2017 concentrations are presented in **Figures 8-35** to **8-67** (contained within Section 8 Figure Books 2 to 4).

24-hour Mean PM_{10} Concentrations

8.1.9. The AQS objective for 24-hour mean PM_{10} concentrations (50µg/m^3 not to be exceeded more than 35 times a year) is met at all modelled receptors.

Annual Mean $PM_{2.5}$ Concentrations

8.1.10. In 2017, annual mean $PM_{2.5}$ concentrations are predicted to meet the current AQS objective (20µg/m^3) at all modelled receptors. The highest predicted concentration is 13.3µg/m^3 at a residential receptor at Priors Court, Hermitage.

8.1.11. Annual mean $PM_{2.5}$ concentrations in the 2017 baseline scenario have also been compared to the Environment Act (2021) $PM_{2.5}$ concentration target to be met by 2040 (10µg/m^3). The Environment Act 2021 target is met at 9,652 out of 27,275 modelled receptor locations.

8.1.12. The WHO AQG for annual mean $PM_{2.5}$ (5µg/m^3) is not met.

8.1.13. The modelled 2017 concentrations are presented in **Figures 8-68** to **8-100** (contained within Section 8 Figure Books 4 to 6).

2037

Annual Mean NO_2 Concentrations

8.1.14. The AQS objective for annual mean NO_2 concentrations (40µg/m^3) is predicted to be met at all modelled receptors, both without and with the 2037 Pre-Submission Local Plan. Concentrations are reduced from the 2017 baseline scenario due to improvement in vehicle emissions and background concentrations forecast in the years up to 2037, which more than offsets the forecast traffic growth.

8.1.15. The highest predicted concentrations are 25.0µg/m^3 and 25.3µg/m^3 without and with the Pre-Submission Local Plan respectively, on Station Road.

8.1.16. All predicted changes are less than 0.9µg/m^3 (2% of the AQS objective). As all concentrations with the Pre-Submission Local Plan are less than 30µg/m^3 (75% of the AQS objective), according to **Table 7-1 (page)**, all impacts on annual mean NO_2 concentrations can be described as negligible. **Figures 8-101** to **8-133** (contained within Section 8 Figure Books 6 to 8) show the with Pre-Submission Local Plan concentrations and **Figures 8-134** to **8-166** (contained within Section 8 Figure Books 8 to 10) show the changes in concentration relating the Pre-Submission Local Plan.

8.1.17. The WHO AQG for annual mean NO_2 (10µg/m^3) is predicted to be met at 15,881 out of 27,275 modelled receptors for the without the Pre-Submission Local Plan. With the Pre-Submission Local Plan, this number reduces slightly to 15,603 modelled human receptors.

1-hour Mean NO_2 Concentrations

8.1.18. As all predicted annual mean NO_2 concentrations are all well below 60µg/m^3, it is very likely that there is compliance with the 1-hour mean AQS objective. Therefore, all impacts on 1-hour mean NO_2 concentrations can be described as negligible.

Annual Mean PM_{10} Concentrations

8.1.19. In 2037, the AQS objective for annual mean PM_{10} concentrations is predicted to be met at all assessment receptors, both without and with the Pre-Submission Local Plan.

8.1.20. The highest concentrations are 19.0µg/m^3 and 19.0µg/m^3, without and with the Pre-Submission Local Plan respectively, predicted at residential receptors on Old Stanmore Road, Priors Court and Oxford Road.

8.1.21. All predicted changes are less than 0.5µg/m^3 (1% of the AQS objective). As all concentrations with the Pre-Submission Local Plan are less than 30µg/m^3 (75% of the AQS objective), according to **Table 7-1** (page 97) all impacts on annual mean PM_{10} concentrations can be described as negligible.

8.1.22. The WHO AQG for annual mean PM_{10} (15µg/m^3) is met at 23,039 out of 27,275 modelled human receptors without the Pre-Submission Local Plan. With the Pre-Submission Local Plan, this number reduces to 22,869 modelled human receptors.

8.1.23. **Figures 8-167** to **8-199** (contained within Section 8 Figure Books 10 and 11) show the with Pre-Submission Local Plan concentrations and **Figures 8-200** to **8-232** (contained within Section 8 Figure Books 11 to 13) show the changes in concentration relating the Pre-Submission Local Plan.

24-hour Mean PM_{10} Concentrations

8.1.24. The AQS objective for 24-hour mean PM_{10} concentrations (50µg/m^3 not to be exceeded more than 35 times a year) is met at all modelled receptors in both without and with the Pre-Submission Local Plan scenarios. Therefore, all impacts on 24-hour mean PM_{10} concentrations can be described as negligible.

Annual Mean $PM_{2.5}$ Concentrations

8.1.25. In 2037, annual mean $PM_{2.5}$ concentrations are predicted to be well below the limit value of 20µg/m^3, both without and with the Pre-Submission Local Plan.

8.1.26. The highest predicted concentrations are 12.0µg/m^3 and 11.9µg/m^3 without and with the Pre-Submission Local Plan respectively, at six residential receptors on Greenham Road, Newbury.

8.1.27. All predicted changes are 0.3µg/m^3 or less (2% of the current AQS objective). As all concentrations with the Pre-Submission Local Plan are less than 15µg/m^3 (75% of the AQS objective), according to **Table 7-1** (page 97), all impacts on annual mean $PM_{2.5}$ concentrations can be described as negligible. **Figures 8-233** to **8-265** (contained within Section 8 Figure Books 13 to 15) show the with Pre-Submission Local Plan concentrations and **Figures 8-266** to **8-298** (contained within Section 8 Figure Books 15 to 17) show the changes in concentration relating the Pre-Submission Local Plan.

8.1.28. Annual mean $PM_{2.5}$ concentrations for 2037, both without and with the Pre-Submission Local Plan scenarios have also been compared to the Environment Act 2021 $PM_{2.5}$

concentration target to be met by 2040 (10µg/m^3). The Environment Act 2021 target is met at 24,680 out of 27,275 modelled human receptors without the Pre-Submission Local Plan. With the Pre-Submission Local Plan, this number reduces slightly to 24,548 modelled human receptors.

8.1.29. The WHO AQG for annual mean $PM_{2.5}$ (5µg/m^3) is not met at any of the modelled human receptors without nor with the Pre-Submission Local Plan.

Significance of Effect

8.1.30. Overall, in relation to AQS objectives and the $PM_{2.5}$ limit value, the implementation of the Pre-Submission Local Plan is not expected to give rise to a significant effect in relation to the expected impacts on air quality.

8.2 Public Health

Change in Exposure and Relative Risk Across the District

Annual Mean NO_2 Concentrations

8.2.1. **Figures 8-299** to **8-331** (contained within Section 8 Figure Books 17 to 19) show the exposure bands for annual mean NO_2 concentrations (**Table 7-2** (page 99)) across the district for the 2017 baseline scenario. **Figures 8-332** to **8-364** (contained within Section 8 Figure Books 19 and 20) show this for the 2037 with Pre-Submission Local Plan scenario. The differences between the two scenarios can be seen in **Table 8-1**. The locations within the district that are affected by annual mean NO_2 concentrations in the high and very high exposure bands are expected to be substantially smaller in 2037, with no locations within the high and very high band in 2037. These improvements are due to the changes to zero/ultra-low emissions technologies in transport, industrial, commercial and residential sectors that are forecast by Defra.

Table 8-1 – Public Exposure to Annual Mean NO_2 Concentrations in 2017 Baseline Year and 2037 with the Pre-Submission Local Plan

Modified Public Health England Exposure Bandings	Concentration (µg/m^3)	2017 baseline	2037 with Pre-Submission Local Plan
Very high	>40.0	0.4% of locations (101 receptors). These receptors are located along the M4 motorway and major roads including the A4, A34, A340 and A329. Some receptors are located within an AQMA.	0% of locations

Modified Public Health England Exposure Bandings	Concentration (µg/m³)	2017 baseline	2037 with Pre-Submission Local Plan
High	28.5 to 40.0	3.6% of locations (988 receptors)	0% of locations
Medium	20.5 to 28.5	26.0% of locations (7,090 receptors)	0.1% of locations (16 receptors)
Low	<20.5	70.0% of locations (19,096 receptors)	99.9% of locations (27,259 receptors)

8.2.2. The predicted reductions in annual mean NO_2 concentrations between the 2017 baseline and 2037 with the Pre-Submission Local Plan scenarios range between 3.4 – 35.0 µg/m³. On the basis that 1µg/m³ should lead to differences of 0.23% in relative risk (RR) of mortality, the reductions in RR between 2017 baseline and 2037 with the Pre-Submission Local Plan scenario are predicted to be between 0.8 – 8.1%. **Figures 8-365** to **8-397** (contained within Section 8 Figure Books 20 to 22) illustrate these changes in RR.

Annual Mean $PM_{2.5}$ Concentrations

8.2.3. **Figures 8-398** to **8-430** (contained within Section 8 Figure Books 22 to 24) show the exposure bands for annual mean $PM_{2.5}$ concentrations (**Table 7-2** (page 99)) across the district for the 2017 baseline scenario. There are no figures associated with the 2037 with Pre-Submission Local Plan scenario as all locations are within the low exposure band. The differences in exposure bands between the two scenarios can be seen in **Table 8-2** below.

8.2.4. **T**here are no locations within the district that are affected by annual mean $PM_{2.5}$ concentrations in the high exposure bands. 0.1% of locations are within the medium exposure band in 2017 baseline scenario. This is expected to be substantially smaller in 2037, with 100% of locations coming within the low exposure band. These improvements are due to the changes to zero/ultra-low emissions technologies in transport, industrial, commercial and residential sectors that are forecast by Defra.

Table 8-2 – Public Exposure to Annual Mean $PM_{2.5}$ Concentrations in 2017 Baseline Year and 2037 with the Pre-Submission Local Plan

Modified Public Health England Exposure Bandings	Concentration (µg/m³)	2017 baseline	2037 with Pre-Submission Local Plan
Very high	>20.0	0% of locations	0% of locations

Modified Public Health England Exposure Bandings	Concentration ($\mu g/m^3$)	2017 baseline	2037 with Pre-Submission Local Plan
High	13.5 to 20.0	0% of locations	0% of locations
Medium	12.5 to 13.5	0.1% of locations	0% of locations
Low	<12.5	99.1% of locations	100% of locations

8.2.5. The predicted reductions in annual mean $PM_{2.5}$ concentrations between the 2017 baseline and 2037 with the Pre-Submission Local Plan scenarios range between 0.3 and 1.7 $\mu g/m^3$. On the basis that 1$\mu g/m^3$ should lead to differences of 0.77% in relative risk (RR) of mortality, the reductions in RR between 2017 baseline and 2037 with the Pre-Submission Local Plan scenario are predicted to be between 0.2% and 1.3%. **Figures 8-431** to **8-463** (contained within Section 8 Figure Books 24 to 26) illustrates these changes in RR.

8.3 Comparison Against the Index of Multiple Deprivation

8.3.1. The Indices of Deprivation (IoD) are a measure of relative deprivation used to rank neighbourhoods as Lower-layer Super Output Areas (LSOAs) across the UK. Deprivation is can defined as ‘a lack of…’ something, with the Index of Multiple Deprivation (IMD)[71] using seven weighted domains to reach the level of depravation of an LSOA relative to the rest of the country. These domains indices are:

- Income deprivation (22.5% weighting);
- Employment deprivation (22.5% weighting);
- Education, skills and training deprivation (13.5% weighting);
- Heath deprivation and disability (13.5% weighting);
- Crime (9.3% weighting);
- Barriers to housing and services (9.3% weighting); and
- Living environment depravation (9.3% weighting).

8.3.2. Based on the above data and relative weighting, the IMD ranks the LSOAs from 1 (the most deprived) to 32,844 (the least deprived). These are then split into deciles (i.e. 10% groups) where decile 1 is the most deprived. For ease of analysis, quintiles are also used and group the LSOAs into 20% groups, with again the lowest groups being the most deprived. Adverse air quality impacts on more deprived receptors have the ability to increase inequalities in metrics such as health and are tied into the other metrics in indirect ways. The use of

[71] Ministry of Housing, Communities & Local Government, English Indices of Deprivation 2019 - File 1: index of multiple deprivation (September 2019). Available at https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019

quintiles also aids the visual representation of deprivation over the district and provides broader bands which will aid in the analysis of impacts relating to the Pre-Submission Local Plan.

8.3.3. **Figure 8-464** (contained within Section 8 Figure Book 26**)** provides an overview of the LSOAs within the district and the associated IMD quintiles.

8.3.4. The tables below identify the distribution of both the modified Public Health England exposure bandings across the quintiles and then the distribution of changes in concentration across the quintiles. This will allow for the assessment of the distribution of both elevated concentrations and impacts as a result of the Pre-Submission Local Plan and if the Pre-Submission Local Plan has an adverse impact on any particular quintile.

8.3.5. Unlike the relative risk approach used above for Public Health, the bandings can be used in isolation and therefore all three scenarios have been assessed, with particular emphasis on the impact of the Pre-Submission Local Plan in 2037.

8.3.6. In addition, a WebTAG style summary table has been produced, whereby the concentrations are a simple impact, benefit or no change. The table then calculates a range of positive and negative impact values for the outcomes based on the level of population experiencing the change relative to the other quintiles and the expected impact or benefit.

Annual Mean NO_2 Concentrations

Table 8-3 – Public Exposure to Annual Mean NO_2 Concentrations in 2017 and the Respective Quintiles for Each Receptor

Receptors within Modified Public Health England Exposure Bandings	IMD Quintile and Receptor Counts					Total in Each Exposure Band
	0-20%	20-40%	40-60%	60-80%	80-100%	
Very high	0	1	9	51	40	101
High	0	119	124	506	239	988
Medium	39	268	1,442	3,007	2,334	7,090
Low	62	388	2,900	7,807	7,939	19,096
Total Receptors in Quintile	101	776	4,475	11,371	10,552	

8.3.7. In the 2017 baseline, the majority of receptors are within the top two quintiles (i.e. least deprived) also experience many of the highest concentrations, but also some of the lowest. There are some trends to suggests that more deprived areas are disproportionally subjected to higher NO_2 concentrations within West Berkshire, as a higher proportion of receptors within the 20-40% quintile experience a 'high' exposure (15.3% of the receptors within the quintile) compared to the higher quintiles (which range from 2.3% to 4.4%). However, unlike other regions within the UK, it appears as if the highest concentrations are not disproportionally found within more deprived locations.

Table 8-4 – Public Exposure to Annual Mean NO_2 Concentrations in 2037 Without the Pre-Submission Local Plan and the Respective Quintiles for Each Receptor

Receptors within Modified Public Health England Exposure Bandings	IMD Quintile and Receptor Counts					Total in Each Exposure Band
	0-20%	20-40%	40-60%	60-80%	80-100%	
Very high	0	0	0	0	0	0
High	0	0	0	0	0	0
Medium	0	0	0	0	16	16
Low	101	776	4,475	11,371	10,536	27,259
Total Receptors in Quintile	101	101	776	4,475	11,371	

Table 8-5 – Public Exposure to Annual Mean NO_2 Concentrations in 2037 With the Pre-Submission Local Plan and the Respective Quintiles for Each Receptor

Receptors within Modified Public Health England Exposure Bandings	IMD Quintile and Receptor Counts					Total in Each Exposure Band
	0-20%	20-40%	40-60%	60-80%	80-100%	
Very high	0	0	0	0	0	0
High	0	0	0	0	0	0

Receptors within Modified Public Health England Exposure Bandings	IMD Quintile and Receptor Counts					Total in Each Exposure Band
	0-20%	20-40%	40-60%	60-80%	80-100%	
Medium	0	0	0	0	16	16
Low	101	776	4,475	11,371	10,536	27,259
Total Receptors in Quintile	101	776	4,475	11,371	10,552	

8.3.8. In 2037 both without and with the Pre-Submission Local Plan, all receptors are within the lowest band, except for 16 receptors within the least deprived quintile. As such, further direct analysis between the two 2037 scenarios are required to determine if the Pre-Submission Local Plan has an adverse impact on the most deprived areas with West Berkshire.

8.3.9. **Table 8-6** addresses the change in concentrations with the Pre-Submission Local Plan in 2037. As such, any increases can solely be attributed to the Pre-Submission Local Plan and any impacts of traffic flows and redistribution etc.

Table 8-6 – Change in Annual Mean NO_2 Concentrations at Receptors and Across Quintiles in 2037 Due to the Pre-Submission Local Plan

Concentration Change µg/m^3	IMD Quintile and Receptor Counts					Total in Each Concentration Band
	0-20%	20-40%	40-60%	60-80%	80-100%	
>1.0	0	0	0	0	0	0
0.5 to 1.0	0	0	1	80	97	178
0.2 to 0.4	1	7	185	1,110	817	2,120
-0.1 to 0.1	100	769	4,285	10,043	9,448	24,645
-0.2 to -0.4	0	0	4	127	186	317

Concentration Change µg/m³	IMD Quintile and Receptor Counts					Total in Each Concentration Band
	0-20%	20-40%	40-60%	60-80%	80-100%	
-0.5 to -1.0	0	0	0	11	4	15
>-1.0	0	0	0	0	0	0
Total Receptors in Quintile	101	776	4,475	11,371	10,552	

8.3.10. From the table above, it is clear that the Pre-Submission Local Plan has little impact on the most deprived quintiles, with the two least deprived quintiles experiencing the most changes above 0.1µg/m³. For the 60-80% and 80-100% quintiles, there is a 0.7% and 0.9% respective increase in concentration changes that exceed 0.4µg/m³. In comparison to the lowest two quintiles, where there are no such increases. Even for concentrations above 0.1µg/m³, 9.8% and 7.7% of receptors within the top two quintiles experience this change, whereas 1% and 0.9% of the receptors within the 0-20% and 20-40% quintiles respectively experience the change. As such, it is clear that the increases in NO_2 as a result of the Pre-Submission Local Plan tend to be experienced in less deprived areas. However, it is also the case that the highest frequency of decreases is also found within the least deprived quintiles, so the middle quintile (40-60%) experiences a reasonable level of increases, without the benefit of the decreases seen within the least deprived quintiles.

8.3.11. **Table 8-7** uses a slightly different approach whereby receptors that experience any increases, decreases and instances where there is no change are binned together regardless of the magnitude of positive or negative change. This approach is commonly used within the WebTAG assessment for the appraisal of road transport schemes.

Table 8-7 – Change in Annual Mean NO_2 Concentrations Assessed Using a WebTAG Approach

2037 NO_2	IMD Quintile Most deprived ⟷ Least deprived					Total
	0-20%	20-40%	40-60%	60-80%	80-100%	
Number of properties with	38	0	164	677	736	1,615

2037 NO_2	IMD Quintile Most deprived ⟷ Least deprived					Total
	0-20%	20-40%	40-60%	60-80%	80-100%	
improved air quality [A]						
Number of properties with no change in air quality [B]	61	488	2,815	6,206	5,744	15,314
Number of properties with worse air quality [C]	2	288	1,496	4,488	4,072	10,346
Number of net winners / losers [D] = [A] – [C]	36	-288	-1,332	-3,811	-3,336	-
Total number of winners / losers across all groups [E] = ∑[D]						-8,731
Net winners/losers in each area as percentage of total [F] = [D] / [E]	-0.4%	3.3%	15.3%	43.6%	38.2%	100%
Share of total population of study area	0.4%	2.8%	16.4%	41.7%	38.7%	100%
Assessment	✓✓	X X	X X	X X	X X	
Overall Air Impact	Adverse	Adverse	Adverse	Adverse	Adverse	
Impact for Group	Beneficial	Adverse	Adverse	Adverse	Adverse	Adverse

$2037\ NO_2$	IMD Quintile Most deprived ⟷ Least deprived					Total
	0-20%	**20-40%**	**40-60%**	**60-80%**	**80-100%**	
Proportion of group compared to total	Smaller	Smaller	Smaller	Smaller	Smaller	

8.3.12. The results of the WebTAG method are similar to the ones before it, but it shows clearly the net ‘winners and losers’ in each quintile. For the most deprived quintile, the Pre-Submission Local Plan has a benefit, whilst there is an adverse impact across all other quintiles. In the two least deprived quintiles, there is a disproportionate amount of ‘losers’ due to the Pre-Submission Local Plan and when compared to the other quintiles, this is not replicated. As such, this approach also concludes that in 2037, the Pre-Submission Local Plan does not disproportionally affect the most deprived areas.

8.3.13. Both **Table 8-6** (page 108) and **Table 8-7** (above) provide useful metrics to assess the distribution of NO_2 impacts in 2037 due to the Pre-Submission Local Plan. They vary in approach; however, **Table 8-6** provides a much more nuanced approach at the impacts of the Pre-Submission Local Plan has on the residents of West Berkshire in the vicinity of roads, given it quantified change. As a Local Plan process includes many developments and schemes, the quantification of the increases is important and the analysis above demonstrates that typically, increases in NO_2 concentrations in 2037 are typically in the -0.1 to 0.1µg/m^3 range, which is very much negligible in terms of impact. For the larger impacts, these do not disproportionally impact more deprived areas. Although any increase has the ability to have an impact on the population of an area, it is positive that it appears the Pre-Submission Local Plan will not worsen existing metrics related to NO_2 concentrations (such as health) within the most deprived areas.

Annual Mean $PM_{2.5}$ Concentrations

Table 8-8 – Public Exposure to Annual Mean $PM_{2.5}$ Concentrations in 2017 and the Respective Quintiles for Each Receptor

Receptors within Modified Public Health England Exposure Bandings		IMD Quintile					Total in Each Exposure Band
		0-20%	20-40%	40-60%	60-80%	80-100%	
Very high		0	0	0	0	0	101
High		0	0	0	0	0	988
Medium		0	1	0	28	5	7,090
Low		101	775	4,475	11,343	10,547	19,096
Total Receptors in Quintile		101	101	776	4,475	11,371	
Environment Act 2021 Annual Mean Concentration Target Compliance	Compliant Receptors	17	0	1,289	4,141	4,205	
	Quintile Compliance	16.8 %	0.0%	28.8%	36.4%	39.9%	
	Total Compliance of Modelled Receptors	35.4%					

8.3.14. In the 2017 baseline, the majority of receptors are within the top two quintiles (i.e. least deprived) also experience many of the highest concentrations. However, $PM_{2.5}$ concentrations across West Berkshire are predicted to be good in comparison to the exposure bandings. On this basis. It does not appear that under the exposure bandings, there are any differences between the quintiles. However, when a more stringent target such as the Environment Act (2021) 2040 Concentration Target is used (10µg/m^3), there are some trends which become apparent. Typically, in 2017, the compliance with the 2040 target is lower than in less deprived quintiles. This is likely to be due to both the lower sample size and also the characteristics of the more deprived areas. Typically, in the less deprived areas, properties are more often set further back from major roads and therefore are able to reach lower pollutant concentrations. Conversely, more deprived areas may be closer to busy roads and therefore not be able to make the more stringent limit. This trend is not necessarily replicated within the NO_2 results as the threshold for the bands is both higher and the bands themselves are broader.

Table 8-9 – Public Exposure to Annual Mean $PM_{2.5}$ Concentrations in 2037 Without the Pre-Submission Local Plan and the Respective Quintiles for Each Receptor

Receptors within Modified Public Health England Exposure Bandings		IMD Quintile					Total in Each Exposure Band
		0-20%	20-40%	40-60%	60-80%	80-100%	
Very high		0	0	0	0	0	0
High		0	0	0	0	0	0
Medium		0	0	0	0	0	0
Low		101	776	4,475	11,371	10,552	27,275
Total Receptors in Quintile		101	101	776	4,475	11,371	
Environment Act 2021 Annual Mean Concentration Target Compliance	Compliant Receptors	87	483	4,014	10,187	9,909	
	Quintile Compliance	86.1 %	62.2 %	89.7%	89.6%	93.9%	
	Total Compliance of Modelled Receptors	90.5%					

Table 8-10 – Public Exposure to Annual Mean $PM_{2.5}$ Concentrations in 2037 With the Pre-Submission Local Plan and the Respective Quintiles for Each Receptor

Receptors within Modified Public Health England Exposure Bandings		IMD Quintile					Total in Each Exposure Band
		0-20%	**20-40%**	**40-60%**	**60-80%**	**80-100%**	
Very high		0	0	0	0	0	0
High		0	0	0	0	0	0
Medium		0	0	0	0	0	0
Low		101	776	4,475	11,371	10,552	27,275
Total Receptors in Quintile		101	101	776	4,475	11,371	
Environment Act 2021 Annual Mean Concentration Target Compliance	**Compliant Receptors**	92	480	3,982	10,124	9,870	
	Quintile Compliance	91.1 %	61.9 %	89.0%	89.0%	93.5%	
	Total Compliance of Modelled Receptors	90.0%					

8.3.15. In 2037 both without and with the Pre-Submission Local Plan, all receptors are within the lowest band. As such, further direct analysis between the two 2037 scenarios are required to determine if the Pre-Submission Local Plan has an adverse impact on the most deprived areas with West Berkshire.

8.3.16. As with the **Table 8-8** (page 112), the Environment Act (2021) 2040 Concentration Target ($10 \mu g/m^3$) provides a more detailed look at the trends due to the lower threshold. The only quintile which has significantly less compliance with the target is the 20-40% quintile. The likely cause of the impact to this seem as if the addition of the proposed site allocations, being near major road links and in conjunction with there only being three clusters of receptors within this quintile across the district (one in Thatcham and two in Calcot). Therefore, as this quintile is very geographically specific, any impacts due to the Pre-Submission Local Plan will be magnified.

8.3.17. The overall compliance with the 2040 target drops by 0.5% with the implementation of the Pre-Submission Local Plan. However, with the broad coverage of receptors in the vicinity of road links, this is likely to be a conservative estimate of compliance as it is expected to be even higher if all receptors were considered (i.e. those further back from a road will be more likely to be compliant).

8.3.18. **Table 8-11** addresses the change in concentrations with the Pre-Submission Local Plan in 2037. As such, any increases can solely be attributed to the Pre-Submission Local Plan and any impacts of traffic flows and redistribution etc.

Table 8-11 – Change in Annual Mean $PM_{2.5}$ Concentrations at Receptors and Across Quintiles in 2037 Due to the Pre-Submission Local Plan

Concentration Change µg/m^3	**IMD Quintile**					**Total in Each Concentration Band**
	0-20%	**20-40%**	**40-60%**	**60-80%**	**80-100%**	
>1.0	0	0	0	0	0	0
0.5 to 1.0	0	0	0	0	0	0
0.2 to 0.4	0	0	0	107	116	223
-0.1 to 0.1	101	776	4,475	11,248	10,429	27,029
-0.2 to -0.4	0	0	0	16	7	23
-0.5 to -1.0	0	0	0	0	0	0
>-1.0	0	0	0	0	0	0
Total Receptors in Quintile	101	776	4,475	11,371	10,552	

8.3.19. As is to be expected, the changes in the $PM_{2.5}$ concentrations at receptors and the breakdown by quintiles broadly mirrors the NO_2 changes in **Table 8-6** (page 108). The overall change in concentration is relatively low, with a maximum of increase of 0.3µg/m^3 experienced. There are negligible changes in the three most deprived quintiles, with no changes greater than ±0.1µg/m^3, however there are changes greater than ±0.1µg/m^3 within the two least deprived quintiles, with there being more increases than decreases.

8.3.20. As with NO_2, **Table 8-12** below uses a slightly different approach whereby receptors that experience any increases, decreases and instances where there is no change are binned together regardless of the magnitude of positive or negative change. This approach is commonly used within the WebTAG assessment for the appraisal of road transport schemes.

Table 8-12 – Change in Annual Mean $PM_{2.5}$ Concentrations Assessed Using a WebTAG Approach

2037 $PM_{2.5}$	**IMD Quintile** **Most deprived ⟵⟶ Least deprived**					**Total**
	0-20%	**20-40%**	**40-60%**	**60-80%**	**80-100%**	
Number of properties with improved air quality [A]	24	0	61	296	395	776
Number of properties with no change in air quality [B]	76	697	3,983	9,212	8,613	22,581
Number of properties with worse air quality [C]	1	79	431	1,863	1,544	3,918
Number of net winners / losers [D] = [A] – [C]	23	-79	-370	-1,567	-1,149	-
Total number of winners / losers across all groups [E] = ∑[D]						-3,142
Net winners/losers in each area as percentage of total [F] = [D] / [E]	-0.7%	2.5%	11.8%	49.9%	36.6%	100%

2037 $PM_{2.5}$	IMD Quintile Most deprived ⟵⟶ Least deprived					Total
	0-20%	20-40%	40-60%	60-80%	80-100%	
Share of total population of study area	0.4%	2.8%	16.4%	41.7%	38.7%	100%
Assessment	✓✓	X X	X X	X X X	X X	
Overall Air Impact	Adverse	Adverse	Adverse	Adverse	Adverse	
Impact for Group	Beneficial	Adverse	Adverse	Adverse	Adverse	Adverse
Proportion of group compared to total	Smaller	Smaller	Smaller	Greater	Smaller	

8.3.21. **Table 8-12** largely mirrors the NO_2 changes in **Table 8-7** (page 109). However, it appears if the 60-80% quintile is more adversely affected when compared to the NO_2, due to higher proportion of net 'winners/losers' when compared to the other quintiles. It again does support that there is no clear indication that more deprived areas will be disproportionally affected by the Pre-Submission Local Plan.

8.3.22. There is a somewhat different view of the impact of $PM_{2.5}$ due the Pre-Submission Local Plan on more deprived quintiles, depending on the metric used. The Pre-Submission Local Plan does not appear to lead to a particularly large change in concentrations, however the compliance with the 2040 target is slightly different. This can be explained as there are 135 receptors within the two most deprived quintiles with modelled concentrations of 10.0µg/m^3 without the Pre-Submission Local Plan. As such, an increase of just 0.1µg/m^3 will lead to that receptor not being compliant. Typically, an increase of 0.1µg/m^{3}in an air quality assessment will not be significant, however, with many concentrations around the target, receptors are sensitive to small changes in concentration which may affect compliance with the 2040 target.

Future Occupants of the Pre-Submission Site Allocations

8.3.23. Predicted maximum and minimum annual mean NO_2 and $PM_{2.5}$ concentrations for 2037 with the Pre-Submission Local Plan at allocated sites are shown in

8.3.24. **Table** 8-13 overleaf.

Annual Mean NO_2 Concentrations

8.3.25. In 2037, with the Pre-Submission Local Plan, **Table 8-13** shows that annual mean NO_2 concentrations within all of the proposed site allocations are predicted to be below 20.0µg/m^3. The maximum annual mean NO_2 concentration across all site allocations is predicted to be 19.0µg/m^3 and is predicted within 'THA10, Land at Siege Cross Farm, Thatcham'. Therefore, when compared to current AQS objectives, none of the sites are predicted to exceed any current objective.

Annual Mean $PM_{2.5}$ Concentrations

8.3.26. In 2037, with the Pre-Submission Local Plan, **Table 8-13** shows that the maximum annual mean $PM_{2.5}$ concentration predicted across the allocated sites is predicted to be 12.1µg/m^3. This is predicted at 'THA10, Land at Siege Cross Farm, Thatcham'. Therefore, when compared to current AQS objectives, none of the sites are predicted to exceed any current objective.

8.3.27. It should be noted that 11 of the 42 proposed site allocations exceed the Environment Act (2021) 2040 Concentration Target (10µg/m^3), while three of the proposed site allocations (HSA12, HSA13 and THE8) are not predicted to have any locations below the target in 2037. However, the target date for compliance is 2040 and as detailed within the limitations and assumptions in **Section 4.8** (page 36), the tools are not currently available, nor the particulate monitoring within the district to make decisions on site suitability based on the Environment Act (2021) targets.

Table 8-13 – Predicted Annual Mean NO_2 and $PM_{2.5}$ Across Allocated Sites

Site Reference	Existing /Pre-Submission Local Plan Allocation	Annual Mean Concentration (µg/m^3)			
		Max NO_2	Min NO_2	Max $PM_{2.5}$	Min $PM_{2.5}$
HSA2	Existing Local Plan allocation being rolled forward	11.6	8.2	10.0	9.2
HSA3		10.2	9.2	9.3	9.0
HSA11		11.6	11.4	9.2	9.0
HSA12		18.2	12.1	11.9	10.7
HSA13		13.7	11.9	11.1	10.7
HSA10		11.2	9.5	10.0	9.2
HSA14		11.8	9.2	9.4	8.8

Site Reference	Existing /Pre-Submission Local Plan Allocation	Annual Mean Concentration (µg/m^3)			
		Max NO_2	Min NO_2	Max $PM_{2.5}$	Min $PM_{2.5}$
HSA4		10.1	7.8	9.5	8.5
HSA18		11.6	6.2	9.3	8.0
HSA16		11.1	8.7	9.5	8.9
HSA19		6.4	6.3	7.9	7.9
HSA23		10.5	7.6	9.1	8.2
HSA24		9.7	8.9	8.9	8.6
HSA15		8.7	8.6	9.0	8.9
HSA5		11.4	8.5	10.2	9.2
HSA6		8.2	8.0	8.8	8.6
HSA7		8.8	7.9	8.7	8.5
HSA1		8.6	8.1	9.1	9.0
HSA22		7.9	7.7	8.4	8.3
HSA9		11.1	9.5	9.9	9.2
HSA20		6.9	6.4	8.1	7.9
HSA25		9.3	8.9	8.7	8.6
TS2		7.8	6.9	8.5	8.0
TS1		13.2	11.8	9.9	9.3
SP16		11.7	6.9	9.9	8.0
ALD3	New Local Plan Allocations	12.0	10.3	9.1	8.8
ALD6		9.7	8.4	8.7	8.4
CA12		12.0	8.1	10.2	8.9
CA16		9.3	8.6	9.5	9.2
CA17		10.3	8.4	9.8	9.1

Site Reference	Existing /Pre-Submission Local Plan Allocation	Annual Mean Concentration (µg/m^3)			
		Max NO_2	Min NO_2	Max $PM_{2.5}$	Min $PM_{2.5}$
GRE3		8.3	7.6	8.5	8.3
TIL13		10.7	9.9	10.0	9.4
LAM6		7.7	6.7	8.7	8.0
NEW1		18.1	10.6	11.4	9.5
SCD2		9.7	8.8	9.1	8.8
SCD4		14.3	8.4	10.6	8.8
THA6		10.7	7.9	9.8	8.7
THA10		19	7.9	12.1	8.6
THE8		13.6	11.7	10.8	10.3
THA8		11.2	7.6	10.0	8.5
CA15		9.9	8.6	9.3	8.8
SCD7		15.7	8.7	10.3	8.7
ALD8		15.9	11.0	10.6	8.9
THA14*		16.7	7.9	12.0	8.5

*Inclusive of MID5 – Land East of Colthrop Industrial Estate’

Vulnerable Groups

Annual Mean NO_2 Concentrations

8.3.28. With regard to vulnerable groups and exposure to annual mean NO_2 concentrations, for the 2017 baseline year as illustrated in **Figures 8-465** to **8-491** (contained within Section 8 Figure Books 26 and 27), 108 out of 179 receptors (60.3%) are within the low exposure band and 51 (28.5%) are within the medium exposure band (**Table 7-2** (page 99)). 16 receptors (8.9%) are within the high band and four (2.2%) are within the very high band. Of the four within the very high band, three are dentists and one is a health centre and therefore typically these are on high streets close to a busy road and therefore experience elevated concentrations.

8.3.29. Between the 2017 baseline and 2037 with Pre-Submission Local Plan scenarios, concentrations and RR are expected to reduce at all the vulnerable group receptors. The reduction in RR of mortality ranges from 1.0 to 6.3%.

8.3.30. By 2037 with the Pre-Submission Local Plan, 178 out of 179 (99.4%) of vulnerable group receptors are expected to be within the low exposure bands. One receptor (0.6%) is expected to be within the medium exposure band – a dental surgery on High Street, Pangbourne. **Figures 8-492** to **8-518** (contained within Section 8 Figure Books 27 to 29) show the changes in NO_2 RR between the 2017 baseline and 2037 with Pre-Submission Local Plan scenarios.

Annual mean $PM_{2.5}$ concentrations

8.3.31. With regard to vulnerable groups and exposure to annual mean $PM_{2.5}$ concentrations, all of the 179 modelled vulnerable receptors are within the low exposure band (**Table 7-2** (page 99)). Therefore, no figures have been included.

8.3.32. Between the 2019 baseline and 2037 with Pre-Submission Local Plan scenarios, concentrations and RR are expected to reduce at all the vulnerable group receptors. The reduction in RR ranges from 0.5% to 1.1%.

8.3.33. By 2037 with the Pre-Submission Local Plan, 454 out of 470 (97%) all of the 179 modelled vulnerable receptors are within the low exposure band (**Table 7-2** (page 99)). **Figures 8-519** to **8-545** (contained within Section 8 Figure Books 29 and 30) show the changes in $PM_{2.5}$ RR between the 2017 baseline and 2037 with Pre-Submission Local Plan scenarios.

9 Summary

9.1.1. In relation to SSSI, where these are located outside of Habitat sites it was concluded that significant negative effects or damage to the SSSI were unlikely to result from the impacts of the Pre-Submission Local Plan.

9.1.2. Therefore, no further assessment or mitigation is deemed necessary due to changes in air quality due to the implementation of the Pre-Submission Local Plan and subsequent effect on the SSSI.

9.1.3. In relation to air quality and human receptors/public health, the assessment has been made with reference to both compliance with the UK's objectives for NO_2, PM_{10} and $PM_{2.5}$ and the likely effects of both NO_2 and $PM_{2.5}$ on mortality.

9.1.4. Overall, the implementation of the Pre-Submission Local Plan is predicted to have a negligible effect on NO_2, PM_{10} and $PM_{2.5}$ concentrations when compared to the 2037 without the Pre-Submission Local Plan scenario (i.e. the future baseline with background/cumulative growth). However, the impact on annual mean NO_2 and $PM_{2.5}$ concentrations experienced at all receptors can be described as negligible. At all receptors the predicted concentrations are reduced from the 2017 baseline due to future improvements in vehicle emissions which more than offset the forecast growth between 2017 and 2037 (the end of the assessed Pre-Submission Local Plan period).

9.1.5. Compliance with the Environment Act (2021) $PM_{2.5}$ concentration target for 2040 has been assessed. Without the Pre-Submission Local Plan, it is predicted that there will be 90.5% compliance, and 90.0% compliance with the Pre-Submission Local Plan. There are small changes in concentration and as there are a reasonable number of receptors at the 10.0µg/m^3 target and therefore a perceived small increase (such as 10.0µg/m^3) leads to non-compliance, so this change is a likely result of the Pre-Submission Local Plan implementation.

9.1.6. On the basis of the above, no further assessment or mitigation is considered necessary in relation to the effects of the Pre-Submission Local Plan on human health. Notwithstanding this, whilst affording a high level of detail, the Pre-Submission Local Plan Air Quality Assessment cannot account for all localised air quality effects (for example, the effect of emissions from nearby car parks or unexpended redistribution which is not accounted for within the transport model).

9.1.7. In relation to public health, because of the general reduction in concentrations experienced between 2017 and 2037, a reduction in RR of mortality attributable to particulate pollution is experienced between the 2017 baseline and 2037 with the Pre-Submission Local Plan scenario. These reductions in RR range between 0.8% and 8.1% for NO_2 and 0.2% and 1.3% for $PM_{2.5}$.

9.1.8. In 2037 with the implementation of the Pre-Submission Local Plan, almost all (99.9%) of the modelled locations fall within the ‘low’ exposure band. The same trend applies for $PM_{2.5}$ where all locations are predicted to fall within the ‘low’ exposure band.

9.1.9. All of the proposed site allocations fall within the ‘low’ exposure categories for NO_2 and $PM_{2.5}$ (i.e. no exceedances of the current relevant objectives could occur).

9.1.10. The implementation of the Pre-Submission Local Plan also results in a reduction in RR between the 2017 Baseline and 2037 Pre-Submission Local Plan scenarios at the receptors modelled to represent vulnerable groups. Notably, by 2037 with the Pre-Submission Local Plan, all of the vulnerable group receptors are expected to be within the low exposure bands for both NO_2 and $PM_{2.5}$.

9.1.11. The potential for the Pre-Submission Local Plan to have a disproportionate effect on the most deprived receptors has also been assessed. Through various metrics, there is no evidence to suggest that the most deprived areas experience dipropionate effects, with some metrics showing an improvement at the most deprived receptors.

9.1.12. Taking into account the above, the implementation of the Pre-Submission Local Plan accords with national planning policy relevant to air quality. Furthermore, the implementation of the Pre-Submission Local Plan does not prevent WBC from achieving compliance with the relevant current air quality objectives (in relation to human health) within the Local Plan period. However, the assessment of the proposed site allocations against the Environment Act (2021) $PM_{2.5}$ concentration target should be undertaken as part of the individual planning applications.

9.1.13. It should be noted that although 2037 emissions and fleet mix have been used within the EFT (and as input into the CREAM tool for NH_3), there is continued evidence that these are likely to be conservative emission factors due to Net Zero policies and the ban on the sale of new petrol and diesel vehicles from 2030. This is reflected within the past two TAG Databooks (v1.19 and v1.20 from May and November 2022 respectively) where it is projected that electric cars will make up significantly more of the car fleet than previously expected.

9.1.14. The EFT blended projections predict that for urban roads in 2037, 21.6% of the car fleet will be electric. In comparison, the two most recent versions of the TAG Databook predict that 29% and 57% of cars (in v1.19 and v1.20 respectively) are predicted to be EVs in 2037. The government produces the TAG Databook for use in local, regional and national modelling and decision-making processes and is based on a variety of data and projections. Therefore, it is likely that at least the more conservative v1.19 projections will be realised, which in themselves are not as conservative as the data within the EFT used in this assessment. However, there is ongoing research into particulate matter emissions relating to EVs and therefore it is possible that particulate matter emission factors for EVs may be revised in the future.

Appendix A

Glossary

Table A-1 – Glossary of Terms

Term	Definition
Annual Average Daily Traffic (AADT)	A daily total traffic flow (24 hrs), expressed as a mean daily flow across all 365 days of the year.
Accuracy	A measure of how well a set of data fits the true value.
Adjustment	Application of a correction factor to modelled results to account for uncertainties in the model
Air Quality Objective	Policy target generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedances within a specific timescale (see also air quality standard).
Air Quality Standard (AQS)	The concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards are based on the assessment of the effects of each pollutant on human health including the effects on sensitive subgroups (see also air quality objective).
Ambient Air	Outdoor air in the troposphere, excluding workplace air.
Annual Mean	The average (mean) of the concentrations measured for each pollutant for one year.
AQAL	Air Quality Assessment Level, which may be an air quality objective or EU limit value.
AQMA	Air quality management area.
AURN	Automatic urban and rural (air quality monitoring) network, managed by contractors on behalf of DEFRA.
BAU	Business as usual
Conservative	Tending to over-predict the impact rather than under-predict.
CREAM	Calculator for Road Emissions of Ammonia
Critical Level / CLe	Concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur according to present knowledge.

Term	Definition
Critical Load / CLo	A quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge.
Data Capture	The percentage of all the possible measurements for a given period that were validly measured.
Defra	Department for environment, food and rural affairs.
Designated Sites	Locations which receive protection because of their recognised natural, ecological or cultural values. There are several kinds of protected areas, which vary by level of protection depending on the enabling laws and regulations of the international organizations involved. In the context of the assessment 'designated sites' has been the collective term applied to European Sites and SSSIs.
DFT	Department for transport.
EFT	Defra Emissions Factors Toolkit
Emission Rate	The quantity of a pollutant released from a source over a given period of time.
Exceedance	A period of time where the concentrations of a pollutant is greater than the appropriate air quality standard.
Fugitive Emissions	Emissions arising from the passage of vehicles that do not arise from the exhaust system.
Habitat Site/s	Any site which would be included within the definition of Regulation 8 of the Conservation of Habitats and Species Regulations 2017 for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites.
HRA	Habitats Regulations Assessment
HDV/HGV	Heavy duty vehicle/heavy goods vehicle.
LAQM	Local air quality management.
Line Source	Emission source considered to be mobile and to follow a well-defined path (e.g., road transport).

Term	Definition
Minor Roads	Non A roads of motorways.
Model Adjustment	Following model verification, the process by which modelled results are amended. This corrects for systematic error.
NAEI	National Atmospheric Emissions Inventory
NO_2	Nitrogen dioxide.
NOx	Nitrogen oxides.
PM_{10}	Particulate matter with an aerodynamic diameter of less than 10 micrometres.
$PM_{2.5}$	Particulate matter with an aerodynamic diameter of less than 2.5 micrometres.
Ratification (Monitoring)	Involves a critical review of all information relating to a data set, in order to amend or reject the data. When the data have been ratified, they represent the final data to be used (see also validation).
Ramsar site	Wetlands of international importance, designated under the 1971 Ramsar Convention.
Road Link	A length of road which is considered to have the same flow of traffic along it. Usually, a link is the road from one junction to the next.
Site of Special Scientific Interest (SSSI)	Sites designated by Natural England under the Wildlife and Countryside Act 1981.
Special Areas of Conservation (SAC)	Areas defined by regulation 3 of the Conservation of Habitats and Species Regulations 2017 which have been given special protection as important conservation sites.
Special Protection Areas (SPA)	Areas classified under regulation 15 of the Conservation of Habitats and Species Regulations 2017 which have been identified as being of international importance for the breeding, feeding, wintering or the migration of rare and vulnerable species of birds.
$\mu g/m^3$ Microgrammes Per Cubic Metre	A measure of concentration in terms of mass per unit volume. A concentration of $1ug/m^3$ means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.

Term	Definition
Uncertainty	A measure, associated with the result of a measurement, which characterizes the range of values within which the true value is expected to lie. Uncertainty is usually expressed as the range within which the true value is expected to lie with a 95% probability, where standard statistical and other procedures have been used to evaluate this figure. Uncertainty is more clearly defined than the closely related parameter 'accuracy' and has replaced it on recent European legislation.
Validation (Monitoring)	Screening monitoring data by visual examination to check for spurious and unusual measurements (see also ratification).
Verification (modelling)	Comparison of modelled results versus any local monitoring data at relevant locations.
WBC	West Berkshire Council
WBSTM	West Berkshire Strategic Transport Model
WHO	World Health Organisation

Appendix B

Consultation and Duty to Co-operate

Appendix B – Consultation and Duty to Cooperate

In 2021 the Council commissioned WSP to undertake an air quality assessment of effects of air pollution on habitat sites, SSSIs and human health within the district. As part of the study, there has been extensive engagement with Natural England as well as the Environment Agency and departments within WBC as summarised below.

Table B-1 – Consultees and Discussions

Consultee	Discussion
Natural England	There has been extensive engagement with Natural England throughout the process due to the iterative nature of the assessment, with each meeting referenced within the assessment text.
Environment Agency	Consultation to confirm the requirement to assess the impacts of nitrogen emissions from road vehicles on the River Lambourn SAC

Appendix C

Defra Background Concentrations

Table C-1 – Sector Removed Defra Background Concentrations Utilised in the Assessment, Prior to Interpolation (µg/m^3)

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
451500	163500	Basingstoke and Deane	14.0	10.3	12.9	8.8	8.1	6.4	11.8	7.8
464500	164500	Basingstoke and Deane	14.9	10.9	13.8	9.4	9.6	7.5	12.7	8.5
458500	162500	Basingstoke and Deane	16.3	11.8	14.1	9.7	11.1	8.5	13.1	8.8
466500	162500	Basingstoke and Deane	16.7	12.1	14.4	9.4	9.9	7.7	13.2	8.3
462500	164500	Basingstoke and Deane	14.8	10.8	13.8	9.2	9.4	7.3	12.7	8.1
457500	162500	Basingstoke and Deane	14.5	10.7	13.9	9.2	9.2	7.2	12.9	8.2
461500	162500	Basingstoke and Deane	15.4	11.2	13.7	9.6	9.8	7.6	12.6	8.6
456500	162500	Basingstoke and Deane	13.8	10.2	13.0	8.9	8.5	6.6	11.9	7.9
459500	162500	Basingstoke and Deane	16.4	11.9	14.1	9.8	11.4	8.7	13.2	8.9
446500	163500	Basingstoke and Deane	14.4	10.6	12.8	8.8	8.2	6.4	11.7	7.8
447500	163500	Basingstoke and Deane	14.3	10.6	12.7	8.8	8.1	6.4	11.6	7.8
449500	163500	Basingstoke and Deane	14.0	10.3	13.4	9.0	8.1	6.4	12.3	8.0
448500	163500	Basingstoke and Deane	13.9	10.3	13.2	8.9	8.0	6.3	12.0	7.9

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
466500	174500	Reading	19.6	14.0	14.8	10.6	12.2	9.3	14.0	9.8
468500	171500	Reading	21.9	15.3	14.6	10.3	13.0	9.9	13.7	9.4
466500	173500	Reading	20.0	14.2	14.8	10.5	12.2	9.3	14.0	9.8
462500	177500	South Oxfordshire	23.2	15.9	13.8	9.4	14.1	10.6	12.5	8.3
458500	182500	South Oxfordshire	14.1	10.4	13.3	9.0	9.3	7.2	12.1	7.9
444500	183500	Vale of White Horse	11.6	8.7	13.6	8.8	7.2	5.7	12.4	7.7
445500	165500	West Berkshire	15.7	11.5	13.8	9.4	9.0	7.1	12.9	8.5
446500	166500	West Berkshire	18.2	13.1	14.2	9.9	10.6	8.2	13.4	9.2
446500	167500	West Berkshire	16.9	12.2	13.7	9.5	10.5	8.1	12.8	8.7
434500	169500	West Berkshire	13.7	10.1	14.0	9.0	7.9	6.2	12.7	7.9
447500	174500	West Berkshire	16.0	11.7	14.7	9.4	8.7	6.8	13.6	8.3
447500	173500	West Berkshire	17.8	12.9	16.3	10.1	9.4	7.4	15.5	9.2
435500	171500	West Berkshire	12.8	9.5	14.3	9.0	7.4	5.9	13.1	7.9
435500	170500	West Berkshire	12.6	9.4	14.0	8.9	7.3	5.8	12.7	7.8

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
434500	170500	West Berkshire	12.5	9.3	14.2	8.9	7.3	5.8	12.9	7.8
434500	168500	West Berkshire	15.0	11.0	13.4	8.9	8.5	6.6	12.0	7.7
445500	167500	West Berkshire	14.7	10.8	13.7	9.1	8.6	6.7	12.7	8.2
445500	163500	West Berkshire	14.6	10.7	13.7	9.1	8.6	6.7	12.8	8.2
445500	164500	West Berkshire	15.6	11.4	13.6	9.4	9.0	7.0	12.7	8.6
438500	166500	West Berkshire	12.8	9.5	12.9	8.9	7.6	6.0	11.8	7.9
437500	166500	West Berkshire	11.9	8.9	12.6	8.5	7.1	5.6	11.4	7.4
433500	168500	West Berkshire	15.5	11.3	13.6	9.2	8.8	6.9	12.4	8.2
439500	171500	West Berkshire	13.6	10.1	13.5	8.8	7.6	6.0	12.3	7.7
441500	169500	West Berkshire	13.0	9.6	13.8	8.9	7.4	5.8	12.6	7.8
442500	171500	West Berkshire	13.7	10.2	13.7	8.9	7.7	6.1	12.5	7.8
446500	169500	West Berkshire	15.5	11.4	14.2	9.3	8.9	7.0	13.2	8.3
446500	168500	West Berkshire	16.6	12.0	13.9	9.4	9.5	7.4	12.9	8.5
447500	168500	West Berkshire	17.3	12.5	14.9	9.9	9.8	7.6	14.0	9.0

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
446500	165500	West Berkshire	15.5	11.3	13.7	9.6	9.3	7.3	12.9	8.8
445500	166500	West Berkshire	16.4	11.9	14.1	9.3	9.3	7.3	13.2	8.4
445500	177500	West Berkshire	12.8	9.5	14.5	9.2	7.5	5.9	13.3	8.0
447500	182500	West Berkshire	12.3	9.2	13.9	9.0	7.6	6.0	12.7	7.9
432500	179500	West Berkshire	12.9	9.6	13.5	8.9	7.4	5.9	12.2	7.8
433500	179500	West Berkshire	12.6	9.4	13.8	8.9	7.2	5.7	12.4	7.7
432500	178500	West Berkshire	13.5	10.0	13.8	9.1	7.8	6.1	12.6	8.0
433500	178500	West Berkshire	12.7	9.5	13.8	9.0	7.3	5.8	12.5	7.8
433500	167500	West Berkshire	12.5	9.3	14.5	9.1	7.5	5.9	13.3	8.1
438500	175500	West Berkshire	13.0	9.6	13.7	9.0	7.5	5.9	12.5	7.9
438500	174500	West Berkshire	13.4	9.9	14.3	9.0	7.4	5.9	13.0	7.9
436500	176500	West Berkshire	12.8	9.5	13.5	8.8	7.3	5.7	12.3	7.7
433500	180500	West Berkshire	11.7	8.8	13.5	8.8	6.7	5.3	12.3	7.7
447500	175500	West Berkshire	14.4	10.7	15.1	9.4	8.1	6.4	13.8	8.3

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	**NO_2**	**PM_{10}**	**$PM_{2.5}$**	**NO_x**	**NO_2**	**PM_{10}**	**$PM_{2.5}$**
443500	164500	West Berkshire	13.1	9.7	13.0	8.7	7.8	6.2	11.9	7.7
447500	164500	West Berkshire	13.7	10.1	13.9	9.2	8.2	6.5	12.8	8.3
447500	166500	West Berkshire	20.0	14.2	14.5	10.2	11.7	8.9	13.5	9.3
444500	163500	West Berkshire	14.2	10.4	15.1	9.8	8.7	6.8	14.2	8.9
445500	168500	West Berkshire	14.4	10.6	14.5	9.5	8.4	6.6	14.3	8.9
447500	165500	West Berkshire	16.2	11.8	14.0	9.7	9.7	7.5	13.0	8.9
447500	167500	West Berkshire	20.1	14.2	14.4	10.0	12.2	9.3	13.4	9.1
443500	163500	West Berkshire	13.1	9.7	12.9	8.7	7.8	6.2	11.8	7.7
442500	165500	West Berkshire	12.4	9.2	12.6	8.6	7.4	5.8	11.4	7.5
438500	167500	West Berkshire	14.0	10.3	13.1	8.6	7.7	6.1	11.8	7.6
434500	177500	West Berkshire	12.5	9.3	13.7	8.8	7.2	5.7	12.4	7.7
435500	176500	West Berkshire	12.6	9.4	13.2	8.7	7.2	5.7	11.9	7.6
443500	168500	West Berkshire	13.8	10.2	13.3	8.9	7.9	6.2	12.1	7.8
444500	169500	West Berkshire	13.7	10.1	13.4	8.8	8.0	6.3	12.2	7.8

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
443500	169500	West Berkshire	13.2	9.8	13.4	8.8	7.6	6.0	12.2	7.7
443500	170500	West Berkshire	12.9	9.6	13.9	8.9	7.5	5.9	12.7	7.8
435500	168500	West Berkshire	14.3	10.5	13.5	8.8	7.8	6.1	12.1	7.7
431500	175500	West Berkshire	14.7	10.8	16.7	10.6	9.0	7.0	15.3	9.4
443500	182500	West Berkshire	11.7	8.8	14.5	9.0	7.1	5.7	13.3	8.0
443500	177500	West Berkshire	12.3	9.2	14.0	9.0	7.3	5.7	12.7	7.8
441500	179500	West Berkshire	12.0	9.0	14.1	9.0	7.2	5.7	12.8	7.8
444500	177500	West Berkshire	12.5	9.3	14.1	9.0	7.4	5.8	12.8	7.9
445500	178500	West Berkshire	12.4	9.3	14.9	9.2	7.4	5.8	13.6	8.1
432500	168500	West Berkshire	13.9	10.2	13.5	8.7	7.7	6.1	12.2	7.7
440500	178500	West Berkshire	12.1	9.0	14.0	8.9	7.2	5.7	12.7	7.8
434500	173500	West Berkshire	12.9	9.6	15.8	9.8	7.4	5.8	14.6	8.7
437500	175500	West Berkshire	12.7	9.5	14.0	8.9	7.2	5.7	12.7	7.8
444500	164500	West Berkshire	13.7	10.1	14.9	9.7	8.2	6.4	14.0	8.8

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
443500	175500	West Berkshire	12.9	9.6	14.0	9.0	7.4	5.8	12.7	7.8
443500	174500	West Berkshire	14.1	10.4	14.4	9.1	7.8	6.1	13.1	8.0
446500	172500	West Berkshire	15.2	11.1	14.9	9.6	8.6	6.8	14.4	8.8
442500	181500	West Berkshire	11.8	8.8	14.2	8.9	7.1	5.6	12.9	7.9
433500	174500	West Berkshire	13.6	10.1	16.5	10.1	7.5	5.9	15.3	9.0
444500	167500	West Berkshire	13.9	10.2	13.3	8.9	8.2	6.4	13.7	8.7
446500	170500	West Berkshire	14.4	10.6	15.3	9.8	8.3	6.5	14.0	8.7
441500	165500	West Berkshire	12.1	9.0	12.8	8.6	7.2	5.7	11.6	7.6
439500	173500	West Berkshire	15.0	11.1	14.7	9.1	7.9	6.2	13.4	8.0
439500	174500	West Berkshire	13.3	9.9	14.1	8.9	7.4	5.9	12.9	7.8
434500	166500	West Berkshire	11.6	8.7	14.2	8.8	6.9	5.5	13.0	7.7
439500	166500	West Berkshire	12.3	9.2	13.7	8.8	7.3	5.7	12.4	7.7
442500	170500	West Berkshire	12.9	9.6	13.4	8.8	7.4	5.8	12.2	7.7
431500	168500	West Berkshire	13.5	10.0	13.7	8.7	7.5	5.9	12.4	7.6

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
436500	173500	West Berkshire	15.4	11.3	15.1	9.3	8.0	6.3	13.8	8.2
440500	168500	West Berkshire	13.0	9.6	14.1	8.9	7.4	5.8	12.8	7.8
447500	170500	West Berkshire	15.3	11.2	15.3	9.8	8.5	6.6	14.1	8.7
442500	164500	West Berkshire	12.5	9.3	12.7	8.6	7.5	5.9	11.6	7.6
440500	169500	West Berkshire	12.7	9.5	13.7	8.8	7.3	5.8	12.5	7.7
432500	175500	West Berkshire	15.2	11.2	14.9	9.5	8.0	6.3	13.5	8.3
441500	164500	West Berkshire	12.2	9.1	12.4	8.5	7.3	5.7	11.2	7.4
445500	176500	West Berkshire	12.9	9.6	14.7	9.2	7.5	5.9	13.4	8.1
439500	176500	West Berkshire	13.1	9.7	13.9	8.9	8.0	6.3	12.6	7.8
442500	182500	West Berkshire	11.7	8.8	14.4	9.0	7.1	5.6	13.2	7.9
443500	165500	West Berkshire	13.0	9.6	12.8	8.7	7.8	6.1	11.7	7.6
442500	169500	West Berkshire	13.2	9.8	13.0	8.7	7.4	5.9	11.7	7.6
446500	164500	West Berkshire	14.0	10.3	13.7	9.1	8.3	6.5	12.6	8.2
445500	174500	West Berkshire	15.6	11.4	14.6	9.2	8.2	6.5	13.3	8.1

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
439500	165500	West Berkshire	11.8	8.8	12.7	8.5	7.0	5.6	11.4	7.4
440500	173500	West Berkshire	15.1	11.1	14.1	9.1	7.9	6.2	12.8	7.9
435500	167500	West Berkshire	12.1	9.0	12.9	8.5	7.1	5.7	11.6	7.4
433500	169500	West Berkshire	13.6	10.1	13.8	8.9	7.8	6.1	12.5	7.7
434500	167500	West Berkshire	12.3	9.1	13.6	8.8	7.2	5.7	12.4	7.7
441500	166500	West Berkshire	12.3	9.2	13.4	8.7	7.3	5.8	12.2	7.7
436500	168500	West Berkshire	13.2	9.8	13.3	8.7	7.4	5.8	11.9	7.6
435500	173500	West Berkshire	14.5	10.7	15.9	9.8	7.7	6.1	14.8	8.7
433500	175500	West Berkshire	14.9	11.0	14.1	9.0	7.8	6.1	12.8	7.8
435500	174500	West Berkshire	14.9	11.0	14.0	8.9	7.7	6.1	12.7	7.8
434500	174500	West Berkshire	15.2	11.2	15.2	9.4	7.8	6.2	13.9	8.3
439500	178500	West Berkshire	11.9	8.9	13.2	8.7	7.1	5.6	12.0	7.6
433500	181500	West Berkshire	11.5	8.7	13.2	8.7	6.6	5.3	11.9	7.6
441500	172500	West Berkshire	15.0	11.0	15.7	10.0	7.9	6.2	14.5	8.9

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
446500	176500	West Berkshire	13.1	9.8	14.3	9.1	7.6	6.0	13.0	8.0
446500	173500	West Berkshire	16.6	12.1	15.2	9.6	8.7	6.9	14.2	8.6
441500	168500	West Berkshire	13.1	9.7	14.0	8.9	7.4	5.9	12.7	7.8
433500	173500	West Berkshire	13.0	9.7	13.7	8.8	7.5	5.9	12.4	7.7
437500	168500	West Berkshire	12.9	9.6	14.2	8.9	7.3	5.7	13.0	7.8
437500	172500	West Berkshire	14.6	10.8	16.2	10.1	7.8	6.1	15.0	8.9
438500	168500	West Berkshire	12.9	9.6	13.9	8.8	7.3	5.8	12.6	7.7
440500	165500	West Berkshire	11.8	8.8	12.7	8.6	7.1	5.6	11.5	7.5
441500	170500	West Berkshire	12.8	9.5	13.1	8.7	7.3	5.8	11.8	7.6
442500	166500	West Berkshire	12.7	9.4	12.6	8.6	7.5	5.9	11.5	7.5
443500	181500	West Berkshire	11.8	8.8	14.9	9.1	7.2	5.7	13.6	8.1
444500	168500	West Berkshire	14.0	10.3	13.3	8.9	8.2	6.4	12.5	8.0
444500	175500	West Berkshire	13.3	9.9	14.2	9.0	7.6	6.0	13.0	7.9
444500	176500	West Berkshire	12.8	9.5	14.3	9.1	7.4	5.9	13.1	7.9

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
444500	179500	West Berkshire	12.3	9.2	14.3	9.0	7.3	5.8	13.0	7.9
445500	173500	West Berkshire	15.5	11.4	16.6	10.3	8.3	6.5	15.4	9.2
446500	171500	West Berkshire	15.1	11.1	13.6	9.0	8.5	6.7	12.5	8.0
446500	182500	West Berkshire	12.0	9.0	14.4	9.1	7.4	5.9	13.1	8.0
447500	178500	West Berkshire	12.7	9.5	14.6	9.2	7.6	6.0	13.4	8.0
443500	166500	West Berkshire	15.4	11.2	12.8	8.6	9.3	7.2	11.7	7.6
443500	180500	West Berkshire	11.9	8.9	14.6	9.1	7.2	5.7	13.4	8.0
439500	177500	West Berkshire	12.1	9.0	13.9	8.9	7.2	5.7	12.6	7.8
442500	167500	West Berkshire	14.3	10.5	13.2	8.7	7.8	6.2	11.9	7.6
432500	165500	West Berkshire	11.4	8.5	13.7	8.7	6.8	5.4	12.4	7.6
440500	164500	West Berkshire	11.9	8.9	13.4	8.7	7.1	5.6	12.2	7.7
436500	167500	West Berkshire	13.1	9.7	13.0	8.6	7.4	5.8	11.8	7.5
446500	177500	West Berkshire	12.7	9.5	14.7	9.2	7.5	5.9	13.5	8.1
444500	178500	West Berkshire	12.4	9.3	14.3	9.0	7.4	5.8	13.0	7.9

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
440500	171500	West Berkshire	13.6	10.1	13.9	8.9	7.6	6.0	12.6	7.8
443500	173500	West Berkshire	15.0	11.0	15.5	9.7	8.0	6.3	14.4	8.7
451500	179500	West Berkshire	14.3	10.5	14.4	9.4	8.2	6.5	13.1	8.2
451500	169500	West Berkshire	15.3	11.2	13.7	9.4	8.8	6.9	12.4	8.3
448500	165500	West Berkshire	15.5	11.3	13.6	9.3	9.0	7.0	12.4	8.2
449500	167500	West Berkshire	17.5	12.6	14.3	9.7	10.0	7.8	13.0	8.7
450500	167500	West Berkshire	16.9	12.2	14.3	10.0	9.7	7.5	13.3	9.1
451500	167500	West Berkshire	17.2	12.4	14.5	10.2	10.0	7.7	13.6	9.3
451500	168500	West Berkshire	16.7	12.1	14.5	10.0	9.3	7.3	13.2	8.9
452500	168500	West Berkshire	15.3	11.2	13.9	9.5	8.7	6.8	12.6	8.4
451500	166500	West Berkshire	16.7	12.1	14.0	9.7	9.6	7.4	12.9	8.8
451500	170500	West Berkshire	14.4	10.6	13.5	9.2	8.1	6.4	12.1	8.0
450500	170500	West Berkshire	14.7	10.8	13.5	9.2	8.2	6.5	12.2	8.0
450500	171500	West Berkshire	15.0	11.0	13.4	9.1	8.4	6.6	12.1	7.9

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
452500	167500	West Berkshire	17.0	12.3	14.4	10.1	9.8	7.6	13.2	9.1
452500	169500	West Berkshire	14.2	10.5	13.5	9.2	8.3	6.5	12.2	8.0
448500	174500	West Berkshire	16.5	12.1	16.6	10.4	8.9	7.0	14.9	9.0
448500	175500	West Berkshire	15.3	11.2	16.7	10.5	8.8	6.8	14.9	9.1
449500	181500	West Berkshire	13.5	10.0	15.9	10.0	7.9	6.2	14.8	8.9
449500	180500	West Berkshire	13.2	9.8	16.8	10.2	7.8	6.2	15.2	9.0
452500	179500	West Berkshire	14.9	10.9	14.3	9.3	9.1	7.1	13.0	8.2
449500	165500	West Berkshire	14.5	10.6	13.4	9.1	8.4	6.6	12.1	8.0
448500	167500	West Berkshire	20.2	14.3	14.4	10.0	11.9	9.1	13.1	8.9
448500	168500	West Berkshire	18.5	13.3	14.1	9.7	10.3	8.0	12.8	8.7
448500	177500	West Berkshire	14.1	10.4	15.0	9.4	8.1	6.3	13.8	8.3
450500	169500	West Berkshire	15.1	11.1	13.7	9.3	8.6	6.7	12.4	8.2
451500	180500	West Berkshire	15.0	11.0	14.0	9.1	9.3	7.2	12.7	8.0
450500	172500	West Berkshire	16.0	11.7	13.9	9.3	8.9	6.9	12.7	8.2

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
450500	173500	West Berkshire	18.1	13.1	13.7	9.2	9.3	7.3	12.5	8.1
451500	173500	West Berkshire	16.4	12.0	13.7	9.3	9.0	7.1	12.5	8.2
450500	168500	West Berkshire	16.1	11.7	14.0	9.6	9.3	7.3	12.9	8.7
452500	166500	West Berkshire	17.8	12.8	14.1	9.8	10.1	7.8	12.9	8.8
448500	169500	West Berkshire	16.0	11.7	14.4	9.4	9.0	7.0	13.2	8.3
449500	169500	West Berkshire	15.5	11.3	14.1	9.3	8.7	6.8	12.8	8.2
449500	170500	West Berkshire	15.0	11.0	14.6	9.4	8.2	6.4	13.3	8.2
449500	171500	West Berkshire	15.4	11.3	14.6	9.4	8.4	6.6	13.5	8.3
452500	164500	West Berkshire	13.6	10.0	13.4	8.9	8.0	6.3	12.2	7.9
449500	178500	West Berkshire	13.7	10.2	17.1	10.3	7.9	6.2	15.5	9.0
452500	165500	West Berkshire	13.9	10.2	13.6	9.1	8.3	6.5	12.3	8.0
451500	175500	West Berkshire	16.9	12.3	15.4	9.5	8.7	6.8	14.0	8.4
452500	176500	West Berkshire	14.9	11.0	14.3	9.3	8.3	6.5	13.0	8.1
448500	181500	West Berkshire	12.7	9.5	15.0	9.3	7.7	6.1	13.7	8.2

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
448500	176500	West Berkshire	14.3	10.5	16.3	10.2	8.1	6.3	14.6	8.9
448500	166500	West Berkshire	19.4	13.8	14.3	9.7	11.0	8.5	12.6	8.5
449500	166500	West Berkshire	17.4	12.5	13.7	9.2	9.8	7.6	12.3	8.1
449500	173500	West Berkshire	18.1	13.1	16.1	10.3	9.3	7.2	14.8	9.1
450500	164500	West Berkshire	16.1	11.7	15.1	10.2	10.1	7.8	14.0	9.2
451500	164500	West Berkshire	13.9	10.2	14.6	9.3	8.1	6.4	13.4	8.2
450500	165500	West Berkshire	14.1	10.4	13.4	9.1	8.4	6.6	12.2	8.0
451500	174500	West Berkshire	17.2	12.5	16.6	10.3	8.9	6.9	15.5	9.3
449500	168500	West Berkshire	16.5	11.9	14.3	9.6	9.6	7.5	13.1	8.5
452500	172500	West Berkshire	14.3	10.6	13.7	9.1	8.2	6.4	12.4	8.0
448500	173500	West Berkshire	18.5	13.4	16.2	10.3	9.6	7.5	14.9	9.2
450500	163500	West Berkshire	13.6	10.0	13.2	9.0	7.9	6.2	12.0	7.9
451500	172500	West Berkshire	14.7	10.8	13.2	9.0	8.3	6.5	11.9	7.9
452500	178500	West Berkshire	13.7	10.2	13.9	9.1	8.0	6.3	12.6	7.9

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
452500	175500	West Berkshire	16.8	12.2	14.3	9.3	8.7	6.8	13.0	8.1
447500	172500	West Berkshire	16.6	12.1	16.7	10.4	9.1	7.1	15.9	9.5
466500	175500	West Berkshire	23.0	15.9	14.6	10.3	14.2	10.7	13.6	9.4
455500	170500	West Berkshire	14.0	10.3	14.3	9.3	8.3	6.5	13.0	8.2
460500	174500	West Berkshire	17.5	12.7	14.0	9.3	9.5	7.4	12.7	8.2
461500	178500	West Berkshire	23.5	16.1	13.6	9.3	14.3	10.7	12.2	8.2
465500	166500	West Berkshire	15.0	11.0	13.6	9.5	9.8	7.6	12.5	8.5
464500	176500	West Berkshire	24.2	16.5	14.7	9.8	14.1	10.6	13.5	8.7
460500	172500	West Berkshire	15.9	11.6	13.8	9.4	9.2	7.2	12.5	8.2
453500	166500	West Berkshire	18.4	13.1	14.2	9.5	10.8	8.3	12.5	8.2
455500	174500	West Berkshire	17.1	12.4	13.9	9.3	9.0	7.0	12.6	8.1
455500	165500	West Berkshire	14.1	10.4	14.0	9.2	8.5	6.7	12.7	8.1
455500	164500	West Berkshire	13.8	10.2	13.8	9.1	8.4	6.6	12.6	8.0
455500	178500	West Berkshire	13.7	10.1	14.3	9.2	8.1	6.4	12.9	8.0

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
460500	167500	West Berkshire	17.9	12.8	14.5	9.8	10.8	8.3	13.2	8.7
465500	171500	West Berkshire	22.1	15.5	16.9	11.2	12.7	9.7	15.9	10.3
468500	163500	West Berkshire	15.2	11.1	14.5	9.4	9.4	7.3	13.3	8.3
467500	167500	West Berkshire	15.6	11.4	14.8	9.6	10.3	8.0	13.6	8.6
459500	180500	West Berkshire	17.0	12.3	13.3	9.2	11.4	8.8	12.2	8.2
463500	176500	West Berkshire	25.7	17.4	14.3	9.9	15.8	11.7	13.2	8.8
462500	169500	West Berkshire	17.4	12.5	14.8	9.7	10.1	7.8	13.4	8.5
461500	175500	West Berkshire	16.1	11.7	13.8	9.3	9.6	7.5	12.4	8.1
461500	168500	West Berkshire	17.3	12.4	15.0	9.7	10.0	7.8	13.6	8.6
464500	171500	West Berkshire	21.8	15.2	16.3	10.8	13.8	10.4	15.3	9.9
463500	171500	West Berkshire	16.9	12.2	14.4	9.6	10.3	8.0	13.2	8.6
465500	173500	West Berkshire	19.3	13.8	14.4	10.0	11.1	8.5	13.4	9.1
462500	170500	West Berkshire	15.7	11.4	15.5	9.8	9.6	7.5	14.1	8.7
463500	174500	West Berkshire	19.1	13.7	13.9	9.4	10.4	8.0	12.7	8.4

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
461500	176500	West Berkshire	15.8	11.5	14.9	9.5	9.9	7.7	13.6	8.4
453500	168500	West Berkshire	15.4	11.3	14.2	9.5	8.6	6.7	12.8	8.3
466500	171500	West Berkshire	23.2	16.2	15.3	10.5	12.5	9.6	14.4	9.7
463500	175500	West Berkshire	17.4	12.6	14.0	9.5	10.6	8.2	12.8	8.4
465500	164500	West Berkshire	15.5	11.3	14.1	9.7	10.0	7.7	13.0	8.7
466500	164500	West Berkshire	15.9	11.5	13.9	9.5	10.3	7.9	12.7	8.4
454500	164500	West Berkshire	13.8	10.2	13.6	9.0	8.3	6.5	12.5	8.0
464500	174500	West Berkshire	18.8	13.5	14.0	9.5	10.6	8.2	12.8	8.5
467500	163500	West Berkshire	16.4	11.9	13.9	9.3	9.9	7.7	12.7	8.2
456500	179500	West Berkshire	13.7	10.1	14.8	9.3	8.3	6.5	13.4	8.2
462500	165500	West Berkshire	14.7	10.7	13.5	9.2	9.3	7.3	12.3	8.1
461500	174500	West Berkshire	18.1	13.1	13.8	9.3	9.8	7.6	12.5	8.2
466500	167500	West Berkshire	15.4	11.2	14.5	9.6	10.1	7.8	13.4	8.5
466500	168500	West Berkshire	15.9	11.6	14.8	9.7	10.4	8.0	13.6	8.7

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
469500	164500	West Berkshire	15.6	11.4	14.6	9.5	9.7	7.5	13.4	8.5
459500	170500	West Berkshire	14.6	10.7	13.6	9.3	8.9	7.0	12.3	8.2
460500	173500	West Berkshire	17.0	12.3	16.3	10.4	9.4	7.3	15.0	9.3
459500	165500	West Berkshire	14.8	10.8	13.8	9.3	9.3	7.2	12.6	8.2
465500	168500	West Berkshire	15.3	11.2	15.0	9.7	9.9	7.7	13.8	8.7
460500	171500	West Berkshire	14.6	10.7	14.0	9.3	8.9	6.9	12.7	8.2
459500	176500	West Berkshire	15.0	11.0	13.8	9.2	9.0	7.1	12.6	8.1
457500	175500	West Berkshire	14.8	10.9	14.5	9.3	8.6	6.7	13.1	8.2
457500	176500	West Berkshire	14.3	10.6	14.3	9.3	8.5	6.7	13.0	8.1
455500	179500	West Berkshire	13.6	10.1	14.3	9.2	8.2	6.4	13.0	8.0
459500	168500	West Berkshire	16.2	11.8	13.8	9.4	9.8	7.6	12.5	8.3
458500	163500	West Berkshire	15.3	11.1	13.7	9.3	10.3	8.0	12.6	8.3
457500	177500	West Berkshire	14.0	10.3	13.9	9.1	8.4	6.6	12.6	8.0
457500	174500	West Berkshire	16.7	12.1	14.1	9.3	9.0	7.1	12.9	8.1

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
465500	167500	West Berkshire	15.6	11.3	14.0	9.8	10.2	7.9	13.0	8.9
457500	169500	West Berkshire	14.3	10.5	13.3	9.1	8.7	6.8	12.0	8.0
456500	169500	West Berkshire	14.1	10.4	12.9	8.9	8.5	6.7	11.6	7.8
464500	170500	West Berkshire	19.4	13.8	14.6	9.7	12.0	9.1	13.4	8.6
453500	176500	West Berkshire	14.8	10.9	14.3	9.3	8.3	6.5	13.0	8.1
458500	168500	West Berkshire	14.8	10.8	13.6	9.2	8.9	7.0	12.3	8.1
459500	179500	West Berkshire	15.6	11.4	13.3	9.0	10.3	8.0	12.1	8.0
465500	169500	West Berkshire	16.1	11.7	14.3	9.5	10.2	7.9	13.2	8.5
453500	179500	West Berkshire	13.6	10.0	14.0	9.1	8.0	6.3	12.7	8.0
461500	164500	West Berkshire	15.4	11.2	13.5	9.3	9.9	7.7	12.2	8.1
452500	177500	West Berkshire	14.0	10.3	14.7	9.3	8.0	6.3	13.4	8.1
466500	172500	West Berkshire	21.1	14.9	14.6	10.3	12.1	9.2	13.7	9.5
467500	172500	West Berkshire	20.1	14.2	14.7	10.3	12.1	9.3	13.8	9.5
465500	174500	West Berkshire	17.9	12.9	14.5	9.9	10.7	8.3	13.5	9.0

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
465500	176500	West Berkshire	24.3	16.6	14.7	9.9	14.1	10.6	13.4	8.8
467500	166500	West Berkshire	15.3	11.2	14.0	9.4	9.9	7.7	12.8	8.3
464500	168500	West Berkshire	15.0	11.0	14.7	9.5	9.6	7.5	13.6	8.5
463500	168500	West Berkshire	15.3	11.1	14.3	9.4	9.6	7.5	13.1	8.4
464500	169500	West Berkshire	16.2	11.8	14.0	9.4	10.4	8.1	12.8	8.4
467500	164500	West Berkshire	19.5	13.8	14.3	9.5	11.2	8.6	13.1	8.4
464500	165500	West Berkshire	14.4	10.6	13.1	9.1	9.3	7.2	12.0	8.1
460500	168500	West Berkshire	16.2	11.8	14.7	9.7	9.8	7.6	13.4	8.6
467500	168500	West Berkshire	19.1	13.6	16.4	10.4	13.3	10.0	14.5	8.9
468500	170500	West Berkshire	21.1	14.9	14.3	9.8	12.7	9.6	13.2	8.9
469500	169500	West Berkshire	23.7	16.4	16.6	10.8	13.8	10.4	15.6	9.9
456500	174500	West Berkshire	16.7	12.1	13.9	9.2	9.0	7.0	12.6	8.1
457500	166500	West Berkshire	16.3	11.8	14.7	9.5	9.3	7.3	13.5	8.5
459500	167500	West Berkshire	18.4	13.1	15.7	11.0	11.7	8.9	14.5	10.0

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
458500	166500	West Berkshire	16.4	11.9	14.4	9.5	9.5	7.4	13.1	8.4
459500	181500	West Berkshire	16.4	11.8	14.1	9.3	11.0	8.4	12.9	8.3
458500	180500	West Berkshire	14.3	10.5	13.2	9.0	9.2	7.1	12.0	7.9
457500	180500	West Berkshire	13.6	10.0	14.3	9.2	8.5	6.7	13.0	8.1
455500	166500	West Berkshire	16.5	11.9	14.7	9.5	9.3	7.3	13.4	8.4
454500	176500	West Berkshire	14.6	10.8	14.5	9.3	8.3	6.5	13.1	8.1
455500	176500	West Berkshire	14.3	10.6	14.4	9.3	8.2	6.5	13.1	8.1
462500	173500	West Berkshire	18.0	13.0	16.6	10.6	9.9	7.7	15.3	9.4
463500	172500	West Berkshire	17.5	12.7	14.5	9.6	10.3	8.0	13.4	8.6
460500	162500	West Berkshire	15.9	11.6	13.9	9.6	10.2	7.9	12.7	8.5
459500	175500	West Berkshire	15.3	11.2	14.2	9.3	8.9	7.0	12.9	8.2
458500	165500	West Berkshire	14.5	10.7	14.8	9.5	9.1	7.1	13.6	8.4
459500	166500	West Berkshire	16.1	11.7	13.7	9.3	9.7	7.5	12.5	8.2
469500	165500	West Berkshire	16.9	12.2	14.4	9.5	10.3	8.0	13.2	8.4

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
469500	163500	West Berkshire	15.0	11.0	14.3	9.3	9.3	7.3	13.1	8.3
467500	170500	West Berkshire	21.2	15.0	14.5	9.9	12.2	9.3	13.5	9.0
468500	165500	West Berkshire	19.9	14.0	14.1	9.4	11.5	8.8	12.9	8.3
467500	171500	West Berkshire	22.2	15.5	14.8	10.3	12.5	9.5	13.8	9.5
466500	176500	West Berkshire	24.2	16.5	14.5	10.0	14.4	10.8	13.3	8.9
466500	166500	West Berkshire	14.9	10.9	13.6	9.3	9.7	7.5	12.5	8.3
465500	175500	West Berkshire	17.8	12.8	14.4	9.8	11.0	8.5	13.3	8.9
462500	176500	West Berkshire	19.8	14.0	15.0	9.7	12.3	9.4	13.7	8.6
462500	171500	West Berkshire	15.5	11.3	14.1	9.4	9.5	7.4	12.9	8.3
461500	173500	West Berkshire	17.5	12.7	16.7	10.6	9.6	7.4	15.4	9.4
461500	163500	West Berkshire	15.4	11.2	13.5	9.3	9.8	7.6	12.3	8.2
460500	178500	West Berkshire	16.1	11.7	13.2	9.1	10.4	8.1	11.9	7.9
460500	175500	West Berkshire	15.7	11.5	13.9	9.3	9.3	7.2	12.6	8.2
460500	163500	West Berkshire	17.9	12.8	14.1	9.8	11.6	8.9	12.7	8.4

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
459500	174500	West Berkshire	17.1	12.4	14.3	9.3	9.3	7.3	13.1	8.2
458500	181500	West Berkshire	14.3	10.5	13.8	9.1	9.3	7.2	12.6	8.0
458500	174500	West Berkshire	16.8	12.2	14.3	9.3	9.2	7.1	13.0	8.2
458500	170500	West Berkshire	14.4	10.6	13.3	9.1	8.8	6.9	12.0	8.0
458500	169500	West Berkshire	14.3	10.5	13.7	9.1	8.7	6.8	12.4	8.1
457500	164500	West Berkshire	14.1	10.3	14.0	9.2	8.9	6.9	12.9	8.1
456500	170500	West Berkshire	13.9	10.3	14.5	9.3	8.4	6.6	13.2	8.2
456500	166500	West Berkshire	16.2	11.7	15.2	9.5	9.2	7.1	14.0	8.4
456500	164500	West Berkshire	13.9	10.2	14.0	9.2	8.6	6.7	12.8	8.1
456500	163500	West Berkshire	13.7	10.1	13.8	9.1	8.5	6.7	12.6	8.0
454500	169500	West Berkshire	14.4	10.6	13.3	9.1	8.5	6.7	12.0	7.9
454500	168500	West Berkshire	15.2	11.1	13.3	9.2	9.0	7.0	12.1	8.1
453500	174500	West Berkshire	16.4	12.0	16.6	10.3	8.6	6.8	15.5	9.2
453500	164500	West Berkshire	13.5	10.0	14.1	9.1	8.0	6.3	12.9	8.1

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
463500	170500	West Berkshire	19.0	13.5	15.3	9.8	12.0	9.1	14.0	8.7
460500	179500	West Berkshire	23.2	15.9	13.5	9.3	14.6	10.9	12.2	8.1
453500	175500	West Berkshire	16.5	12.1	14.7	9.4	8.7	6.8	13.4	8.2
454500	179500	West Berkshire	13.4	9.9	14.3	9.2	8.0	6.3	13.0	8.0
464500	166500	West Berkshire	14.9	10.9	13.4	9.3	9.6	7.5	12.3	8.4
467500	169500	West Berkshire	17.5	12.6	16.4	10.7	11.2	8.6	15.5	9.8
465500	172500	West Berkshire	22.1	15.6	14.7	10.1	11.9	9.1	13.7	9.2
453500	169500	West Berkshire	14.6	10.7	13.1	9.1	8.5	6.7	11.8	7.9
461500	172500	West Berkshire	15.8	11.6	14.0	9.4	9.3	7.3	12.7	8.2
468500	167500	West Berkshire	16.4	11.9	14.6	9.6	10.7	8.2	13.4	8.5
460500	166500	West Berkshire	15.2	11.1	13.8	9.3	9.4	7.3	12.5	8.2
459500	164500	West Berkshire	16.2	11.7	13.9	9.5	10.8	8.3	12.8	8.3
459500	173500	West Berkshire	16.6	12.1	15.8	10.2	9.2	7.1	14.6	9.1
454500	170500	West Berkshire	14.0	10.3	14.1	9.2	8.2	6.5	12.8	8.1

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
453500	171500	West Berkshire	13.9	10.3	13.6	9.1	8.1	6.3	12.3	7.9
463500	167500	West Berkshire	14.8	10.8	13.9	9.3	9.4	7.3	12.7	8.3
454500	174500	West Berkshire	16.5	12.0	16.3	10.0	8.7	6.8	15.1	9.0
464500	167500	West Berkshire	15.0	10.9	13.7	9.4	9.6	7.5	12.6	8.4
461500	169500	West Berkshire	15.4	11.2	15.9	9.9	9.4	7.3	14.6	8.8
460500	176500	West Berkshire	15.1	11.0	15.4	9.7	9.3	7.2	14.1	8.5
462500	174500	West Berkshire	18.6	13.4	14.3	9.5	10.1	7.8	13.0	8.4
459500	171500	West Berkshire	14.4	10.6	13.4	9.1	8.7	6.8	12.1	8.0
459500	169500	West Berkshire	14.6	10.7	14.7	9.5	8.9	7.0	13.5	8.4
454500	166500	West Berkshire	19.0	13.5	14.8	9.5	11.6	8.9	13.5	8.4
453500	167500	West Berkshire	16.1	11.7	14.2	9.6	9.4	7.3	12.9	8.5
457500	165500	West Berkshire	14.2	10.4	14.5	9.3	8.8	6.9	13.2	8.2
460500	164500	West Berkshire	16.9	12.2	14.1	9.6	11.0	8.5	12.8	8.3
461500	177500	West Berkshire	19.1	13.5	14.5	9.5	11.9	9.1	13.2	8.3

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
454500	167500	West Berkshire	16.1	11.7	15.0	9.6	9.4	7.3	13.6	8.4
463500	169500	West Berkshire	16.6	12.0	14.4	9.5	10.1	7.8	13.2	8.4
452500	180500	West Berkshire	13.6	10.1	14.7	9.3	8.1	6.4	13.4	8.2
444500	165500	West Berkshire	13.5	10.0	15.1	9.7	8.2	6.4	14.2	8.8
459500	163500	West Berkshire	28.3	18.8	16.5	11.4	21.3	15.2	15.2	9.5
430500	175500	West Berkshire	12.9	9.6	13.8	9.0	7.6	6.0	12.4	7.8
431500	174500	West Berkshire	12.9	9.6	13.9	8.9	7.6	6.0	12.6	7.7
447500	169500	West Berkshire	15.2	11.1	14.8	9.5	8.5	6.6	13.6	8.4
448500	164500	West Berkshire	14.0	10.3	13.5	9.0	8.1	6.4	12.4	8.0
449500	164500	West Berkshire	14.9	10.9	14.3	9.2	8.7	6.8	13.1	8.2
445500	171500	West Berkshire	13.8	10.2	13.5	8.9	7.9	6.3	12.3	7.8
445500	170500	West Berkshire	13.9	10.3	13.5	8.9	8.0	6.3	12.4	7.9
430500	174500	Wiltshire Council	12.3	9.2	13.2	8.7	7.3	5.8	11.9	7.5
470500	165500	Wokingham	11.3	8.4	14.3	9.6	6.8	5.4	13.1	8.5

X	Y	Local Authority	2017				2030 (for 2037)			
			NO_x	NO_2	PM_{10}	$PM_{2.5}$	NO_x	NO_2	PM_{10}	$PM_{2.5}$
469500	167500	Wokingham	21.0	14.9	14.6	9.5	12.2	9.3	13.3	8.5
469500	166500	Wokingham	24.0	16.6	14.3	9.5	14.8	11.1	13.1	8.4

Appendix D

West Berkshire Council Air Quality Monitoring – 2017 to 2020

Public

Table D-1 – WBC NO_2 Monitoring Data for Locations Operational within the 2017 Baseline Year

Site Name	Site Type	X, Y	Data Capture (%)	Annual Mean NO_2 Concentration (µg/m^3)			
				2017	2018	2019	2020*
CM1 Newbury	Roadside	447408, 166560	97.1	40.3	36.0	35.9	29.2
A339 Newbury Central	Kerbside	447462, 167318	75	28.1	29.4	29.9	30.6
7a Bridge Street Hungerford	Roadside	433909, 168814	91.7	28.8	26.0	23.1	21.0
132 London Road Newbury	Roadside	447720, 167678	91.7	35.4	32.0	28.1	25.1
Flat 1 Southview Gardens Newbury	Urban Background	447752, 167667	91.7	28.6	25.0	22.7	20.4
374 London Road Newbury	Urban Background	449034, 167516	100	23.4	23.0	22.1	18.1
17 Chapel Street Thatcham	Roadside	451870, 167438	83.3	40.0	36.4	31.6	29.5
40 Chapel Thatcham	Kerbside	451925, 167460	91.7	34.8	31.8	28.6	27.7
75 Chapel Street Thatcham	Roadside	452287, 167445	100	29.6	27.0	27.8	21.8
82/78A Chapel Street Thatcham	Roadside	452071, 167468	91.7	31.1	-	-	-
Old Bakery Tidmarsh	Roadside	463504, 174864	100	31.8	29.0	29.5	20.9
4 Willows Court Pangbourne	Roadside	463228, 176524	100	29.3	28.0	24.8	20.5

Site Name	Site Type	X, Y	Data Capture (%)	Annual Mean NO_2 Concentration (µg/m^3)			
				2017	**2018**	**2019**	**2020***
1 Shooters Hill Pangbourne	Roadside	463331, 176665	100	25.8	-	-	-
The Cross Key Inn Pangbourne	Roadside	463468, 176433	75	34.2	34.0	29.6	26.2
Calcot Hotel A4 Bath Road Calcot	Kerbside	466302, 171863	91.7	23.1	19.3	28.4	25.6
Elizabeth Court Theale	Urban Background	464573, 171293	100	21.6	22.0	20.3	18.3
44 Hambridge Rd Newbury	Urban Background	448128, 166910	100	27.3	26.0	24.1	22.3
42 Kings Road Newbury	Roadside	447432, 166994	100	23.4	23.0	20.3	18.9
1 Winchester Court Newbury	Roadside	447408, 166559	82.7	38.0	36.0	32.7	29.8
64 Greenham Road Newbury	Roadside	447446, 166456	100	32.6	-	-	-
20 Deadmans Lane Greenham	Suburban	447522, 164727	100	24.0	23.0	20.2	19.4
A339 New Greenham Park Greenham	Kerbside	449805, 163883	100	33.8	18.5	31.2	31.3
3 Howard Road Newbury	Roadside	447402, 166448	100	17.7	22.0	18.6	15.4
1 St John's Road Newbury	Roadside	447035, 166436	83.3	28.4	31.0	26.8	22.1

Site Name	Site Type	X, Y	Data Capture (%)	Annual Mean NO_2 Concentration (μg/m³)			
				2017	2018	2019	2020*
63 St John's Road Newbury	Urban Background	447377, 166533	100	21.8	25.0	22.4	16.7
40 Bartholomew Street Newbury	Roadside	446939, 166848	91.7	31.7	29.0	27.4	23.3
6 Market Street Newbury	Urban Centre	447211, 167019	100	22.4	24.9	26.0	20.8
31 Oxford Road Newbury	Kerbside	446908, 167658	100	29.7	-	-	-
43 Hawthorn Road Newbury	Urban Background	447481, 167866	100	20.5	21.0	18.5	16.3
41 Hutton Close Newbury	Urban Background	447546, 167915	100	33.3	-	-	-
Willows Edge Nursing Home Newbury	Urban Background	447538, 167968	91.7	23.8	23.0	20.6	20.8
112 Shaw Road Newbury	Roadside	447772, 168041	91.7	22.8	-	-	-
31 Shaw Road Newbury	Kerbside	447691, 167818	91.7	28.7	28.0	25.6	25.6
13 Shaw Road Newbury	Urban Background	447629, 167770	100	33.2	30.0	26.5	25.6
Abbeydale Monks Lane Newbury	Kerbside	446928, 163027	83.3	13.2	15.4	19.9	15.2
A343 Andover Road Wash Common	Kerbside	445893, 164706	91.7	11.4	14.2	15.5	13.1

Site Name	Site Type	X, Y	Data Capture (%)	Annual Mean NO_2 Concentration (µg/m^3)			
				2017	**2018**	**2019**	**2020***
130 Park Avenue Thatcham	Roadside	451965, 167498	75	21.7	18.3	19.4	18.0
31 Chapel Street Thatcham	Roadside	451905, 167441	100	39.5	36.0	31.7	27.7
110 London Road Newbury	Urban Background	447656, 167724	83.3	25.0	-	-	-
St James Church Pangbourne Hill	Roadside	463419, 176405	100	21.3	18.7	20.4	19.9
Newbury Gardens Day Nursery	Suburban	447343, 166612	73.1	-	-	19.6	18.2
A4 (80 82) Chapel St, Thatcham	Roadside	452071, 167468	82.7	31.1	28.0	22.2	24.4
A339(64) Greenham Road, Newbury	Roadside	447448, 166454	82.7	23.4	26.2	29.9	26.6

Note:

- Denotes no data available for monitoring site.

* 2020 data includes the impact of Covid-19 and therefore is not representative of a typical year due to the reduction in travel observed.

Appendix E

SSSI Characteristics – Including Critical Levels, Critical Loads, Background Concentrations and Deposition Rates

Table E-1 – SSSI Characteristics – Critical Load (CLo) and Critical Level (CLe) Ranges

Designated site	Habitat or Species	CLo Min (kg N/ha/yr)	CLo Max (kg N/ha/yr)	NOx annual (µg/m^3)	NOx 1hr (µg/m^3)	NH_3 (µg/m^3)
Greenham And Crookham Commons	Acid grassland (Festuca ovina – Agrostis capillaris – Galium saxatile grassland)	10	15	30	75	1-3
	Acid grassland (Festuca ovina – Agrostis capillaris – Rumex acetosella lowland acid grassland)	10	15	30	75	1
	Broad-leaved, mixed and yew woodland (Alnus glutinosa – Carex paniculate woodland)	10	20	30	75	1
	Dwarf shrub heath	10	20	30	75	1
	Broad-leaved, mixed and yew woodland (Quercus robur – Pteridium aquilinum)	15	20	30	75	1
	Neutral grassland	20	30	30	75	3
	Broad-leaved, mixed and yew woodland (Alnus glutinosa – Fraxinus excelsior)	Not sensitive to eutrophication		30	75	1
Snelsmore Common	Fen, marsh and swamp (Narthecium ossifragum)	10	15	30	75	1

Designated site	Habitat or Species	CLo Min (kg N/ha/yr)	CLo Max (kg N/ha/yr)	NOx annual (µg/m³)	NOx 1hr (µg/m³)	NH_3 (µg/m³)
	Broad-leaved, mixed and yew woodland (Quercus spp.- Betula spp.- Deschampsia flexuosa woodland)	10	15	30	75	1
	Dwarf shrub heath (Calluna vulgaris – Ulex minor heath)	10	20	30	75	1
	Broad-leaved, mixed and yew woodland (Fraxinus excelsior – Acer camestre – Mercurialis perennis woodland)	15	20	30	75	1
	Broad-leaved, mixed and yew woodland (Quercus robur – Pteridium aquilinum – Rubus fruticosus woodland)	15	20	30	75	1
	Fen, marsh and swamp (Molinia caerulea – Potentilla erecta mire)	15	25	30	75	1-3
Lardon Chase	Calcareous grassland (Bromus erectus lowland calcareous grassland)	15	25	30	75	3

Designated site	Habitat or Species	CLo Min (kg N/ha/yr)	CLo Max (kg N/ha/yr)	NOx annual (µg/m^3)	NOx 1hr (µg/m^3)	NH_3 (µg/m^3)
	Calcareous grassland (Festuca ovina – Avenula pratensis lowland calcareous grassland)	15	25	30	75	1-3
Holies Down	Calcareous grassland (Festuca ovina – Avenula pratensis lowland calcareous grassland)	15	25	30	75	1-3

Table E-2 – Critical Levels (CLe) for Nox as Defined for Each Habitats Site in Relation to Broad Habitat Types and Qualifying Features

Site	Recommended CLe (µg/m^3)	Site Maximum NOx Concentration (µg/m^3) from Defra	Exceedance of the CLe
Greenham And Crookham Commons	30	15.6	No
Snelsmore Common	30	15.0	No
Lardon Chase	30	15.6	No
Holies Down	30	16.8	No

Table E-3 – Critical Levels (CLe) for NH_3 as Defined for Each Habitats Site in Relation to Broad Habitat Types and Qualifying Features

Site	Recommended CLe (µg/m^3)	Site Maximum NH_3 Concentration (µg/m^3) from APIS	Exceedance of the CLe
Greenham And Crookham Commons	1	1.71	Yes
Snelsmore Common	1	1.59	Yes
Lardon Chase	1	1.82	Yes
Holies Down	1	1.86	Yes

Table E-4 – Critical Loads (CLo) as Defined for Each Habitats Site in Relation to Broad Habitat Types and Qualifying Features

Site	Interest Feature	APIS Recommended Critical Loads (Kg/N/Ha/Yr)	Average deposition rate (Kg/N/Ha/Yr) obtained from APIS (based on average deposition rate obtained from APIS)	Exceedance of the lower CLo value (based on average deposition rate obtained from APIS)
Greenham And Crookham Commons	Acid grassland (Festuca ovina – Agrostis capillaris – Galium saxatile grassland)	10 - 15	19.3	Yes
	Acid grassland (Festuca ovina – Agrostis capillaris – Rumex acetosella lowland acid grassland)	10 - 15	19.3	Yes
	Broad-leaved, mixed and yew woodland (Alnus glutinosa – Carex paniculate woodland)	10 - 20	32.9	Yes
	Dwarf shrub heath	10 - 20	19.3	Yes
	Broad-leaved, mixed and yew woodland (Quercus robur – Pteridium aquilinum)	15 - 20	32.9	Yes
	Neutral grassland	20 - 30	19.3	No
Snelsmore Common	Fen, marsh and swamp (Narthecium ossifragum)	10 - 15	18.0	Yes

Site	Interest Feature	APIS Recommended Critical Loads (Kg/N/Ha/Yr)	Average deposition rate (Kg/N/Ha/Yr) obtained from APIS (based on average deposition rate obtained from APIS)	Exceedance of the lower CLo value (based on average deposition rate obtained from APIS)
	Broad-leaved, mixed and yew woodland (Quercus spp.- Betula spp.- Deschampsia flexuosa woodland)	10 - 15	30.6	Yes
	Dwarf shrub heath (Calluna vulgaris – Ulex minor heath)	10 - 20	18.0	Yes
	Broad-leaved, mixed and yew woodland (Fraxinus excelsior – Acer camestre – Mercurialis perennis woodland)	15 - 20	30.6	Yes
	Broad-leaved, mixed and yew woodland (Quercus robur – Pteridium aquilinum – Rubus fruticosus woodland)	15 - 20	30.6	Yes
	Fen, marsh and swamp (Molinia caerulea – Potentilla erecta mire)	15 - 25	18.0	Yes

Site	Interest Feature	APIS Recommended Critical Loads (Kg/N/Ha/Yr)	Average deposition rate (Kg/N/Ha/Yr) obtained from APIS (based on average deposition rate obtained from APIS)	Exceedance of the lower CLo value (based on average deposition rate obtained from APIS)
Lardon Chase	Calcareous grassland (Bromus erectus lowland calcareous grassland)	15 - 25	18.6	Yes
	Calcareous grassland (Festuca ovina – Avenula pratensis lowland calcareous grassland)	15 - 25	18.6	Yes
Holies Down	Calcareous grassland	15 - 25	18.3	Yes

Appendix F

Ecological Air Quality Monitoring

Table F-1 – Ecological Air Quality Monitoring: NO_2 Diffusion Tube Concentrations (µg/m^3) for Monitoring Periods 1 to 6

Location	Period 1 12/10/21 - 18/11/21	Period 2 11/11/21* // 18/11/21** - 02/12/21	Period 3 02/12/21 - 11/01/22	Period 4 11/01/22 - 10/02/22	Period 5 10/02/22 - 10/03/22	Period 6 10/03/22 - 12/04/22
MT1_0m (Duplicate)	N/A Original sites damaged by cattle and therefore needed to raised off the ground using steel right angle posts.	11.5	10.6	Tube Stolen	7.6	12.1
MT1_10m (Duplicate)		13.9	10.2	15.0	8.4	12.9
MT1_20M		13.6	10.1	15.7	8.4	13.0
MT1_50m		14.4	11.6	14.3	8.2	12.0
MT1_170m		15.1	10.8	14.7	7.1	13.3
MT2_0m (Duplicate)		13.7	11.4	13.9	8.3	13.5
MT2_10m (Duplicate)		12.2	10.6	13.2	8.0	13.1
MT2_20m (Duplicate)		11.6	11.8	15.5	7.7	12.7
MT2_85m (Duplicate)		14.7	10.4	15.2	9.6	14.2
L1_T1	31.9	20.0	23.7	23.8	19.6	30.5
MT3_0M (Duplicate)	16.3	12.5	13.8	13.9	11.5	13.8

Location	Period 1 12/10/21 - 18/11/21	Period 2 11/11/21* // 18/11/21** - 02/12/21	Period 3 02/12/21 - 11/01/22	Period 4 11/01/22 - 10/02/22	Period 5 10/02/22 - 10/03/22	Period 6 10/03/22 - 12/04/22
MT3_10m (Duplicate)	13.1	10.6	11.6	13.2	11.0	11.8
MT3_20m (Duplicate)	10.8	9.9	10.9	11.9	Tube Stolen	11.1
MT3_50m (Duplicate)	9.1	8.8	10.0	9.7	8.8	11.1
MT3_100m	7.4	8.8	8.8	10.1	7.3	9.6
L2_T1	23.1	Tube Stolen	21.3	28.2	20.5	24.7
L3_T1	10.2	18.4	12.7	20.6	10.5	16.3
L4_T1	9.3	13.3	10.0	17.3	8.8	13.6
Co-location (Triplicate)	41.0	43.5	35.1	43.4	31.2	38.4

The NO_2 diffusion tubes used were supplied and analysed by Gradko and were 50% TEA/acetone. Further details on the monitoring survey are available on request.

*11/11/2021-02/12/2021 for L1, MT3, L2, L3, L4 and co-location tubes

**18/11/2021-02/12/2021 for MT1 and MT2 due to the additional works required to install the steel posts to stop cattle interference

Table F-2 – Ecological Air Quality Monitoring: NO_2 Diffusion Tube Concentrations (µg/m^3) for Monitoring Periods 7 to 11, Including the Bias Adjustment and Annualisation Results for the Monitoring Campaign

Location	Period 7 12/04/22 - 11/05/22	Period 8 11/05/22 - 20/06/22	Period 9 20/06/22 - 05/08/22	Period 10 05/08/22 - 16/09/22	Period 11 16/09/22 - 13/10/22	Average Concentration (unadjusted)	Bias Adjusted (0.82*) Concentration	Annualised** Concentration
MT1_0m (Duplicate)	7.7	5.3	5.6	8.6	8.2	8.3	6.8	6.8
MT1_10m (Duplicate)	7.4	5.8	6.1	8.8	9.1	9.3	7.6	7.6
MT1_20M	7.9	5.2	6.1	8.8	8.4	9.2	7.6	7.6
MT1_50m	Tube Stolen	5.7	5.2	9.6	8.1	9.4	7.7	7.7
MT1_170m	6.6	5.8	6.1	9.3	7.5	9.2	7.5	7.5
MT2_0m (Duplicate)	8.7	6.3	6.5	10.3	8.7	9.8	8.0	8.0
MT2_10m (Duplicate)	7.9	5.9	6.5	9.6	9.5	9.3	7.7	7.7
MT2_20m (Duplicate)	8.2	5.7	6.2	10.2	8.6	9.6	7.8	7.8
MT2_85m (Duplicate)	8.4	6.0	6.2	10.6	8.5	9.9	8.1	8.1
L1_T1	Tube Stolen	22.7	24.8	Tubes removed to extend focus on key Greenham		24.8	20.3	18.7
MT3_0M (Duplicate)	11.8	13.1	11.8			13.2	10.8	9.9

Location	Period 7 12/04/22 - 11/05/22	Period 8 11/05/22 - 20/06/22	Period 9 20/06/22 - 05/08/22	Period 10 05/08/22 - 16/09/22	Period 11 16/09/22 - 13/10/22	Average Concentration (unadjusted)	Bias Adjusted (0.82*) Concentration	Annualised** Concentration
MT3_10m (Duplicate)	9.0	11.1	9.9	Common areas (MT1 and MT2 transects)		11.2	9.2	8.5
MT3_20m (Duplicate)	8.1	9.3	9.0			10.1	8.3	7.5
MT3_50m (Duplicate)	7.3	6.5	6.2			8.5	6.9	6.7
MT3_100m	6.2	6.0	6.2			7.7	6.3	5.8
L2_T1	18.5	20.4	20.0			21.9	18.0	16.9
L3_T1	12.4	10.9	10.0			13.1	10.8	9.9
L4_T1	8.0	5.8	6.5			9.9	8.1	7.5
Co-location (Triplicate)	31.5	32.3	Tube Stolen			36.6	30.0	25.8

The NO_2 diffusion tubes used were supplied and analysed by Gradko and were 50% TEA/acetone. Further details on the monitoring survey are available on request.

** The bias adjustment factor for the monitoring period was derived from the Defra National Bias Adjustment sheet (https://laqm.defra.gov.uk/air-quality/air-quality-assessment/national-bias/). 2021 data was available at the time of the assessment and therefore the 2021 factor (0.82) for Gradko supplied 50% TEA/Acetone diffusion tubes has been used

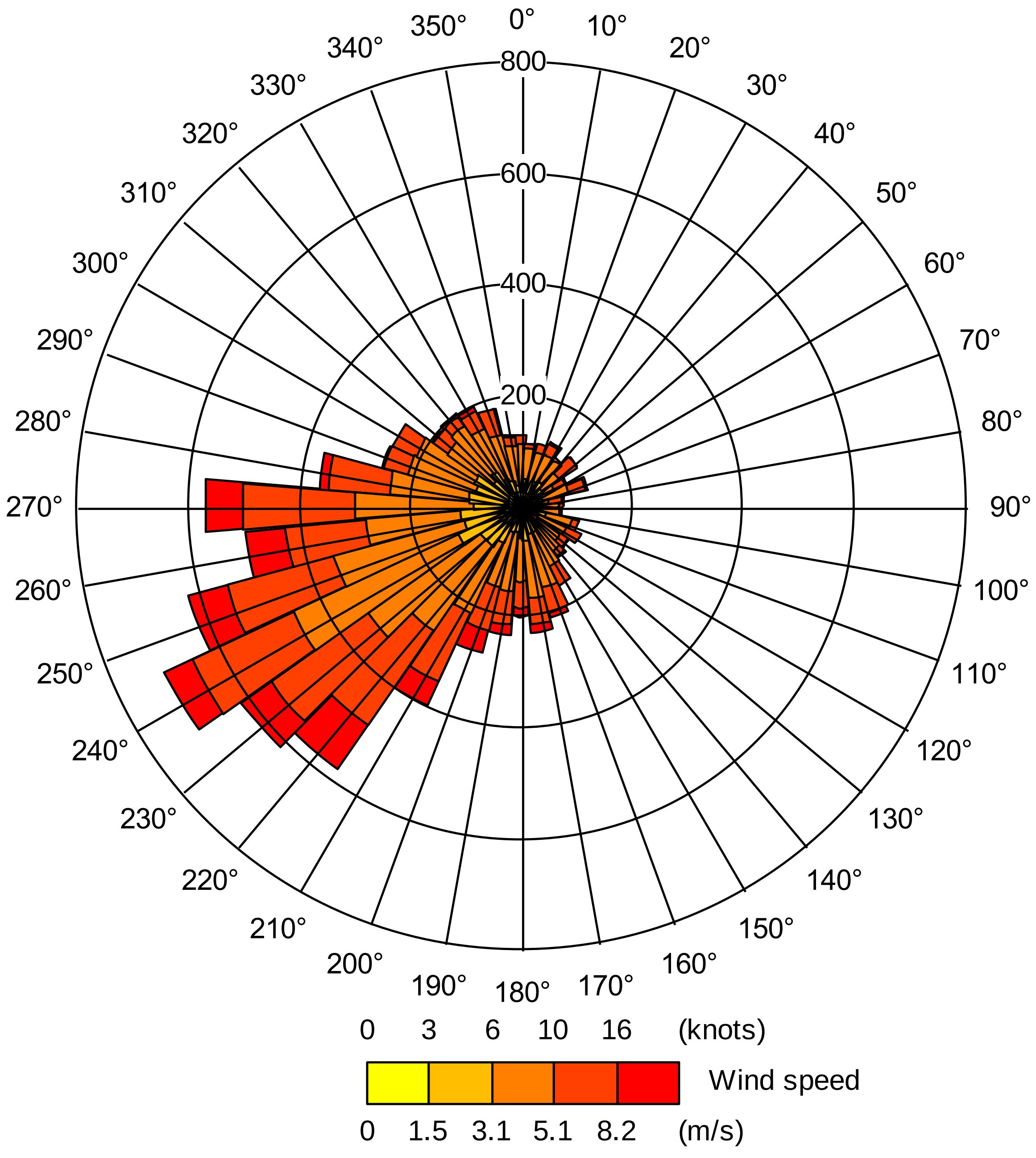
** The Defra AURN monitoring stations at Chilbolton, Reading New Town and Swindon Walcot were used to derive the period weighed annualisation factor for each site.

Appendix G

Ecological Meteorological Data, Model Input Parameters and Model Verification

Meteorological Data

Figure G-1 – Odiham 2017 Wind Rose



Detailed Model Input Parameters and Verification

The following consistent model parameters were used within both the ecological and human modelling and are considered to be representative of the district as a whole:

- Dispersion site surface roughness = 0.5m;
- Dispersion site Monin-Obukhov length = 10m;
- Met site surface roughness = 0.2m; and
- Met site Monin-Obukhov length = 10m.

The comparison of modelled concentrations with local monitored concentrations is a process termed ‘verification’. Model verification investigates the discrepancies between modelled and measured concentrations, which can arise due to the presence of inaccuracies and/or uncertainties in model input data, modelling and monitoring data assumptions. The following are examples of potential causes of such discrepancy:

a) Estimates of background pollutant concentrations;

b) Meteorological data uncertainties;

c) Traffic data uncertainties;

d) Model input parameters, such as ‘roughness length’; and

e) Overall limitations of the dispersion model.

Nitrogen Dioxide

In line with the guidance provided within LAQM.TG(22), the ADMS Roads model output has been verified in terms of the primary emissions of NO_x produced by road traffic.

The model has been run to predict the 2017 annual mean road-NO_x contribution at several diffusion tubes within the modelled road network. The model outputs of road-NO_x have been compared with the ‘measured’ road-NO_x, which was determined from the NO_2 concentrations measured using diffusion tubes at the monitoring locations, utilising the NO_x from NO_2 calculator provided by Defra and the NO_2 background concentration (from the Defra background map).

The table and figure overleaf present the data used in the verification.

Table G-1 – Data Used in Model Verification

Monitoring Site	Measured Annual Mean NO_2 Concentration (μg/m^3)	Sector Removed and Interpolated Background NO_2 (μg/m^3)	Measured Road-NOx (μg/m^3) (from NOx:NO_2 calculator)	Modelled Road-NOx (μg/m^3)	Ratio
Thatcham					
17 Chapel Street Thatcham	40.0	12.4	58.9	19.6	3.0

Monitoring Site	Measured Annual Mean NO_2 Concentration ($\mu g/m^3$)	Sector Removed and Interpolated Background NO_2 ($\mu g/m^3$)	Measured Road-NOx ($\mu g/m^3$) (from NOx:NO_2 calculator)	Modelled Road-NOx ($\mu g/m^3$)	Ratio
40 Chapel Thatcham	34.8	12.3	46.6	23.0	2.0
75 Chapel Street Thatcham	29.6	12.3	34.9	17.1	2.0
82/78A Chapel Street Thatcham	31.1	12.3	38.2	20.6	1.9
31 Chapel Street Thatcham	39.5	12.4	57.7	22.4	2.6
Newbury Urban Area					
CM1 Newbury	40.3	14.0	56.0	39.6	1.4
132 London Road Newbury	35.4	13.9	44.6	16.8	2.7
Flat 1 Southview Gardens Newbury	28.6	14.0	29.4	18.8	1.6
374 London Road Newbury	23.4	13.4	19.6	15.0	1.3
44 Hambridge Rd Newbury	27.3	14.1	26.4	13.3	2.0
1 Winchester Court Newbury	38.0	14.0	50.5	30.0	1.7
64 Greenham Road Newbury	32.6	14.0	38.1	15.7	2.4

Monitoring Site	Measured Annual Mean NO_2 Concentration (µg/m^3)	Sector Removed and Interpolated Background NO_2 (µg/m^3)	Measured Road-NOx (µg/m^3) (from NOx:NO_2 calculator)	Modelled Road-NOx (µg/m^3)	Ratio
20 Deadmans Lane Greenham	24.0	10.5	26.5	12.7	2.1
1 St John's Road Newbury	28.4	13.5	29.9	18.3	1.6
40 Bartholomew Street Newbury	31.7	13.4	37.4	12.7	2.9
6 Market Street Newbury	29.5	13.7	31.8	18.4	1.7
31 Oxford Road Newbury	29.7	12.9	33.9	16.1	2.1
41 Hutton Close Newbury	33.3	13.5	40.7	26.2	1.6
Willows Edge Nursing Home Newbury	23.8	13.4	20.4	21.7	0.9
112 Shaw Road Newbury	22.8	13.4	18.4	13.3	1.4
31 Shaw Road Newbury	28.7	13.7	30.1	19.7	1.5
13 Shaw Road Newbury	33.2	13.8	39.9	28.6	1.4
A343 Andover Road Wash Common	16.0	11.1	9.3	12.6	0.7

Monitoring Site	Measured Annual Mean NO_2 Concentration (µg/m^3)	Sector Removed and Interpolated Background NO_2 (µg/m^3)	Measured Road-NOx (µg/m^3) (from NOx:NO_2 calculator)	Modelled Road-NOx (µg/m^3)	Ratio
110 London Road Newbury	25.0	13.9	22.0	21.0	1.0
Abbeydale Monks Lane Newbury	19.9	11.3	16.6	9.1	1.8
Theale and Calcot					
Calcot Hotel A4 Bath Road Calcot	32.4	15.7	34.3	27.0	1.3
Elizabeth Court Theale	21.6	14.9	12.9	11.6	1.1
Outside Major Urban Areas					
7a Bridge Street Hungerford	28.8	10.8	35.7	12.5	2.9
Old Bakery Tidmarsh	31.8	13.3	37.3	13.9	2.7
1 Shooters Hill Pangbourne	25.8	16.5	18.3	6.4	2.9
St James Church Pangbourne Hill	24.0	16.7	14.2	6.5	2.2
A339 New Greenham Park Greenham	33.8	10.6	47.2	14.8	3.2

The road-NO_x adjustment factor was determined as the slope of the best fit line between the 'measured' road contribution and the model derived road contribution, forced through zero (Figures G-2 to G-5). This factor was then applied to the modelled road-NO_x concentration for each monitoring site to provide adjusted modelled road-NO_x concentrations. The total nitrogen dioxide concentrations were then determined by inputting the adjusted modelled road-NO_x concentrations and the background NO_2 concentration into the NO_x to NO_2 calculator.

Figure G-2: Comparison of Measured Road-NO_x with Unadjusted Modelled Road-NO_x – Thatcham Zone

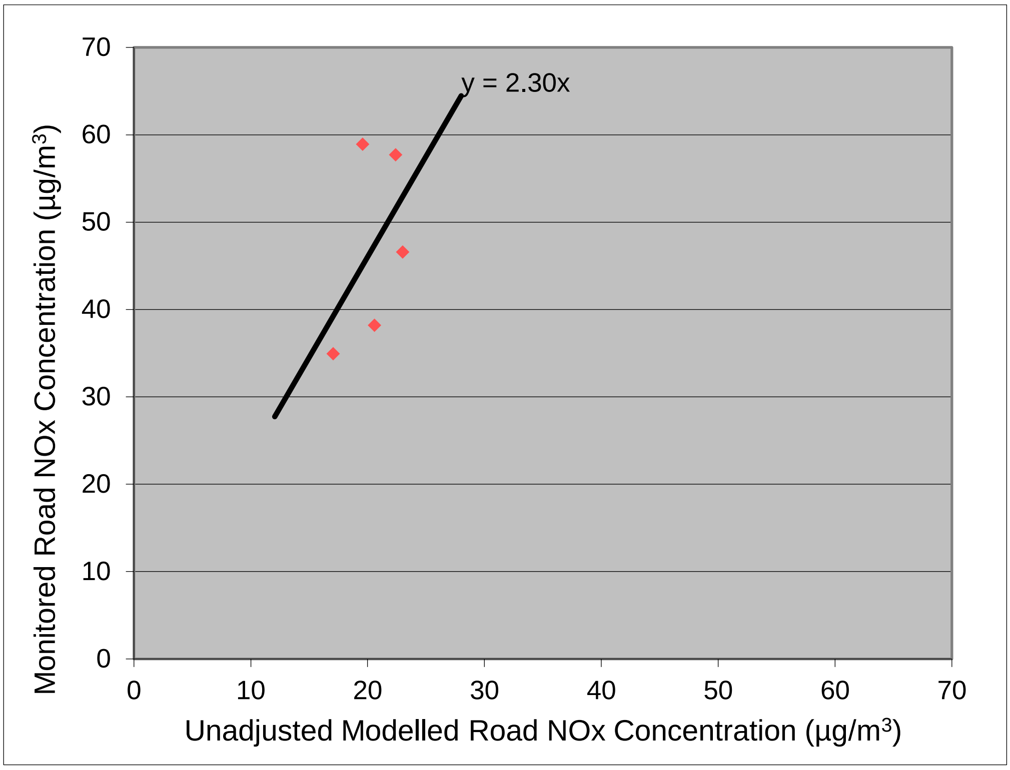


Figure G-3: Comparison of Measured Road-NO_x with Unadjusted Modelled Road-NO_x – Newbury Zone

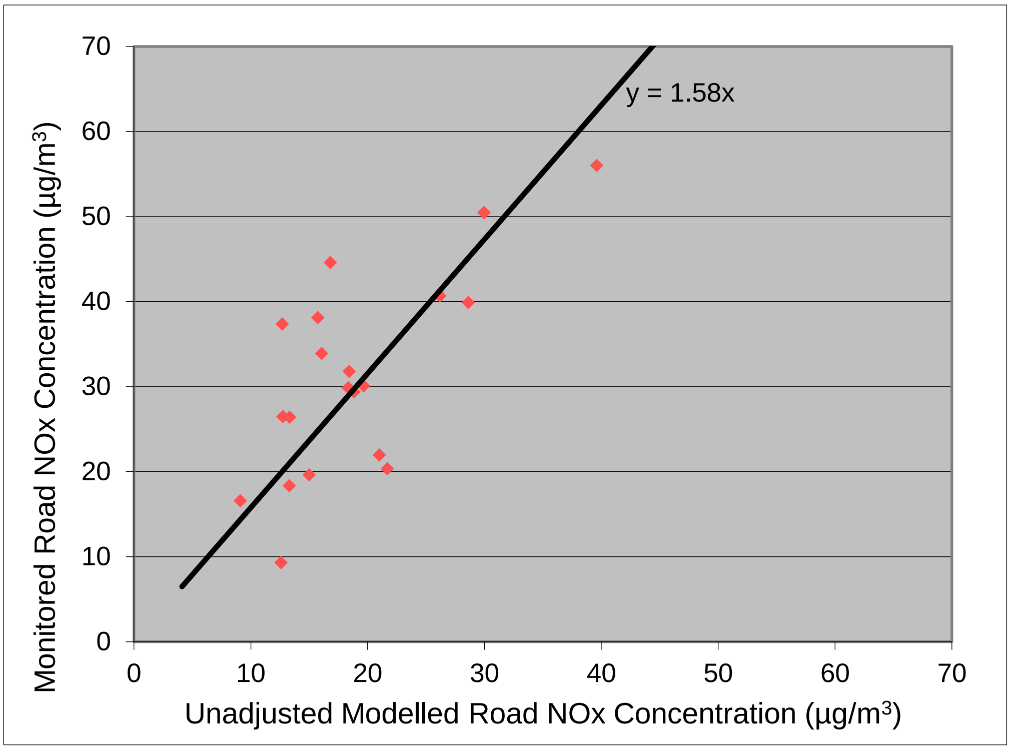


Figure G-4: Comparison of Measured Road-NO_x with Unadjusted Modelled Road-NO_x – Theale and Calcot Zone

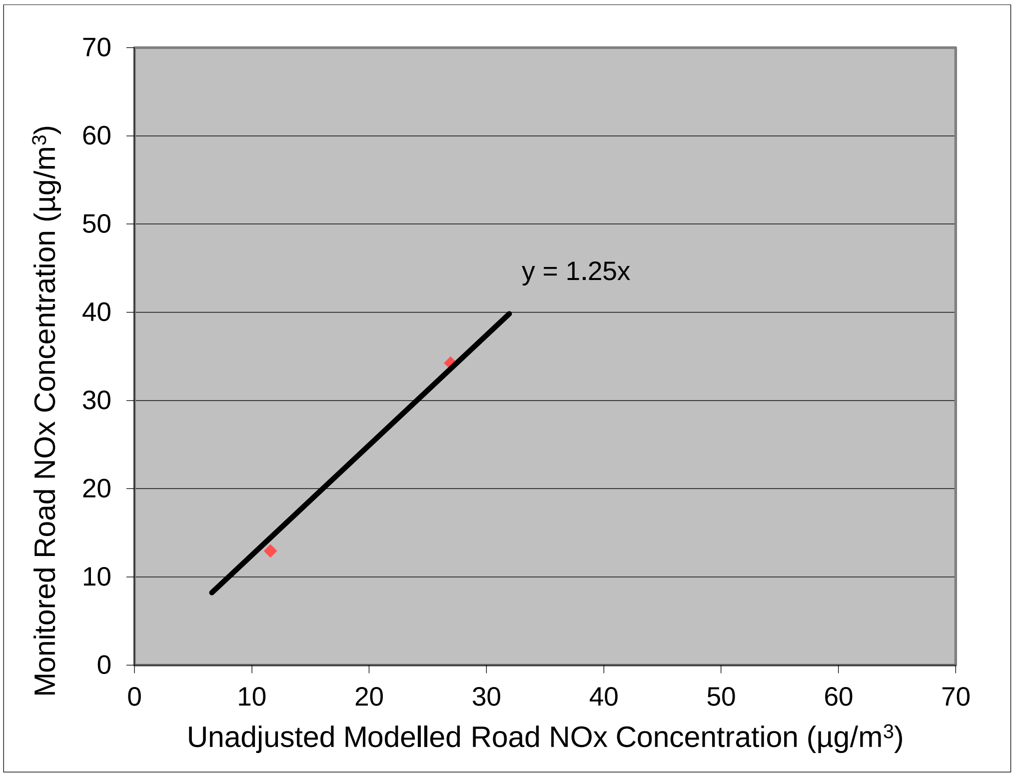
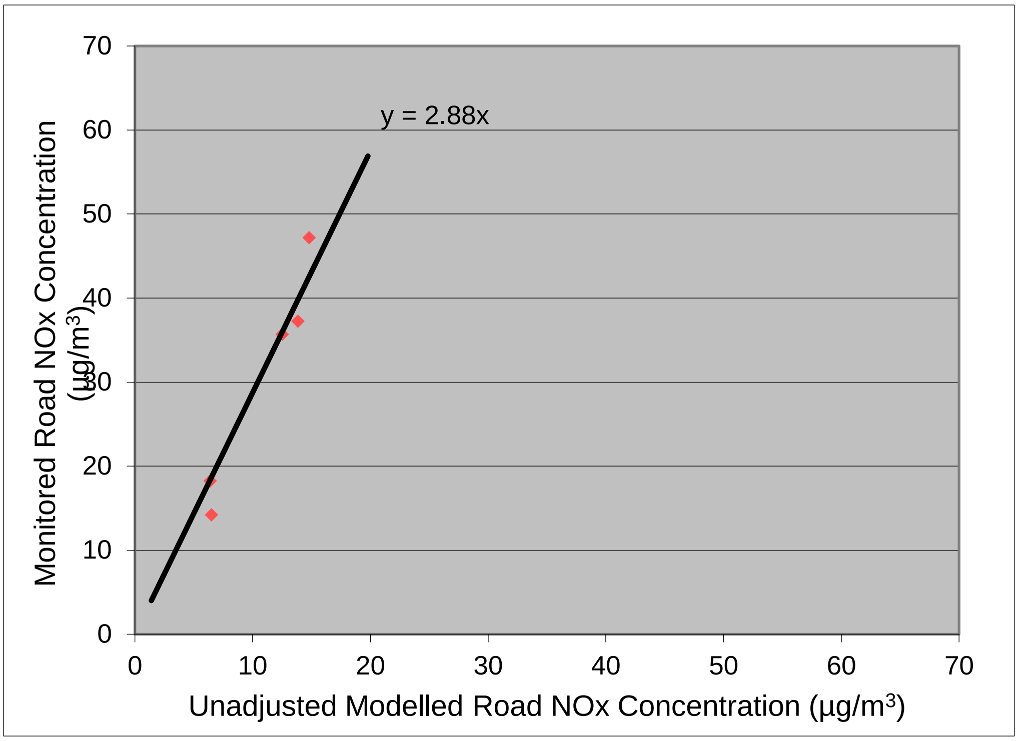


Figure G-5: Comparison of Measured Road-NO_x with Unadjusted Modelled Road-NO_x – Outside Major Urban Areas Zone



Ammonia

It has not been possible to verify ammonia emissions from road traffic as no suitable local monitoring data is available to enable this. However, NH_3 emissions used within the modelling have been obtained from CREAM which have been crosschecked with monitoring (and so represent on-road emissions data which in part accounts for some of the uncertainty that you are trying to remove through model verification).

Model UNCERTAINTY

An evaluation of model performance has been undertaken to establish confidence in model results. LAQM.TG(22) identifies a number of statistical procedures that are appropriate to evaluate model performance and assess the uncertainty. These include:

a) Root mean square error (RMSE);

b) Fractional bias (FB); and

c) Correlation coefficient (CC).

These parameters estimate how the model results agree or diverge from the observations. These calculations can be carried out prior to, and after adjustment, or based on different options for adjustment, and can provide useful information on model improvement. A brief for explanation of each statistic is provided in Table G-2, and further details can be found in Box 7.17 of LAQM.TG(16).

Table G-2 – Methods for describing model uncertainty

Statistical Parameter	Comments	Ideal value
RMSE	RMSE is used to define the average error or uncertainty of the model. The units of RMSE are the same as the quantities compared. If the RMSE values are higher than 25% of the objective being assessed, it is recommended that the model inputs and verification should be revisited in order to make improvements. For example, if the model predictions are for the annual mean NO_2 objective of 40µg/m^3, if an RMSE of 10µg/m^3 or above is determined for a model it is advised to revisit the model parameters and model verification. Ideally an RMSE within 10% of the air quality objective would be derived, which equates to 4µg/m^3 for the annual mean NO_2 objective.	0.01
Fractional Bias	It is used to identify if the model shows a systematic tendency to over or under predict. FB values vary between +2 and -2 and has an ideal value of zero. Negative values suggest a model over-prediction and positive values suggest a model under-prediction.	0.00
Correlation Coefficient	It is used to measure the linear relationship between predicted and observed data. A value of zero means no relationship and a value of 1 means absolute relationship. This statistic can be particularly useful when comparing a large number of model and observed data points.	1.00

To assess the uncertainty of a model, the RMSE is the simplest parameter to calculate providing an estimate of the average error of the model in the same units as the modelled predictions. It is also often easier to interpret the RMSE than the other statistical parameters and therefore it has been calculated in this assessment to understand the model uncertainty.

The RMSE value calculated after verification are summarised in Table G-3 below.

Table GG-3 – Root mean square values after verification

Verification zone	Root mean square value (µg/m^3)
Thatcham	3.7
Newbury Urban Area	4.0
Theale and Calcot	0.6
Outside Major Urban Areas	1.5

The derived verification factors used for each zone in the model are summarised in Table G-4 below.

Table G-4 – Derived verification factors

Verification Zone	Verification Factor
Thatcham	2.30
Newbury Urban Area	1.58
Theale and Calcot	1.25
Outside Major Urban Areas	2.88

Appendix H

Human and Public Health Meteorological Data, Model Input Parameters and Model Verification

Meteorological Data

The human and public heath sections utilise the same meteorological data as the ecological assessment and the wind rose for 2017 can be found in Figure G-1

Detailed Model Input Parameters and Verification

The following consistent model parameters were used within both the ecological and human modelling and are considered to be representative of the district as a whole:

- Dispersion site surface roughness = 0.5m;
- Dispersion site Monin-Obukhov length = 10m;
- Met site surface roughness = 0.2m; and
- Met site Monin-Obukhov length = 10m.

The comparison of modelled concentrations with local monitored concentrations is a process termed 'verification'. Model verification investigates the discrepancies between modelled and measured concentrations, which can arise due to the presence of inaccuracies and/or uncertainties in model input data, modelling and monitoring data assumptions. The following are examples of potential causes of such discrepancy:

f) Estimates of background pollutant concentrations;

g) Meteorological data uncertainties;

h) Traffic data uncertainties;

i) Model input parameters, such as 'roughness length'; and

j) Overall limitations of the dispersion model.

Nitrogen Dioxide

In line with the guidance provided within LAQM.TG(22), the ADMS Roads model output has been verified in terms of the primary emissions of NO_x produced by road traffic.

The model has been run to predict the 2017 annual mean road-NO_x contribution at several diffusion tubes within the modelled road network. The model outputs of road-NO_x have been compared with the 'measured' road-NO_x, which was determined from the NO_2 concentrations measured using diffusion tubes at the monitoring locations, utilising the NO_x from NO_2 calculator provided by Defra and the NO_2 background concentration (from the Defra background map).

The table and figure overleaf present the data used in the verification.

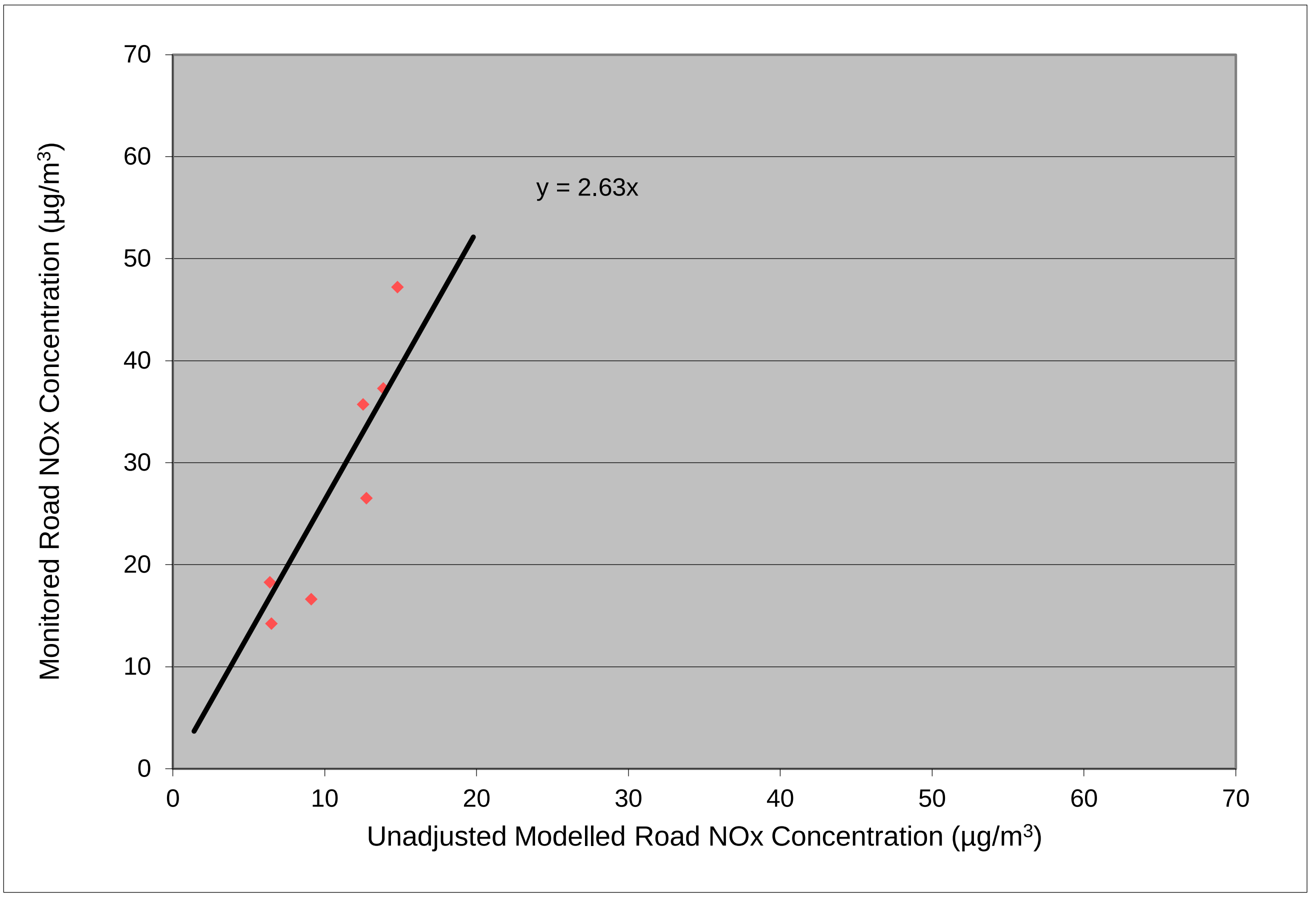
Table H-1 – Data used in model verification

Monitoring Site	Measured Annual Mean NO_2 Concentration ($\mu g/m^3$)	Sector Removed and Interpolated Background NO_2 ($\mu g/m^3$)	Measured Road-NOx ($\mu g/m^3$) (from NOx:NO_2 calculator)	Modelled Road-NOx ($\mu g/m^3$)	Ratio
7a Bridge Street Hungerford	28.8	10.8	35.7	12.5	2.9
Old Bakery Tidmarsh	31.8	13.3	37.3	13.9	2.7
1 Shooters Hill Pangbourne	25.8	16.5	18.3	6.4	2.9
St James Church Pangbourne Hill	24.0	16.7	14.2	6.5	2.2
20 Deadmans Lane Greenham	24.0	10.5	26.5	12.7	2.1
Abbeydale Monks Lane Newbury	19.9	11.3	16.6	9.1	1.8
A339 New Greenham Park Greenham	33.8	10.6	47.2	14.8	3.2

The road-NO_x adjustment factor was determined as the slope of the best fit line between the 'measured' road contribution and the model derived road contribution, forced through zero (Figure H-1). This factor was then applied to the modelled road-NO_x concentration for each monitoring site to provide adjusted modelled road-NO_x concentrations. The total nitrogen dioxide concentrations were then determined by inputting the adjusted modelled road-NO_x concentrations and the background NO_2 concentration into the NO_x to NO_2 calculator.

A factor of **2.63** was derived from the verification process.

Figure H-1: Comparison of Measured Road-NO_x with Unadjusted Modelled Road-NO_x



PM_{10} and $PM_{2.5}$

There are no local PM_{10} or $PM_{2.5}$ monitoring data against which the model could be verified. Consequently, the verification factor determined above for adjusting the road-NO_x contribution has been applied to the predicted road-PM_{10} and road-$PM_{2.5}$ contributions, consistent with guidance set out in LAQM.TG(22).

Model Uncertainty

An evaluation of model performance has been undertaken to establish confidence in model results. LAQM.TG(22) identifies a number of statistical procedures that are appropriate to evaluate model performance and assess the uncertainty. These include:

d) Root mean square error (RMSE);

e) Fractional bias (FB); and

f) Correlation coefficient (CC).

These parameters estimate how the model results agree or diverge from the observations. These calculations can be carried out prior to, and after adjustment, or based on different options for adjustment, and can provide useful information on model improvement. A brief for explanation of each statistic is provided in Table E2, and further details can be found in Box 7.17 of LAQM.TG(16).

Table H-2 – Methods for describing model uncertainty

Statistical Parameter	Comments	Ideal value
RMSE	RMSE is used to define the average error or uncertainty of the model. The units of RMSE are the same as the quantities compared. If the RMSE values are higher than 25% of the objective being assessed, it is recommended that the model inputs and verification should be revisited in order to make improvements. For example, if the model predictions are for the annual mean NO_2 objective of 40μg/m^3, if an RMSE of 10μg/m^3 or above is determined for a model it is advised to revisit the model parameters and model verification. Ideally an RMSE within 10% of the air quality objective would be derived, which equates to 4μg/m^3 for the annual mean NO_2 objective.	0.01
Fractional Bias	It is used to identify if the model shows a systematic tendency to over or under predict. FB values vary between +2 and -2 and has an ideal value of zero. Negative values suggest a model over-prediction and positive values suggest a model under-prediction.	0.00
Correlation Coefficient	It is used to measure the linear relationship between predicted and observed data. A value of zero means no relationship and a value of 1 means absolute relationship. This statistic can be particularly useful when comparing a large number of model and observed data points.	1.00

To assess the uncertainty of a model, the RMSE is the simplest parameter to calculate providing an estimate of the average error of the model in the same units as the modelled predictions. It is also often easier to interpret the RMSE than the other statistical parameters and therefore it has been calculated in this assessment to understand the model uncertainty.

The RMSE value calculated after verification for ecological receptors is 2.5µg/m^3.

Appendix I

Ecological Modelling Results

Table I-1 – Modelled NOx Critical Levels (CLe) for Each Transect and Key Information Relating to the Potential for Impacts

Designated Site	Transect	Relevant CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m^3, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m^3 due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T1	30	15.1-15.3	8.7-8.9	Yes 35.3µg/m3 @ 0 31.7µg/m3 @ 10 29.6µg/m3 @ 20	No 16.4 µg/m3 @ 0	No 17.5 µg/m3 @ 0	Yes (60)	No	No	No
Greenham and Crookham Commons	T2	30	15.0-15.2	8.7-8.8	No 28.9µg/m3 @ 0	No 13.8µg/m3 @ 0	No 14.6µg/m3 @ 0	Yes (40)	No	No	No
Greenham and Crookham Commons	T3	30	14.9-15.0	8.6-8.7	Yes 30.2µg/m3 @ 0 25.5µg/m3 @ 10	No 15.0µg/m3 @ 0	No 16.1µg/m3 @ 0	Yes (20)	No	No	No

Designated Site	Transect	Relevant CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m^3, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m^3 due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T4	30	14.7-14.8	8.5-8.6	No 28.4µg/m3 @ 0	No 14.2µg/m3 @ 0	No 15.2µg/m3 @ 0	Yes (20)	No	No	No
Greenham and Crookham Commons	T5	30	14.7	8.6	No 29.1µg/m3 @ 0	No 14.6µg/m3 @ 0	No 15.8µg/m3 @ 0	Yes (20)	No	No	No
Greenham and Crookham Commons	T6	30	15.4-15.6	9.4-9.7	No 20.9µg/m3 @ 0	No 11.3µg/m3 @ 0	No 11.4µg/m3 @ 0	No	No	No	No

Designated Site	Transect	Relevant CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m^3, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m^3 due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T7	30	14.0	8.1	Yes 93.6µg/m3 @ 0 31.0µg/m3 @ 30 28.4µg/m3 @ 40	Yes 32.4µg/m3 @ 0 17.7µg/m3 @ 30	No 29.8µg/m3 @ 0	No	No	No	No
Greenham and Crookham Commons	T8	30	14.0	8.1	Yes 64.5µg/m3 @ 0 30.4µg/m3 @ 50 28.9µg/m3 @ 60	No 23.5µg/m3 @ 0	No 21.9µg/m3 @ 0	No	No	No	No
Greenham and Crookham Commons	T9	30	14.2-14.5	8.2-8.4	Yes 79.4µg/m3 @ 0 32.0µg/m3 @ 40 29.8µg/m3 @ 50	No 28.1µg/m3 @ 0	No 25.9µg/m3 @ 0	No	No	No	No

Designated Site	Transect	Relevant CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m^3, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m^3 due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T10	30	14.2-14.3	8.2-8.3	Yes 113.4µg/m3 @ 0 32.6µg/m3 @ 30 29.5µg/m3 @ 40	Yes 38.9µg/m3 @ 0 19.1µg/m3 @ 10	Yes 35.5µg/m3 @ 0 18.0µg/m3 @ 10	No	No	No	No
Greenham and Crookham Commons	T11	30	14.3-14.7	8.4-8.6	Yes 103.6µg/m3 @ 0 31.6µg/m3 @ 50 29.7µg/m3 @ 60	Yes 35.9µg/m3 @ 0 21.8µg/m3 @ 10	Yes 32.7µg/m3 @ 0 20.3µg/m3 @ 10	No	No	No	No
Greenham and Crookham Commons	T12	30	14.2-14.4	8.3-8.4	Yes 51.9µg/m3 @ 0 32.7µg/m3 @ 20 29.5µg/m3 @ 30	No 19.8µg/m3 @ 0	No 18.6µg/m3 @ 0	No	No	No	No

Designated Site	Transect	Relevant CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m^3, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m^3 due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T13	30	14.1-14.4	8.2-8.5	Yes 43.1µg/m3 @ 0 30.6µg/m3 @ 30 28.7µg/m3 @ 40	No 18.4µg/m3 @ 0	No 17.3µg/m3 @ 0	No	No	No	No
Greenham and Crookham Commons	T14	30	14.3-15.0	8.5-9.1	No 21.9µg/m3 @ 0	No 10.8µg/m3 @ 0	No 10.7µg/m3 @ 0	No	No	No	No
Greenham and Crookham Commons	T15	30	14.0-14.4	8.2-8.5	No 26.5µg/m3 @ 0	No 12.0µg/m3 @ 0	No 12.0µg/m3 @ 0	No	No	No	No

Designated Site	Transect	Relevant CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m^3, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m^3 due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T16	30	13.8	8.1	Yes 51.3µg/m3 @ 0 30.0µg/m3 @ 10	No 19.7µg/m3 @ 0	No 19.8µg/m3 @ 0	No	No	No	No
Greenham and Crookham Commons	T17	30	13.7	8.0	Yes 51.2µg/m3 @ 0 30.6µg/m3 @ 10 25.7µg/m3 @ 20	No 19.7µg/m3 @ 0	No 19.8µg/m3 @ 0	No	No	No	No
Greenham and Crookham Commons	T18	30	13.6-13.7	8.0	Yes 44.3µg/m3 @ 0 27.3µg/m3 @ 10	No 17.5µg/m3 @ 0	No 17.6µg/m3 @ 0	No	No	No	No

Designated Site	Transect	Relevant CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m^3, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m^3 due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T19	30	13.6-13.8	8.0-8.1	Yes 41.7µg/m3 @ 0 31.1µg/m3 @ 10 26.9µg/m3 @ 20	No 18.5µg/m3 @ 0	No 19.3µg/m3 @ 0	Yes (20)	No	No	No
Greenham and Crookham Commons	T20	30	13.7	8.0	No 25.9µg/m3 @ 0	No 13.2µg/m3 @ 0	No 13.8µg/m3 @ 0	Yes (10)	No	No	No
Greenham and Crookham Commons	T21	30	13.7	8.0-8.1	Yes 42.4µg/m3 @ 0 28.5µg/m3 @ 10	No 21.3µg/m3 @ 0	No 23.1µg/m3 @ 0	Yes (40)	No	No	No

Designated Site	Transect	Relevant CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m^3, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m^3 due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T22	30	13.7	8.0	Yes 45.3µg/m3 @ 0 30.1µg/m3 @ 10 26.2µg/m3 @ 20	No 22.7µg/m3 @ 0	No 24.8µg/m3 @ 0	Yes (60)	No	No	No
Greenham and Crookham Commons	T23	30	13.6	8.0	Yes 50.9µg/m3 @ 0 30.3µg/m3 @ 20 27.1µg/m3 @ 30	No 23.4µg/m3 @ 0	No 24.9µg/m3 @ 0	Yes (20)	No	No	No
Greenham and Crookham Commons	T24	30	13.6	8.0	Yes 57.6µg/m3 @ 0 32.5µg/m3 @ 20 28.8µg/m3 @ 30	No 23.3µg/m3 @ 0	No 23.8µg/m3 @ 0	Yes (10)	No	No	No

Designated Site	Transect	Relevant CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m^3, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m^3 due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T25	30	13.6	8.0	Yes 47.5µg/m3 @ 0 29.9µg/m3 @ 10	No 21.0µg/ m3 @ 0	No 21.2µg/m 3 @ 0	No	No	No	No
Greenham and Crookham Commons	T26	30	13.6	8.0	Yes 38.9µg/m3 @ 0 25.1µg/m3 @ 10	No 17.6µg/ m3 @ 0	No 17.8µg/m 3 @ 0	No	No	No	No
Greenham and Crookham Commons	T27	30	13.6	8.0	Yes 45.1µg/m3 @ 0 28.6µg/m3 @ 10	No 20.1µg/ m3 @ 0	No 20.4µg/m 3 @ 0	No	No	No	No

Designated Site	Transect	Relevant CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m^3, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m^3 due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T28	30	13.5	8.0	Yes 37.4µg/m3 @ 0 24.3µg/m3 @ 10	No 17.1µg/m3 @ 0	No 17.2µg/m3 @ 0	No	No	No	No
Greenham and Crookham Commons	T29	30	14.0-14.4	8.2-8.5	Yes 50.2µg/m3 @ 0 31.1µg/m3 @ 20 28.9µg/m3 @ 30	No 20.3µg/m3 @ 0	No 18.9µg/m3 @ 0	No	No	No	No
Snelsmore Common	T30	30	14.4-15.0	8.2-8.4	Yes 33.7µg/m3 @ 0 27.2µg/m3 @ 10	No 12.9µg/m3 @ 0	No 13.0µg/m3 @ 0	No	No	No	No
Snelsmore Common	T31	30	14.1-14.8	8.1-8.4	Yes 34.7µg/m3 @ 0 27.4µg/m3 @ 10	No 13.2µg/m3 @ 0	No 13.3µg/m3 @ 0	No	No	No	No

Designated Site	Transect	Relevant CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m^3, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m^3 due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Snelsmore Common	T32	30	13.8-14.5	8.0-8.3	Yes 34.2µg/m3 @ 0 28.6µg/m3 @ 10	No 13.1µg/m3 @ 0	No 13.2µg/m3 @ 0	No	No	No	No
Snelsmore Common	T33	30	14.0-14.4	8.1-8.3	Yes 43.1µg/m3 @ 0 30.1µg/m3 @ 70 29.7µg/m3 @ 80	No 15.3µg/m3 @ 0	No 15.4µg/m3 @ 0	No	No	No	No
Snelsmore Common	T34	30	14.0-14.7	8.0-8.4	Yes 196.1µg/m3 @ 0 30.5µg/m3 @ 190 29.9µg/m3 @ 200	Yes 55.4µg/m3 @ 0 31.8µg/m3 @ 10 25.0µg/m3 @ 20	Yes 55.3µg/m3 @ 0 31.8µg/m3 @ 10 25.0µg/m3 @ 20	No	No	No	No

Designated Site	Transect	Relevant CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m^3, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m^3 due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Snelsmore Common	T35	30	14.7-14.8	8.5	Yes 202.2µg/m3 @ 0 56.3µg/m3 @ 70	Yes 58.7µg/m3 @ 0 33.8µg/m3 @ 10 26.6µg/m3 @ 20	Yes 58.3µg/m3 @ 0 33.7µg/m3 @ 10 26.5µg/m3 @ 20	No	No	No	No
Snelsmore Common	T36	30	14.7	8.5	Yes 68.8µg/m3 @ 0 190.3µg/m3 @ 70	Yes 22.1µg/m3 @ 0 55.4µg/m3 @ 70	Yes 22.1µg/m3 @ 0 55.0µg/m3 @ 70	No	No	No	No
Lardon Chase	T37	30	14.2	9.1	No 21.8µg/m3 @ 0	No 11.5µg/m3 @ 0	No 11.4µg/m3 @ 0	No	No	No	No

Designated Site	Transect	Relevant CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m^3, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m^3 due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Lardon Chase	T38	30	14.8	9.6-9.7	No 24.6µg/m3 @ 0	No 12.8µg/m3 @ 0	No 12.6µg/m3 @ 0	No	No	No	No
Lardon Chase	T39	30	15.2-15.3	10.0	No 26.0µg/m3 @ 0	No 13.5µg/m3 @ 0	No 13.3µg/m3 @ 0	No	No	No	No
Lardon Chase	T40	30	14.7-15.7	9.5-10.3	No 21.1µg/m3 @ 0	No 11.7µg/m3 @ 0	No 11.7µg/m3 @ 0	No	No	No	No
Holies Down	T41	30	15.8-16.6	10.4-11.0	No 28.4µg/m3 @ 0	No 13.6µg/m3 @ 0	No 13.7µg/m3 @ 0	No	No	No	No

Designated Site	Transect	Relevant CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m^3, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m^3 due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Holies Down	T42	30	15.9-16.8	10.6-11.1	Yes 30.9µg/m3 @ 0 25.8µg/m3 @ 10	No 14.1µg/m3 @ 0	No 14.2µg/m3 @ 0	No	No	No	No

Table I-2 – Modelled NH_3 Critical Levels (CLe) for Each Transect and Key Information Relating to the Potential for Impacts

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T1	1	1.7	1.7	Yes Whole Transect 1.9µg/m³ @ 0m, 1.7µg/m³ @ 170	Yes Whole Transect 2.1µg/m³ @ 0, 1.8µg/m³ @ 170	Yes Whole Transect 2.2µg/m³ @ 0, 1.8µg/m³ @ 170	Yes (90)	Yes (Whole Transect)	Yes	Yes
Greenham and Crookham Commons	T2	1	1.7	1.7	Yes Whole Transect 1.8µg/m³ @ 0m, 1.7µg/m³ @ 180	Yes Whole Transect 2.0µg/m³ @ 0, 1.8µg/m³ @ 180	Yes Whole Transect 2.0µg/m³ @ 0, 1.8µg/m³ @ 180	Yes (40)	Yes (Whole Transect)	Yes	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T3	1	1.7	1.7	Yes Whole Transect 1.9µg/m³ @ 0m, 1.7µg/m³ @ 80	Yes Whole Transect 2.1µg/m³ @ 0, 1.8µg/m³ @ 80	Yes Whole Transect 2.2µg/m³ @ 0, 1.8µg/m³ @ 80	Yes (50)	Yes (Whole Transect)	Yes	Yes
Greenham and Crookham Commons	T4	1	1.7	1.7	Yes Whole Transect 1.9µg/m³ @ 0m, 1.7µg/m³ @ 280	Yes Whole Transect 2.1µg/m³ @ 0, 1.8µg/m³ @ 280	Yes Whole Transect 2.2µg/m³ @ 0, 1.8µg/m³ @ 280	Yes (40)	Yes (Whole Transect)	Yes	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T5	1	1.7	1.7	Yes Whole Transect 1.9µg/m³ @ 0m, 1.7µg/m³ @ 210	Yes Whole Transect 2.1µg/m³ @ 0, 1.8µg/m³ @ 210	Yes Whole Transect 2.2µg/m³ @ 0, 1.8µg/m³ @ 210	Yes (20)	Yes (Whole Transect)	Yes	Yes
Greenham and Crookham Commons	T6	1	1.4	1.4	Yes Whole Transect 1.4µg/m³ @ 0m, 1.4µg/m³ @ 130	Yes Whole Transect 1.4µg/m³ @ 0, 1.4µg/m³ @ 130	Yes Whole Transect 1.4µg/m³ @ 0, 1.4µg/m³ @ 130	No	Yes (Whole Transect)	No	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T7	1	1.3	1.3	Yes Whole Transect 2.7µg/m³ @ 0m, 1.3µg/m³ @ 90	Yes Whole Transect 3.8µg/m³ @ 0, 1.4µg/m³ @ 90	Yes Whole Transect 3.5µg/m³ @ 0, 1.4µg/m³ @ 90	No	Yes (Whole Transect)	No	Yes
Greenham and Crookham Commons	T8	1	1.3	1.3	Yes Whole Transect 2.1µg/m³ @ 0m, 1.3µg/m³ @ 350	Yes Whole Transect 2.8µg/m³ @ 0, 1.3µg/m³ @ 350	Yes Whole Transect 2.6µg/m³ @ 0, 1.3µg/m³ @ 350	No	Yes (Whole Transect)	No	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T9	1	1.3	1.3	Yes Whole Transect 2.4µg/m³ @ 0m, 1.3µg/m³ @ 720	Yes Whole Transect 3.3µg/m³ @ 0, 1.3µg/m³ @ 720	Yes Whole Transect 3.0µg/m³ @ 0, 1.3µg/m³ @ 720	No	Yes (Whole Transect)	No	Yes
Greenham and Crookham Commons	T10	1	1.3	1.3	Yes Whole Transect 3.0µg/m³ @ 0m, 1.3µg/m³ @ 100	Yes Whole Transect 4.5µg/m³ @ 0, 1.4µg/m³ @ 100	Yes Whole Transect 4.1µg/m³ @ 0, 1.4µg/m³ @ 100	No	Yes (Whole Transect)	No	Yes

	Transect	Relevant /Applied CLe ($\mu g/m^3$)	2017 Background Range ($\mu g/m^3$)	2037 (2030) Background Range $\mu g/m^3$)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed $30\mu g/m^3$, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of $30\mu g/m^3$ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T11	1	1.3	1.3	Yes Whole Transect $2.9\mu g/m^3$ @ 0m, $1.3\mu g/m^3$ @ 480	Yes Whole Transect $4.3\mu g/m^3$ @ 0, $1.3\mu g/m^3$ @ 480	Yes Whole Transect $3.8\mu g/m^3$ @ 0, $1.3\mu g/m^3$ @ 480	No	Yes (Whole Transect)	No	Yes
Greenham and Crookham Commons	T12	1	1.3	1.3	Yes Whole Transect $1.8\mu g/m^3$ @ 0m, $1.3\mu g/m^3$ @ 170	Yes Whole Transect $2.3\mu g/m^3$ @ 0, $1.3\mu g/m^3$ @ 170	Yes Whole Transect $2.2\mu g/m^3$ @ 0, $1.3\mu g/m^3$ @ 170	No	Yes (Whole Transect)	No	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T13	1	1.3	1.3	Yes Whole Transect 1.5µg/m³ @ 0m, 1.3µg/m³ @ 280	Yes Whole Transect 1.7µg/m³ @ 0, 1.3µg/m³ @ 280	Yes Whole Transect 1.7µg/m³ @ 0, 1.3µg/m³ @ 280	No	Yes (Whole Transect)	No	Yes
Greenham and Crookham Commons	T14	1	1.4	1.4	Yes Whole Transect 1.4µg/m³ @ 0m, 1.4µg/m³ @ 390	Yes Whole Transect 1.5µg/m³ @ 0, 1.4µg/m³ @ 390	Yes Whole Transect 1.5µg/m³ @ 0, 1.4µg/m³ @ 390	No	Yes (Whole Transect)	No	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T15	1	1.4	1.4	Yes Whole Transect 1.5µg/m³ @ 0m, 1.4µg/m³ @ 430	Yes Whole Transect 1.6µg/m³ @ 0, 1.4µg/m³ @ 430	Yes Whole Transect 1.6µg/m³ @ 0, 1.4µg/m³ @ 430	No	Yes (Whole Transect)	No	Yes
Greenham and Crookham Commons	T16	1	1.4	1.4	Yes Whole Transect 2.0µg/m³ @ 0m, 1.4µg/m³ @ 300	Yes Whole Transect 2.3µg/m³ @ 0, 1.4µg/m³ @ 300	Yes Whole Transect 2.3µg/m³ @ 0, 1.4µg/m³ @ 300	No	Yes (Whole Transect)	No	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T17	1	1.4	1.4	Yes Whole Transect 2.0µg/m³ @ 0m, 1.4µg/m³ @ 310	Yes Whole Transect 2.3µg/m³ @ 0, 1.4µg/m³ @ 310	Yes Whole Transect 2.3µg/m³ @ 0, 1.4µg/m³ @ 310	No	Yes (Whole Transect)	No	Yes
Greenham and Crookham Commons	T18	1	1.4	1.4	Yes Whole Transect 1.8µg/m³ @ 0m, 1.4µg/m³ @ 550	Yes Whole Transect 2.1µg/m³ @ 0, 1.4µg/m³ @ 550	Yes Whole Transect 2.1µg/m³ @ 0, 1.4µg/m³ @ 550	No	Yes (Whole Transect)	No	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T19	1	1.4	1.4	Yes Whole Transect 1.7µg/m³ @ 0m, 1.4µg/m³ @ 700	Yes Whole Transect 2.1µg/m³ @ 0, 1.4µg/m³ @ 700	Yes Whole Transect 2.1µg/m³ @ 0, 1.4µg/m³ @ 700	No	Yes (Whole Transect)	No	Yes
Greenham and Crookham Commons	T20	1	1.4	1.4	Yes Whole Transect 1.5µg/m³ @ 0m, 1.4µg/m³ @ 80	Yes Whole Transect 1.7µg/m³ @ 0, 1.4µg/m³ @ 80	Yes Whole Transect 1.8µg/m³ @ 0, 1.4µg/m³ @ 80	No	Yes (Whole Transect)	No	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T21	1	1.4	1.4	Yes Whole Transect 1.8µg/m³ @ 0m, 1.4µg/m³ @ 110	Yes Whole Transect 2.5µg/m³ @ 0, 1.5µg/m³ @ 110	Yes Whole Transect 2.6µg/m³ @ 0, 1.5µg/m³ @ 110	Yes (80)	Yes (Whole Transect)	Yes	Yes
Greenham and Crookham Commons	T22	1	1.4	1.4	Yes Whole Transect 1.9µg/m³ @ 0m, 1.4µg/m³ @ 210	Yes Whole Transect 2.6µg/m³ @ 0, 1.5µg/m³ @ 210	Yes Whole Transect 2.8µg/m³ @ 0, 1.5µg/m³ @ 210	Yes (140)	Yes (Whole Transect)	Yes	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T23	1	1.4	1.4	Yes Whole Transect 1.9µg/m³ @ 0m, 1.4µg/m³ @ 210	Yes Whole Transect 2.6µg/m³ @ 0, 1.4µg/m³ @ 210	Yes Whole Transect 2.7µg/m³ @ 0, 1.4µg/m³ @ 210	Yes (50)	Yes (Whole Transect)	Yes	Yes
Greenham and Crookham Commons	T24	1	1.4	1.4	Yes Whole Transect 2.0µg/m³ @ 0m, 1.4µg/m³ @ 290	Yes Whole Transect 2.4µg/m³ @ 0, 1.4µg/m³ @ 290	Yes Whole Transect 2.4µg/m³ @ 0, 1.4µg/m³ @ 290	Yes (20)	Yes (Whole Transect)	Yes	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T25	1	1.4	1.4	Yes Whole Transect 1.9µg/m³ @ 0m, 1.4µg/m³ @ 150	Yes Whole Transect 2.4µg/m³ @ 0, 1.4µg/m³ @ 150	Yes Whole Transect 2.4µg/m³ @ 0, 1.4µg/m³ @ 150	Yes (10)	Yes (Whole Transect)	Yes	Yes
Greenham and Crookham Commons	T26	1	1.4	1.4	Yes Whole Transect 1.7µg/m³ @ 0m, 1.4µg/m³ @ 160	Yes Whole Transect 2.1µg/m³ @ 0, 1.4µg/m³ @ 160	Yes Whole Transect 2.1µg/m³ @ 0, 1.4µg/m³ @ 160	Yes (10)	Yes (Whole Transect)	Yes	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T27	1	1.4	1.4	Yes Whole Transect 1.9µg/m³ @ 0m, 1.4µg/m³ @ 60	Yes Whole Transect 2.4µg/m³ @ 0, 1.5µg/m³ @ 60	Yes Whole Transect 2.4µg/m³ @ 0, 1.5µg/m³ @ 60	Yes (10)	Yes (Whole Transect)	Yes	Yes
Greenham and Crookham Commons	T28	1	1.4	1.4	Yes Whole Transect 1.7µg/m³ @ 0m, 1.4µg/m³ @ 110	Yes Whole Transect 2.1µg/m³ @ 0, 1.4µg/m³ @ 110	Yes Whole Transect 2.1µg/m³ @ 0, 1.4µg/m³ @ 110	Yes (10)	Yes (Whole Transect)	Yes	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T29	1	1.3	1.3	Yes Whole Transect 1.7µg/m³ @ 0m, 1.3µg/m³ @ 250	Yes Whole Transect 2.0µg/m³ @ 0, 1.3µg/m³ @ 250	Yes Whole Transect 2.0µg/m³ @ 0, 1.3µg/m³ @ 250	No	Yes (Whole Transect)	No	Yes
Snelsmore Common	T30	1	1.6	1.6	Yes Whole Transect 1.8µg/m³ @ 0m, 1.6µg/m³ @ 440	Yes Whole Transect 1.8µg/m³ @ 0, 1.6µg/m³ @ 440	Yes Whole Transect 1.9µg/m³ @ 0, 1.6µg/m³ @ 440	No	Yes (Whole Transect)	No	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Snelsmore Common	T31	1	1.6	1.6	Yes Whole Transect 1.8µg/m³ @ 0m, 1.6µg/m³ @ 680	Yes Whole Transect 1.9µg/m³ @ 0, 1.6µg/m³ @ 680	Yes Whole Transect 1.9µg/m³ @ 0, 1.6µg/m³ @ 680	No	Yes (Whole Transect)	No	Yes
Snelsmore Common	T32	1	1.6	1.6	Yes Whole Transect 1.8µg/m³ @ 0m, 1.6µg/m³ @ 1010	Yes Whole Transect 1.8µg/m³ @ 0, 1.6µg/m³ @ 1010	Yes Whole Transect 1.8µg/m³ @ 0, 1.6µg/m³ @ 1010	No	Yes (Whole Transect)	No	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Snelsmore Common	T33	1	1.6	1.6	Yes Whole Transect 1.9µg/m³ @ 0m, 1.6µg/m³ @ 690	Yes Whole Transect 2.0µg/m³ @ 0, 1.6µg/m³ @ 690	Yes Whole Transect 2.0µg/m³ @ 0, 1.6µg/m³ @ 690	No	Yes (Whole Transect)	No	Yes
Snelsmore Common	T34	1	1.6	1.6	Yes Whole Transect 3.7µg/m³ @ 0m, 1.6µg/m³ @ 1160	Yes Whole Transect 4.4µg/m³ @ 0, 1.6µg/m³ @ 1160	Yes Whole Transect 4.4µg/m³ @ 0, 1.6µg/m³ @ 1160	No	Yes (Whole Transect)	No	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Snelsmore Common	T35	1	1.6	1.6	Yes Whole Transect 3.7µg/m³ @ 0m, 2.0µg/m³ @ 70	Yes Whole Transect 4.5µg/m³ @ 0, 2.1µg/m³ @ 70	Yes Whole Transect 4.5µg/m³ @ 0, 2.1µg/m³ @ 70	No	Yes (Whole Transect)	No	Yes
Snelsmore Common	T36	1	1.6	1.6	Yes Whole Transect 2.1µg/m³ @ 0m, 3.5µg/m³ @ 70	Yes Whole Transect 2.3µg/m³ @ 0, 4.3µg/m³ @ 70	Yes Whole Transect 2.3µg/m³ @ 0, 4.3µg/m³ @ 70	No	Yes (Whole Transect)	No	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Lardon Chase	T37	1	1.8	1.8	Yes Whole Transect 1.9µg/m³ @ 0m, 1.8µg/m³ @ 100	Yes Whole Transect 2.0µg/m³ @ 0, 1.9µg/m³ @ 100	Yes Whole Transect 1.9µg/m³ @ 0, 1.9µg/m³ @ 100	No	Yes (Whole Transect)	No	Yes
Lardon Chase	T38	1	1.8	1.8	Yes Whole Transect 1.9µg/m³ @ 0m, 1.8µg/m³ @ 200	Yes Whole Transect 2.0µg/m³ @ 0, 1.8µg/m³ @ 200	Yes Whole Transect 2.0µg/m³ @ 0, 1.8µg/m³ @ 200	No	Yes (Whole Transect)	No	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Lardon Chase	T39	1	1.8	1.8	Yes Whole Transect 1.9µg/m³ @ 0m, 1.8µg/m³ @ 320	Yes Whole Transect 2.0µg/m³ @ 0, 1.8µg/m³ @ 320	Yes Whole Transect 2.1µg/m³ @ 0, 1.9µg/m³ @ 320	No	Yes (Whole Transect)	No	Yes
Lardon Chase	T40	1	1.8	1.8	Yes Whole Transect 1.8µg/m³ @ 0m, 1.8µg/m³ @ 380	Yes Whole Transect 1.9µg/m³ @ 0, 1.8µg/m³ @ 380	Yes Whole Transect 1.9µg/m³ @ 0, 1.8µg/m³ @ 380	No	Yes (Whole Transect)	No	Yes

	Transect	Relevant /Applied CLe (µg/m³)	2017 Background Range (µg/m³)	2037 (2030) Background Range µg/m³)	Exceedances of CLe (distance to which modelled annual mean NOX concentrations exceed 30µg/m³, the NOx concentration at 0m within the site and next NOx concentration after the last exceedance are presented in brackets)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the CLe and exceedances of the CLe of 30µg/m³ due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	‘Alone’ (wLP-Ref)	‘In-comb.’ (wLP-base)	‘Alone’ (wLP-Ref)	‘In-comb.’ (wLP-base)
Holies Down	T41	1	1.8	1.9	Yes Whole Transect 2.0µg/m³ @ 0m, 1.9µg/m³ @ 230	Yes Whole Transect 2.0µg/m³ @ 0, 1.9µg/m³ @ 230	Yes Whole Transect 2.0µg/m³ @ 0, 1.9µg/m³ @ 230	No	Yes (Whole Transect)	No	Yes
Holies Down	T42	1	1.8	1.9	Yes Whole Transect 2.0µg/m³ @ 0m, 1.9µg/m³ @ 150	Yes Whole Transect 2.1µg/m³ @ 0, 1.9µg/m³ @ 150	Yes Whole Transect 2.1µg/m³ @ 0, 1.9µg/m³ @ 150	No	Yes (Whole Transect)	No	Yes

Table I-3 – Modelled N-Deposition Critical Loads (CLo) for Each Transect and Key Information Relating to the Potential for Impacts

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T1	10	18.2	15.9	Yes Whole Transect 20.9 kg N/ha/yr @ 0m, 19.0 kg N/ha/yr @ 170	Yes Whole Transect 18.7 kg N/ha/yr @ 0, 16.5 kg N/ha/yr @ 170	Yes Whole Transect 19.1 kg N/ha/yr @ 0, 16.6 kg N/ha/yr @ 170	Yes (60)	No	Yes	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T2	10	18.2	15.9	Yes Whole Transect 20.0 kg N/ha/yr @ 0m, 18.9 kg N/ha/yr @ 170	Yes Whole Transect 17.7 kg N/ha/yr @ 0, 16.4 kg N/ha/yr @ 170	Yes Whole Transect 18.0 kg N/ha/yr @ 0, 16.4 kg N/ha/yr @ 170	Yes (30)	No	Yes	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T3	10	18.2	15.9	Yes Whole Transect 20.3 kg N/ha/yr @ 0m, 18.9 kg N/ha/yr @ 80	Yes Whole Transect 18.5 kg N/ha/yr @ 0, 16.4 kg N/ha/yr @ 80	Yes Whole Transect 19.1 kg N/ha/yr @ 0, 16.5 kg N/ha/yr @ 80	Yes (30)	No	Yes	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T4	10	18.2	15.9	Yes Whole Transect 20.0 kg N/ha/yr @ 0m, 18.7 kg N/ha/yr @ 280	Yes Whole Transect 18.2 kg N/ha/yr @ 0, 16.2 kg N/ha/yr @ 280	Yes Whole Transect 18.7 kg N/ha/yr @ 0, 16.2 kg N/ha/yr @ 280	Yes (20)	No	Yes	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T5	10	18.2	15.9	Yes Whole Transect 20.2 kg N/ha/yr @ 0m, 18.7 kg N/ha/yr @ 210	Yes Whole Transect 18.5 kg N/ha/yr @ 0, 16.2 kg N/ha/yr @ 210	Yes Whole Transect 19.5 kg N/ha/yr @ 0, 16.2 kg N/ha/yr @ 210	Yes (20)	No	Yes	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T6	10	16.0	14.0	Yes Whole Transect 16.6 kg N/ha/yr @ 0m, 16.6 kg N/ha/yr @ 130	Yes Whole Transect 14.5 kg N/ha/yr @ 0, 14.4 kg N/ha/yr @ 130	Yes Whole Transect 14.5 kg N/ha/yr @ 0, 14.4 kg N/ha/yr @ 130	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T7	10	16.5	14.5	Yes Whole Transect 29.1 kg N/ha/yr @ 0m, 17.6 kg N/ha/yr @ 90	Yes Whole Transect 29.6 kg N/ha/yr @ 0, 15.3 kg N/ha/yr @ 90	Yes Whole Transect 27.6 kg N/ha/yr @ 0, 15.2 kg N/ha/yr @ 90	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T8	10	16.5	14.5	Yes Whole Transect 24.4 kg N/ha/yr @ 0m, 17.2 kg N/ha/yr @ 350	Yes Whole Transect 23.5 kg N/ha/yr @ 0, 15.0 kg N/ha/yr @ 350	Yes Whole Transect 22.3 kg N/ha/yr @ 0, 14.9 kg N/ha/yr @ 350	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T9	10	16.5	14.5	Yes Whole Transect 26.9 kg N/ha/yr @ 0m, 17.1 kg N/ha/yr @ 720	Yes Whole Transect 26.6 kg N/ha/yr @ 0, 14.8 kg N/ha/yr @ 720	Yes Whole Transect 25.0 kg N/ha/yr @ 0, 14.8 kg N/ha/yr @ 720	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T10	10	16.5	14.5	Yes Whole Transect 32.1 kg N/ha/yr @ 0m, 17.6 kg N/ha/yr @ 100	Yes Whole Transect 33.8 kg N/ha/yr @ 0, 15.3 kg N/ha/yr @ 100	Yes Whole Transect 31.1 kg N/ha/yr @ 0, 15.2 kg N/ha/yr @ 100	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	‘Alone’ (wLP-Ref)	‘In-comb.’ (wLP-base)	‘Alone’ (wLP-Ref)	‘In-comb.’ (wLP-base)
Greenham and Crookham Commons	T11	10	16.5	14.5	Yes Whole Transect 30.9 kg N/ha/yr @ 0m, 17.1 kg N/ha/yr @ 480	Yes Whole Transect 32.3 kg N/ha/yr @ 0, 14.8 kg N/ha/yr @ 480	Yes Whole Transect 29.7 kg N/ha/yr @ 0, 14.8 kg N/ha/yr @ 480	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T12	10	16.5	14.5	Yes Whole Transect 22.2 kg N/ha/yr @ 0m, 17.2 kg N/ha/yr @ 170	Yes Whole Transect 20.7 kg N/ha/yr @ 0, 15.0 kg N/ha/yr @ 170	Yes Whole Transect 19.9 kg N/ha/yr @ 0, 14.9 kg N/ha/yr @ 170	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T13	10	16.5	14.5	Yes Whole Transect 20.0 kg N/ha/yr @ 0m, 17.1 kg N/ha/yr @ 280	Yes Whole Transect 17.7 kg N/ha/yr @ 0, 14.9 kg N/ha/yr @ 280	Yes Whole Transect 17.3 kg N/ha/yr @ 0, 14.8 kg N/ha/yr @ 280	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T14	10	16.0	14.0	Yes Whole Transect 16.9 kg N/ha/yr @ 0m, 16.6 kg N/ha/yr @ 390	Yes Whole Transect 14.7 kg N/ha/yr @ 0, 14.4 kg N/ha/yr @ 390	Yes Whole Transect 14.7 kg N/ha/yr @ 0, 14.4 kg N/ha/yr @ 390	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T15	10	16.0	14.0	Yes Whole Transect 17.7 kg N/ha/yr @ 0m, 16.5 kg N/ha/yr @ 430	Yes Whole Transect 15.5 kg N/ha/yr @ 0, 14.3 kg N/ha/yr @ 430	Yes Whole Transect 15.5 kg N/ha/yr @ 0, 14.3 kg N/ha/yr @ 430	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T16	10	16.0	14.0	Yes Whole Transect 21.8 kg N/ha/yr @ 0m, 16.5 kg N/ha/yr @ 300	Yes Whole Transect 19.7 kg N/ha/yr @ 0, 14.3 kg N/ha/yr @ 300	Yes Whole Transect 19.8 kg N/ha/yr @ 0, 14.3 kg N/ha/yr @ 300	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T17	10	16.0	14.0	Yes Whole Transect 21.9 kg N/ha/yr @ 0m, 16.5 kg N/ha/yr @ 310	Yes Whole Transect 19.8 kg N/ha/yr @ 0, 14.3 kg N/ha/yr @ 310	Yes Whole Transect 19.9 kg N/ha/yr @ 0, 14.3 kg N/ha/yr @ 310	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T18	10	16.0	14.0	Yes Whole Transect 20.8 kg N/ha/yr @ 0m, 16.5 kg N/ha/yr @ 550	Yes Whole Transect 18.6 kg N/ha/yr @ 0, 14.3 kg N/ha/yr @ 550	Yes Whole Transect 18.7 kg N/ha/yr @ 0, 14.3 kg N/ha/yr @ 550	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T19	10	16.0	14.0	Yes Whole Transect 20.0 kg N/ha/yr @ 0m, 16.5 kg N/ha/yr @ 700	Yes Whole Transect 18.5 kg N/ha/yr @ 0, 14.3 kg N/ha/yr @ 700	Yes Whole Transect 18.9 kg N/ha/yr @ 0, 14.3 kg N/ha/yr @ 700	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T20	10	16.0	14.0	Yes Whole Transect 17.8 kg N/ha/yr @ 0m, 16.6 kg N/ha/yr @ 80	Yes Whole Transect 16.2 kg N/ha/yr @ 0, 14.4 kg N/ha/yr @ 80	Yes Whole Transect 16.5 kg N/ha/yr @ 0, 14.5 kg N/ha/yr @ 80	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T21	10	16.0	14.0	Yes Whole Transect 20.6 kg N/ha/yr @ 0m, 16.7 kg N/ha/yr @ 80	Yes Whole Transect 20.8 kg N/ha/yr @ 0, 14.6 kg N/ha/yr @ 80	Yes Whole Transect 21.7 kg N/ha/yr @ 0, 14.7 kg N/ha/yr @ 80	Yes (50)	Yes	Yes	Yes

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T22	10	16.0	14.0	Yes Whole Transect 21.1 kg N/ha/yr @ 0m, 16.7 kg N/ha/yr @ 210	Yes Whole Transect 21.5 kg N/ha/yr @ 0, 14.6 kg N/ha/yr @ 210	Yes Whole Transect 22.6 kg N/ha/yr @ 0, 14.6 kg N/ha/yr @ 210	Yes (80)	Yes	Yes	Yes

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T23	10	16.0	14.0	Yes Whole Transect 21.7 kg N/ha/yr @ 0m, 16.6 kg N/ha/yr @ 210	Yes Whole Transect 21.4 kg N/ha/yr @ 0, 14.5 kg N/ha/yr @ 210	Yes Whole Transect 22.1 kg N/ha/yr @ 0, 14.5 kg N/ha/yr @ 210	Yes (30)	Yes	Yes	Yes

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T24	10	16.0	14.0	Yes Whole Transect 22.2 kg N/ha/yr @ 0m, 16.6 kg N/ha/yr @ 290	Yes Whole Transect 20.5 kg N/ha/yr @ 0, 14.4 kg N/ha/yr @ 290	Yes Whole Transect 20.8 kg N/ha/yr @ 0, 14.4 kg N/ha/yr @ 290	Yes (10)	No	Yes	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T25	10	16.0	14.0	Yes Whole Transect 21.3 kg N/ha/yr @ 0m, 16.6 kg N/ha/yr @ 150	Yes Whole Transect 20.5 kg N/ha/yr @ 0, 14.5 kg N/ha/yr @ 150	Yes Whole Transect 20.7 kg N/ha/yr @ 0, 14.5 kg N/ha/yr @ 150	Yes (10)	No	Yes	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T26	10	16.0	14.0	Yes Whole Transect 19.9 kg N/ha/yr @ 0m, 16.6 kg N/ha/yr @ 160	Yes Whole Transect 18.7 kg N/ha/yr @ 0, 14.4 kg N/ha/yr @ 160	Yes Whole Transect 18.8 kg N/ha/yr @ 0, 14.4 kg N/ha/yr @ 160	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T27	10	16.0	14.0	Yes Whole Transect 21.0 kg N/ha/yr @ 0m, 16.8 kg N/ha/yr @ 80	Yes Whole Transect 20.2 kg N/ha/yr @ 0, 14.7 kg N/ha/yr @ 80	Yes Whole Transect 20.3 kg N/ha/yr @ 0, 14.8 kg N/ha/yr @ 80	Yes (10)	No	Yes	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T28	10	16.0	14.0	Yes Whole Transect 19.7 kg N/ha/yr @ 0m, 16.5 kg N/ha/yr @ 110	Yes Whole Transect 18.5 kg N/ha/yr @ 0, 14.4 kg N/ha/yr @ 110	Yes Whole Transect 18.5 kg N/ha/yr @ 0, 14.4 kg N/ha/yr @ 110	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Greenham and Crookham Commons	T29	10	16.5	14.5	Yes Whole Transect 21.4 kg N/ha/yr @ 0m, 17.1 kg N/ha/yr @ 250	Yes Whole Transect 19.4 kg N/ha/yr @ 0, 14.8 kg N/ha/yr @ 250	Yes Whole Transect 18.7 kg N/ha/yr @ 0, 14.8 kg N/ha/yr @ 250	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Snelsmore Common	T30	10	16.5	14.4	Yes Whole Transect 19.0 kg N/ha/yr @ 0m, 17.2 kg N/ha/yr @ 440	Yes Whole Transect 16.1 kg N/ha/yr @ 0, 14.8 kg N/ha/yr @ 440	Yes Whole Transect 16.1 kg N/ha/yr @ 0, 14.8 kg N/ha/yr @ 440	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Snelsmore Common	T31	10	16.5	14.4	Yes Whole Transect 19.2 kg N/ha/yr @ 0m, 17.1 kg N/ha/yr @ 680	Yes Whole Transect 16.2 kg N/ha/yr @ 0, 14.7 kg N/ha/yr @ 680	Yes Whole Transect 16.2 kg N/ha/yr @ 0, 14.7 kg N/ha/yr @ 680	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Snelsmore Common	T32	10	16.5	14.4	Yes Whole Transect 19.0 kg N/ha/yr @ 0m, 17.1 kg N/ha/yr @ 1010	Yes Whole Transect 16.0 kg N/ha/yr @ 0, 14.7 kg N/ha/yr @ 1010	Yes Whole Transect 16.1 kg N/ha/yr @ 0, 14.7 kg N/ha/yr @ 1010	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Snelsmore Common	T33	10	16.5	14.4	Yes Whole Transect 20.1 kg N/ha/yr @ 0m, 17.2 kg N/ha/yr @ 690	Yes Whole Transect 16.8 kg N/ha/yr @ 0, 14.8 kg N/ha/yr @ 690	Yes Whole Transect 16.8 kg N/ha/yr @ 0, 14.8 kg N/ha/yr @ 690	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Snelsmore Common	T34	10	16.5	14.4	Yes Whole Transect 37.9 kg N/ha/yr @ 0m, 17.1 kg N/ha/yr @ 1160	Yes Whole Transect 32.1 kg N/ha/yr @ 0, 14.7 kg N/ha/yr @ 1160	Yes Whole Transect 32.1 kg N/ha/yr @ 0, 14.7 kg N/ha/yr @ 1160	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Snelsmore Common	T35	10	16.5	14.4	Yes Whole Transect 37.9 kg N/ha/yr @ 0m, 21.5 kg N/ha/yr @ 70	Yes Whole Transect 33.0 kg N/ha/yr @ 0, 17.7 kg N/ha/yr @ 70	Yes Whole Transect 33.0 kg N/ha/yr @ 0, 17.7 kg N/ha/yr @ 70	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Snelsmore Common	T36	10	16.5	14.4	Yes Whole Transect 23.0 kg N/ha/yr @ 0m, 36.6 kg N/ha/yr @ 70	Yes Whole Transect 18.9 kg N/ha/yr @ 0, 31.7 kg N/ha/yr @ 70	Yes Whole Transect 19.0 kg N/ha/yr @ 0, 31.7 kg N/ha/yr @ 70	No	No	No	No
Lardon Chase	T37	15	16.6	14.6	Yes Whole Transect 17.6 kg N/ha/yr @ 0m, 17.0 kg N/ha/yr @ 100	Yes 15.4 kg N/ha/yr @ 0, 14.9 kg N/ha/yr @ 30	Yes 15.4 kg N/ha/yr @ 0, 14.9 kg N/ha/yr @ 30	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Lardon Chase	T38	15	16.6	14.6	Yes Whole Transect 18.0 kg N/ha/yr @ 0m, 17.0 kg N/ha/yr @ 100	Yes 15.8 kg N/ha/yr @ 0, 14.9 kg N/ha/yr @ 30	Yes 15.8 kg N/ha/yr @ 0, 14.9 kg N/ha/yr @ 30	No	No	No	No
Lardon Chase	T39	15	16.6	14.6	Yes Whole Transect 18.2 kg N/ha/yr @ 0m, 17.1 kg N/ha/yr @ 320	Yes 16.0 kg N/ha/yr @ 0, 15.0 kg N/ha/yr @ 30	Yes 15.9 kg N/ha/yr @ 0, 15.0 kg N/ha/yr @ 30	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Lardon Chase	T40	15	16.6	14.6	Yes Whole Transect 17.2 kg N/ha/yr @ 0m, 17.0 kg N/ha/yr @ 380	No 14.9 kg N/ha/yr @ 0	No 14.9 kg N/ha/yr @ 0	No	No	No	No
Holies Down	T41	15	17.6	15.4	Yes Whole Transect 19.3 kg N/ha/yr @ 0m, 18.0 kg N/ha/yr @ 230	Yes Whole Transect 16.5 kg N/ha/yr @ 0, 15.6 kg N/ha/yr @ 230	Yes Whole Transect 16.5 kg N/ha/yr @ 0, 15.6 kg N/ha/yr @ 230	No	No	No	No

Site	Transect	Relevant LCLo (kg N/ha/yr)	2017 Background (µg/m³)	2037 (2030) Background µg/m³)	Exceedances of Lower CLo Value (distance to which exceedances occur, the modelled CLo at 0m within the site and next modelled CLo after the last exceedance are presented in brackets - kg/N/ha/yr)			Potential for changes >+1% of the CLe due to the Pre-Submission LP (distance to which these occur in brackets)		Potential for changes >+1% of the relevant CLo and exceedances of the Lower CLo value due to the Pre-Submission LP	
					2017 Baseline	2037 Ref	2037 With Pre-Sub. Local Plan (wLP)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)	'Alone' (wLP-Ref)	'In-comb.' (wLP-base)
Holies Down	T42	15	17.6	15.4	Yes Whole Transect 19.7 kg N/ha/yr @ 0m, 18.0 kg N/ha/yr @ 150	Yes Whole Transect 16.8 kg N/ha/yr @ 0, 15.6 kg N/ha/yr @ 150	Yes Whole Transect 16.8 kg N/ha/yr @ 0, 15.6 kg N/ha/yr @ 150	No	No	No	No

Appendix J

Selected Human and Public Health Modelling Results

Due to the large number of receptor points modelled for the human and public health assessments, just the vulnerable receptors have been included within this Appendix. An overview of the air quality and the changes because of the Pre-Submission Local Plan is outlined within the associated Section 8 Figure Books 1 to 30. Full data for the human and public health assessments is available on request.

Table J-1 – Key Modelled Human and Public Health NO_2 Results

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Care/Nursing Home, Wantage Road, Hungerford	14.6	Low	7.2	Low	7.3	Low	-7.3	-1.7	0.1	0.0	Negligible
Enborne C Of E School, Vanners Lane, Newbury	13.6	Low	7.1	Low	7.0	Low	-6.6	-1.5	-0.1	0.0	Negligible
Care/Nursing Home, Pound Street, Newbury	18.1	Low	9.9	Low	9.9	Low	-8.2	-1.9	0.0	0.0	Negligible
Newbury College, Monks Lane, Newbury	14.5	Low	8.2	Low	8.1	Low	-6.4	-1.5	-0.1	0.0	Negligible
Rainbows Childcare, Priory Road, Hungerford	10.4	Low	6.1	Low	6.1	Low	-4.3	-1.0	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Sandleford Farmhouse, Sandleford, Newbury	20.1	Low	9.4	Low	9.6	Low	-10.5	-2.4	0.2	0.0	Negligible
St Gabriels School, Newtown Road, Newbury	16.8	Low	8.4	Low	8.4	Low	-8.4	-1.9	0.0	0.0	Negligible
Dentist, London Road, Newbury	23.7	Medium	11.8	Low	11.8	Low	-11.9	-2.7	0.0	0.0	Negligible
Hospital/Hospice, Ermin Street, Hungerford	20.0	Low	8.7	Low	8.7	Low	-11.3	-2.6	0.0	0.0	Negligible
Springburn Childcare, Ermin Street, Hungerford	28.2	Medium	11.2	Low	11.4	Low	-16.8	-3.9	0.2	0.0	Negligible
Professional Medical Service, Oxford Street, Hungerford	12.5	Low	6.7	Low	6.7	Low	-5.8	-1.3	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Professional Medical Service, London Road, Newbury	23.7	Medium	11.8	Low	11.8	Low	-11.9	-2.7	0.0	0.0	Negligible
The Cloisters, Monks Lane, Newbury	14.9	Low	8.1	Low	8.0	Low	-6.9	-1.6	-0.1	0.0	Negligible
Care/Nursing Home, Maple Crescent, Newbury	19.8	Low	10.1	Low	10.1	Low	-9.7	-2.2	0.0	0.0	Negligible
Vici Language Academy, The Arcade, Newbury	19.7	Low	10.5	Low	10.6	Low	-9.1	-2.1	0.1	0.0	Negligible
Vici Language Academy, The Arcade, Newbury	20.7	Medium	10.8	Low	10.8	Low	-9.9	-2.3	0.0	0.0	Negligible
Care/Nursing Home, Monks Lane, Newbury	14.9	Low	8.1	Low	8.0	Low	-6.9	-1.6	-0.1	0.0	Negligible
Residential Education, Enborne Road, Newbury	17.9	Low	9.9	Low	9.8	Low	-8.1	-1.9	-0.1	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Newbury College, Monks Lane, Newbury	14.5	Low	8.2	Low	8.1	Low	-6.4	-1.5	-0.1	0.0	Negligible
Dentist, St Johns Road, Newbury	22.9	Medium	11.6	Low	11.6	Low	-11.3	-2.6	0.0	0.0	Negligible
General Practice Surgery/Clinic, Wendan Road, Newbury	16.6	Low	9.2	Low	9.2	Low	-7.4	-1.7	0.0	0.0	Negligible
Dentist, Park Street, Newbury	19.7	Low	10.6	Low	10.7	Low	-9.0	-2.1	0.1	0.0	Negligible
Dingleys Promise, Poplar Place, Newbury	18.9	Low	9.7	Low	9.7	Low	-9.2	-2.1	0.0	0.0	Negligible
The Winchcombe School, Maple Crescent, Newbury	23.9	Medium	11.3	Low	11.4	Low	-12.5	-2.9	0.1	0.0	Negligible
Speenhamland Cp School, Pelican Lane, Newbury	22.2	Medium	10.8	Low	10.8	Low	-11.4	-2.6	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Dentist, West Street, Newbury	21.8	Medium	11.3	Low	11.3	Low	-10.5	-2.4	0.0	0.0	Negligible
General Practice Surgery/Clinic, West Street, Newbury	20.4	Low	10.8	Low	10.8	Low	-9.6	-2.2	0.0	0.0	Negligible
Care/Nursing Home, Love Lane, Newbury	17.2	Low	8.7	Low	8.7	Low	-8.5	-2.0	0.0	0.0	Negligible
Care/Nursing Home, Wantage Road, Newbury	16.8	Low	8.4	Low	8.4	Low	-8.4	-1.9	0.0	0.0	Negligible
Dentist, Cheap Street, Newbury	33.2	High	13.0	Low	13.1	Low	-20.1	-4.6	0.1	0.0	Negligible
Dentist, Bartholomew Street, Newbury	26.3	Medium	12.5	Low	12.7	Low	-13.6	-3.1	0.2	0.0	Negligible
Dentist, Cheap Street, Newbury	28.2	Medium	13.0	Low	13.3	Low	-14.9	-3.4	0.3	0.1	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change (μg/m^3)	RR Change	Change (μg/m^3)	RR Change	IAQM Impact
Medical/Testing/Research Laboratory, Kings Road West, Newbury	25.2	Medium	12.5	Low	12.5	Low	-12.7	-2.9	0.0	0.0	Negligible
College, Enborne Road, Newbury	17.9	Low	9.9	Low	9.8	Low	-8.1	-1.9	-0.1	0.0	Negligible
Dentist, Essex Street, Newbury	16.4	Low	8.5	Low	8.3	Low	-8.1	-1.9	-0.2	0.0	Negligible
Health Care Services, St Johns Road, Newbury	25.6	Medium	12.3	Low	12.2	Low	-13.4	-3.1	-0.1	0.0	Negligible
Bridgeway Pupil Referral Unit, Newtown Road, Newbury	18.7	Low	10.0	Low	10.1	Low	-8.6	-2.0	0.1	0.0	Negligible
Dentist, St Johns Road, Newbury	24.0	Medium	11.8	Low	11.8	Low	-12.2	-2.8	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Health Centre, High Street, Hungerford	23.6	Medium	10.3	Low	10.4	Low	-13.2	-3.0	0.1	0.0	Negligible
John O'Gaunt School, Priory Road, Hungerford	10.6	Low	6.2	Low	6.2	Low	-4.4	-1.0	0.0	0.0	Negligible
Care/Nursing Home, Park Street, Hungerford	13.8	Low	7.4	Low	7.4	Low	-6.4	-1.5	0.0	0.0	Negligible
Care/Nursing Home, Park Street, Hungerford	14.5	Low	7.6	Low	7.6	Low	-6.9	-1.6	0.0	0.0	Negligible
Health Care Services, Newbury Street, Hungerford	13.6	Low	7.4	Low	7.4	Low	-6.2	-1.4	0.0	0.0	Negligible
Quackers Day Nursery, High Street, Newbury	19.1	Low	8.8	Low	8.8	Low	-10.3	-2.4	0.0	0.0	Negligible
Chieveley Cp School, School Road, Newbury	20.6	Medium	9.5	Low	9.5	Low	-11.1	-2.6	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Dentist, High Street, Hungerford	25.9	Medium	11.1	Low	11.1	Low	-14.8	-3.4	0.0	0.0	Negligible
Robert Sandilands Primary School & Nursery, Digby Road, Newbury	17.5	Low	9.1	Low	9.2	Low	-8.3	-1.9	0.1	0.0	Negligible
St Nicolas C Of E School, Link Road, Newbury	19.0	Low	10.4	Low	10.4	Low	-8.6	-2.0	0.0	0.0	Negligible
Pelican Nursery, Pelican Lane, Newbury	22.5	Medium	10.8	Low	10.9	Low	-11.6	-2.7	0.1	0.0	Negligible
Shaw-Cum-Donnington School, Love Lane, Newbury	18.4	Low	9.4	Low	9.5	Low	-8.9	-2.0	0.1	0.0	Negligible
Care/Nursing Home, High Street, Hungerford	11.7	Low	6.6	Low	6.6	Low	-5.1	-1.2	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Speenhamland Primary School, Pelican Lane, Newbury	22.2	Medium	10.8	Low	10.8	Low	-11.4	-2.6	0.0	0.0	Negligible
Newbury Gardens Day Nursery, Greenham Road, Newbury	30.8	High	14.4	Low	14.2	Low	-16.6	-3.8	-0.2	0.0	Negligible
West Side & Abacus Nursery School, Oxford Road, Newbury	17.0	Low	8.9	Low	8.9	Low	-8.1	-1.9	0.0	0.0	Negligible
Care/Nursing Home, Hutton Close, Newbury	32.0	High	14.0	Low	14.0	Low	-18.0	-4.1	0.0	0.0	Negligible
Trinity School & Performing Arts College, Love Lane, Newbury	18.9	Low	9.6	Low	9.7	Low	-9.2	-2.1	0.1	0.0	Negligible
Health Care Services, Monks Lane, Newbury	14.8	Low	8.0	Low	8.0	Low	-6.8	-1.6	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change (μg/m^3)	RR Change	Change (μg/m^3)	RR Change	IAQM Impact
Dentist, Market Place, Hungerford	19.0	Low	8.5	Low	8.6	Low	-10.4	-2.4	0.1	0.0	Negligible
Kintbury St Marys C Of E Primary School, Gainsborough Avenue, Hungerford	11.7	Low	6.6	Low	6.6	Low	-5.1	-1.2	0.0	0.0	Negligible
Professional Medical Service, Enborne Gate, Newbury	15.0	Low	8.4	Low	8.4	Low	-6.6	-1.5	0.0	0.0	Negligible
General Practice Surgery/Clinic, Strawberry Hill, Newbury	26.2	Medium	12.7	Low	12.8	Low	-13.4	-3.1	0.1	0.0	Negligible
Health Centre, Bath Road, Thatcham	33.6	High	12.9	Low	13.0	Low	-20.6	-4.7	0.1	0.0	Negligible
Dentist, Bath Road, Thatcham	38.2	High	14.0	Low	14.1	Low	-24.1	-5.5	0.1	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change (μg/m^3)	RR Change	Change (μg/m^3)	RR Change	IAQM Impact
Dentist, Bath Road, Thatcham	26.9	Medium	11.2	Low	11.3	Low	-15.6	-3.6	0.1	0.0	Negligible
Compton C Of E Primary School, School Road, Newbury	17.3	Low	9.6	Low	9.6	Low	-7.7	-1.8	0.0	0.0	Negligible
Dentist, Chapel Street, Thatcham	40.1	Very High	14.3	Low	14.5	Low	-25.6	-5.9	0.2	0.0	Negligible
Elysium Healthcare, Crookham Hill, Thatcham	14.6	Low	8.1	Low	8.3	Low	-6.3	-1.4	0.2	0.0	Negligible
Thatcham Bright Horizons, Church Gate, Thatcham	16.6	Low	8.8	Low	8.9	Low	-7.7	-1.8	0.1	0.0	Negligible
General Practice Surgery/Clinic, High Street, Newbury	19.2	Low	9.9	Low	9.9	Low	-9.3	-2.1	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Care/Nursing Home, Haysoms Drive, Thatcham	19.2	Low	10.0	Low	10.2	Low	-9.0	-2.1	0.2	0.0	Negligible
West Berkshire Community Hospital, Rookes Way, Thatcham	18.0	Low	9.4	Low	9.4	Low	-8.6	-2.0	0.0	0.0	Negligible
Other Educational Establishment, Urquhart Road, Thatcham	19.3	Low	9.7	Low	10.2	Low	-9.1	-2.1	0.5	0.1	Negligible
Care/Nursing Home, Chapel Street, Thatcham	24.9	Medium	10.6	Low	10.7	Low	-14.2	-3.3	0.1	0.0	Negligible
Special Needs Establishment , Gaywood Drive, Newbury	18.8	Low	10.0	Low	10.0	Low	-8.8	-2.0	0.0	0.0	Negligible
Pied Piper Pre School, Chapel Street, Thatcham	23.9	Medium	10.4	Low	10.5	Low	-13.4	-3.1	0.1	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Dentist, The Broadway, Thatcham	19.3	Low	9.4	Low	9.6	Low	-9.7	-2.2	0.2	0.0	Negligible
Downe House School, Hermitage Road, Thatcham	17.7	Low	8.7	Low	8.7	Low	-9.0	-2.1	0.0	0.0	Negligible
Cold Ash Pre-School, Hermitage Road, Thatcham	19.6	Low	9.4	Low	9.5	Low	-10.1	-2.3	0.1	0.0	Negligible
Care/Nursing Home, Ashmore Green Road, Thatcham	15.5	Low	8.2	Low	8.2	Low	-7.3	-1.7	0.0	0.0	Negligible
Professional Medical Service, Kiln Road, Newbury	23.7	Medium	11.5	Low	11.7	Low	-12.0	-2.8	0.2	0.0	Negligible
Downe House School, Hermitage Road, Thatcham	19.0	Low	9.1	Low	9.2	Low	-9.8	-2.3	0.1	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Downe House School, Hermitage Road, Thatcham	18.6	Low	9.0	Low	9.1	Low	-9.5	-2.2	0.1	0.0	Negligible
Professional Medical Service, Stoney Lane, Thatcham	18.5	Low	9.5	Low	9.5	Low	-9.0	-2.1	0.0	0.0	Negligible
Care/Nursing Home, London Road, Newbury	22.1	Medium	10.9	Low	11.3	Low	-10.8	-2.5	0.4	0.1	Negligible
Care/Nursing Home, Stanley Road, Newbury	19.6	Low	10.8	Low	10.8	Low	-8.8	-2.0	0.0	0.0	Negligible
Dentist, Stanley Road, Newbury	19.8	Low	10.9	Low	10.9	Low	-8.9	-2.0	0.0	0.0	Negligible
Dentist, Bath Road, Thatcham	25.3	Medium	10.6	Low	10.8	Low	-14.5	-3.3	0.2	0.0	Negligible
Children’S Nursery/Crèche, Station Road, Thatcham	17.2	Low	9.2	Low	9.3	Low	-7.9	-1.8	0.1	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Children'S Nursery/Crèche, Station Road, Thatcham	17.2	Low	9.2	Low	9.3	Low	-7.9	-1.8	0.1	0.0	Negligible
Care/Nursing Home, Charlotte Close, Thatcham	22.3	Medium	10.0	Low	10.0	Low	-12.3	-2.8	0.0	0.0	Negligible
Care/Nursing Home, Cold Ash Hill, Thatcham	16.9	Low	8.3	Low	8.4	Low	-8.5	-2.0	0.1	0.0	Negligible
Swings & Smiles, Lower Way, Thatcham	18.8	Low	9.6	Low	9.8	Low	-9.0	-2.1	0.2	0.0	Negligible
Parsons Down Junior School, Herons Way, Thatcham	19.5	Low	9.6	Low	9.8	Low	-9.7	-2.2	0.2	0.0	Negligible
Care/Nursing Home, Birchwood Road, Newbury	17.9	Low	9.7	Low	9.7	Low	-8.2	-1.9	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Medical/Testing/Research Laboratory, Worlds End, Newbury	20.6	Medium	9.3	Low	9.3	Low	-11.3	-2.6	0.0	0.0	Negligible
The Downs School, Newbury Hill, Newbury	14.6	Low	7.8	Low	7.8	Low	-6.8	-1.6	0.0	0.0	Negligible
Hermitage Primary School, Hampstead Norreys Road, Thatcham	21.8	Medium	9.5	Low	9.5	Low	-12.3	-2.8	0.0	0.0	Negligible
Fir Tree Cp School & Nursery, Fir Tree Lane, Newbury	18.5	Low	9.6	Low	9.7	Low	-8.8	-2.0	0.1	0.0	Negligible
General Practice Surgery/Clinic, Bath Road, Thatcham	33.6	High	12.9	Low	13.0	Low	-20.6	-4.7	0.1	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Professional Medical Service, Station Road, Thatcham	18.8	Low	9.7	Low	9.9	Low	-8.9	-2.0	0.2	0.0	Negligible
North Thatcham Childrens Centre, Park Lane, Thatcham	20.0	Low	9.8	Low	9.9	Low	-10.1	-2.3	0.1	0.0	Negligible
Whitelands Park Cp School, Sagecroft Road, Thatcham	17.3	Low	8.9	Low	8.9	Low	-8.4	-1.9	0.0	0.0	Negligible
Downe House School, Hermitage Road, Thatcham	16.8	Low	8.3	Low	8.3	Low	-8.5	-2.0	0.0	0.0	Negligible
Care/Nursing Home, Bath Road, Thatcham	20.2	Low	9.6	Low	9.7	Low	-10.5	-2.4	0.1	0.0	Negligible
St Finians School, The Ridge, Thatcham	14.7	Low	7.9	Low	8.0	Low	-6.7	-1.5	0.1	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Kennet Secondary School, Stoney Lane, Thatcham	16.8	Low	8.9	Low	8.9	Low	-7.9	-1.8	0.0	0.0	Negligible
St Josephs Rc Primary School, Newport Road, Newbury	21.9	Medium	11.2	Low	11.2	Low	-10.7	-2.5	0.0	0.0	Negligible
Residential Education, Old Street, Thatcham	22.1	Medium	9.7	Low	9.8	Low	-12.3	-2.8	0.1	0.0	Negligible
Residential Education, Old Street, Thatcham	22.1	Medium	9.7	Low	9.8	Low	-12.3	-2.8	0.1	0.0	Negligible
Residential Education, Old Street, Thatcham	22.1	Medium	9.7	Low	9.8	Low	-12.3	-2.8	0.1	0.0	Negligible
Care/Nursing Home, Hambridge Road, Newbury	23.9	Medium	11.9	Low	11.8	Low	-12.1	-2.8	-0.1	0.0	Negligible
Care/Nursing Home, Priors Court, Thatcham	35.4	High	13.9	Low	13.9	Low	-21.5	-4.9	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change (μg/m^3)	RR Change	Change (μg/m^3)	RR Change	IAQM Impact
Care/Nursing Home, Priors Court, Thatcham	35.3	High	13.8	Low	13.9	Low	-21.4	-4.9	0.1	0.0	Negligible
Care/Nursing Home, Priors Court, Thatcham	33.8	High	13.3	Low	13.3	Low	-20.5	-4.7	0.0	0.0	Negligible
Care/Nursing Home, Priors Court, Thatcham	33.8	High	13.3	Low	13.3	Low	-20.5	-4.7	0.0	0.0	Negligible
Care/Nursing Home, London Road, Thatcham	25.6	Medium	11.5	Low	11.7	Low	-13.9	-3.2	0.2	0.0	Negligible
Care/Nursing Home, Priors Court, Thatcham	35.4	High	13.8	Low	13.8	Low	-21.6	-5.0	0.0	0.0	Negligible
Care/Nursing Home, Priors Court, Thatcham	35.6	High	13.8	Low	13.9	Low	-21.7	-5.0	0.1	0.0	Negligible
Acres Of Fun Day Nursery, Priors Court Road, Thatcham	30.9	High	12.6	Low	12.7	Low	-18.2	-4.2	0.1	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Thatcham Park C Of E Primary School, Park Avenue, Thatcham	17.8	Low	9.1	Low	9.2	Low	-8.6	-2.0	0.1	0.0	Negligible
St Marks C Of E School, Cold Ash Hill, Thatcham	19.9	Low	9.2	Low	9.3	Low	-10.6	-2.4	0.1	0.0	Negligible
Pangbourne Primary School, Kennedy Drive, Reading	23.1	Medium	12.4	Low	12.4	Low	-10.7	-2.5	0.0	0.0	Negligible
Bradfield College, Common Hill, Reading	20.1	Low	9.6	Low	9.6	Low	-10.5	-2.4	0.0	0.0	Negligible
Pangbourne Primary School, Kennedy Drive, Reading	21.8	Medium	12.0	Low	12.0	Low	-9.8	-2.3	0.0	0.0	Negligible
Beenham Primary School, Back Lane, Reading	14.2	Low	8.0	Low	8.1	Low	-6.1	-1.4	0.1	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Professional Medical Service, Gardeners Lane, Reading	15.7	Low	8.3	Low	8.4	Low	-7.3	-1.7	0.1	0.0	Negligible
Aldermaston C Of E School, Wasing Lane, Reading	16.1	Low	9.0	Low	9.0	Low	-7.1	-1.6	0.0	0.0	Negligible
St Pauls Rc Primary School, City Road, Reading	18.4	Low	10.1	Low	10.1	Low	-8.3	-1.9	0.0	0.0	Negligible
Long Lane Primary School, Long Lane, Reading	17.3	Low	10.5	Low	10.5	Low	-6.8	-1.6	0.0	0.0	Negligible
St Johns School Infant School, West End Road, Reading	14.7	Low	8.9	Low	8.9	Low	-5.8	-1.3	0.0	0.0	Negligible
Health Centre, Whitchurch Road, Reading	25.0	Medium	13.6	Low	13.6	Low	-11.4	-2.6	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Health Care Services, The Avenue, Reading	14.8	Low	8.1	Low	8.1	Low	-6.7	-1.5	0.0	0.0	Negligible
Health Care Services, Victoria Road, Reading	14.7	Low	8.7	Low	8.7	Low	-6.0	-1.4	0.0	0.0	Negligible
St Marys School, The Street, Reading	18.9	Low	10.6	Low	10.6	Low	-8.3	-1.9	0.0	0.0	Negligible
Professional Medical Service, Reading Road, Reading	35.2	High	16.8	Low	17.0	Low	-18.2	-4.2	0.2	0.0	Negligible
Dentist, Church Street, Reading	22.2	Medium	12.0	Low	12.1	Low	-10.1	-2.3	0.1	0.0	Negligible
Theale C Of E Primary School, Englefield Road, Reading	16.7	Low	9.6	Low	9.7	Low	-7.0	-1.6	0.1	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Dentist, Reading Road, Reading	45.3	Very High	20.2	Low	20.4	Low	-24.9	-5.7	0.2	0.0	Negligible
Professional Medical Service, Beech Hill Road, Reading	13.8	Low	8.5	Low	8.5	Low	-5.3	-1.2	0.0	0.0	Negligible
Special Needs Establishment , Langley Hill, Reading	24.0	Medium	11.7	Low	11.8	Low	-12.2	-2.8	0.1	0.0	Negligible
Apricot Day Nursery, Pangbourne Road, Reading	15.9	Low	8.5	Low	8.5	Low	-7.4	-1.7	0.0	0.0	Negligible
St Peters Pre School, Southend Road, Reading	15.4	Low	8.4	Low	8.4	Low	-7.0	-1.6	0.0	0.0	Negligible
Playground, Hollybush Lane, Reading	16.8	Low	9.2	Low	9.3	Low	-7.5	-1.7	0.1	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Barn Owl Day Nursery, Oxford Road, Reading	17.8	Low	10.9	Low	11.0	Low	-6.8	-1.6	0.1	0.0	Negligible
Pangbourne Valley Playgroup, Kennedy Drive, Reading	23.1	Medium	12.4	Low	12.4	Low	-10.7	-2.5	0.0	0.0	Negligible
Health Care Services, Royal Avenue, Reading	20.6	Medium	10.7	Low	10.7	Low	-9.9	-2.3	0.0	0.0	Negligible
General Practice Surgery/Clinic, Ashampstead Road, Reading	23.4	Medium	11.4	Low	11.4	Low	-12.0	-2.8	0.0	0.0	Negligible
Bradfield College, Common Hill, Reading	20.1	Low	9.6	Low	9.6	Low	-10.5	-2.4	0.0	0.0	Negligible
Care/Nursing Home, Sulhamstead Road, Reading	15.6	Low	9.1	Low	9.1	Low	-6.5	-1.5	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change (μg/m^3)	RR Change	Change (μg/m^3)	RR Change	IAQM Impact
Higher Education, Daytona Drive, Thatcham	17.6	Low	9.8	Low	9.8	Low	-7.8	-1.8	0.0	0.0	Negligible
Bradfield College, Common Hill, Reading	25.3	Medium	12.3	Low	12.3	Low	-13.0	-3.0	0.0	0.0	Negligible
Health Care Services, Wheelers Green Way, Thatcham	18.2	Low	9.5	Low	9.7	Low	-8.5	-2.0	0.2	0.0	Negligible
Bradfield College, Common Hill, Reading	16.8	Low	8.7	Low	8.7	Low	-8.1	-1.9	0.0	0.0	Negligible
Bradfield College, Common Hill, Reading	18.3	Low	9.3	Low	9.3	Low	-9.0	-2.1	0.0	0.0	Negligible
Health Centre, Reading Road, Reading	40.8	Very High	17.2	Low	17.4	Low	-23.4	-5.4	0.2	0.0	Negligible
Dentist, Tarragon Way, Reading	27.2	Medium	12.6	Low	12.7	Low	-14.5	-3.3	0.1	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Yattendon C Of E Primary School, Yattendon Lane, Thatcham	21.0	Medium	9.4	Low	9.5	Low	-11.5	-2.6	0.1	0.0	Negligible
Hampstead Norreys Primary School, Newbury Hill, Thatcham	17.1	Low	8.1	Low	8.1	Low	-9.0	-2.1	0.0	0.0	Negligible
Health Care Services, Overdown Road, Reading	16.7	Low	10.5	Low	10.5	Low	-6.2	-1.4	0.0	0.0	Negligible
Burghfield St Marys C Of E Primary School, Theale Road, Reading	18.2	Low	9.7	Low	9.8	Low	-8.4	-1.9	0.1	0.0	Negligible
Dentist, Reading Road, Reading	30.5	High	15.3	Low	15.4	Low	-15.1	-3.5	0.1	0.0	Negligible
Dentist, High Street, Reading	48.7	Very High	21.4	Medium	21.6	Medium	-27.1	-6.2	0.2	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
College, Shooters Hill, Reading	26.7	Medium	13.1	Low	13.2	Low	-13.5	-3.1	0.1	0.0	Negligible
Pangbourne Day Nursery, Reading Road, Reading	30.5	High	15.3	Low	15.4	Low	-15.1	-3.5	0.1	0.0	Negligible
Former Theale Church Of England Primary School, Church Street, Reading	16.6	Low	9.9	Low	10.0	Low	-6.6	-1.5	0.1	0.0	Negligible
Children'S Nursery/Crèche, Church Street, Reading	18.0	Low	10.4	Low	10.4	Low	-7.6	-1.7	0.0	0.0	Negligible
Dentist, High Street, Reading	23.6	Medium	12.4	Low	12.4	Low	-11.2	-2.6	0.0	0.0	Negligible
Dentist, High Street, Reading	24.2	Medium	12.7	Low	12.8	Low	-11.4	-2.6	0.1	0.0	Negligible
Care/Nursing Home, Bath Road, Reading	24.8	Medium	10.8	Low	10.9	Low	-13.9	-3.2	0.1	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	NO_2 Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Health Centre, Englefield Road, Reading	17.9	Low	10.4	Low	10.4	Low	-7.5	-1.7	0.0	0.0	Negligible
Brimpton C E Primary School, Brimpton Lane, Reading	14.3	Low	8.3	Low	8.4	Low	-5.9	-1.4	0.1	0.0	Negligible
Care/Nursing Home, Reading Road, Reading	18.9	Low	9.9	Low	9.9	Low	-9.0	-2.1	0.0	0.0	Negligible
Willink School, School Lane, Reading	14.0	Low	8.5	Low	8.6	Low	-5.4	-1.2	0.1	0.0	Negligible
Dentist, West End Road, Reading	17.3	Low	10.0	Low	10.1	Low	-7.2	-1.7	0.1	0.0	Negligible
Residential Education, Mill Lane, Reading	20.3	Low	10.2	Low	10.2	Low	-10.1	-2.3	0.0	0.0	Negligible
Care/Nursing Home, The Green, Reading	16.7	Low	9.8	Low	9.8	Low	-6.9	-1.6	0.0	0.0	Negligible

Vulnerable Receptor Location	**2017 Baseline**		**2037 Baseline**		**2037 with Pre-Submission Local Plan**		**2037 with Pre-Submission Local Plan - 2017 Baseline**		**2037 with Pre-Submission Local Plan - 2037 Baseline**		
	NO_2 Conc.	**PHE Risk Band**	**NO_2 Conc.**	**PHE Risk Band**	**NO_2 Conc.**	**PHE Risk Band**	**Change ($\mu g/m^3$)**	**RR Change**	**Change ($\mu g/m^3$)**	**RR Change**	**IAQM Impact**
Care/Nursing Home, Broad Lane, Reading	16.8	Low	9.2	Low	9.4	Low	-7.4	-1.7	0.2	0.0	Negligible
Francis Baily Primary School, Skillman Drive, Thatcham	22.7	Medium	10.2	Low	10.2	Low	-12.5	-2.9	0.0	0.0	Negligible
The Cedars School, Church Road, Reading	21.9	Medium	12.1	Low	12.3	Low	-9.6	-2.2	0.2	0.0	Negligible

Table J-2 – Key Modelled Human and Public Health $PM_{2.5}$ Results

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Care/Nursing Home, Wantage Road, Hungerford	9.4	Low	8.2	Low	8.2	Low	-1.2	-0.9	0.0	0.0	Negligible
Enborne C Of E School, Vanners Lane, Newbury	9.0	Low	7.9	Low	7.9	Low	-1.1	-0.8	0.0	0.0	Negligible
Care/Nursing Home, Pound Street, Newbury	10.4	Low	9.6	Low	9.6	Low	-0.8	-0.6	0.0	0.0	Negligible
Newbury College, Monks Lane, Newbury	9.8	Low	8.9	Low	8.9	Low	-0.9	-0.7	0.0	0.0	Negligible
Rainbows Childcare, Priory Road, Hungerford	9.0	Low	8.0	Low	8.0	Low	-1.0	-0.8	0.0	0.0	Negligible
Sandleford Farmhouse, Sandleford, Newbury	10.3	Low	9.5	Low	9.4	Low	-0.9	-0.7	-0.1	-0.1	Negligible
St Gabriels School, Newtown Road, Newbury	9.8	Low	8.9	Low	8.8	Low	-1.0	-0.8	-0.1	-0.1	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Dentist, London Road, Newbury	10.7	Low	9.8	Low	9.8	Low	-0.9	-0.7	0.0	0.0	Negligible
Hospital/Hospice, Ermin Street, Hungerford	10.2	Low	8.9	Low	8.9	Low	-1.3	-1.0	0.0	0.0	Negligible
Springburn Childcare, Ermin Street, Hungerford	10.7	Low	9.6	Low	9.6	Low	-1.1	-0.8	0.0	0.0	Negligible
Professional Medical Service, Oxford Street, Hungerford	9.2	Low	8.0	Low	8.0	Low	-1.2	-0.9	0.0	0.0	Negligible
Professional Medical Service, London Road, Newbury	10.7	Low	9.8	Low	9.8	Low	-0.9	-0.7	0.0	0.0	Negligible
The Cloisters, Monks Lane, Newbury	9.7	Low	8.8	Low	8.8	Low	-0.9	-0.7	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change (μg/m^3)	RR Change	Change (μg/m^3)	RR Change	IAQM Impact
Care/Nursing Home, Maple Crescent, Newbury	10.5	Low	9.7	Low	9.7	Low	-0.8	-0.6	0.0	0.0	Negligible
Vici Language Academy, The Arcade, Newbury	10.4	Low	9.5	Low	9.6	Low	-0.8	-0.6	0.1	0.1	Negligible
Vici Language Academy, The Arcade, Newbury	10.5	Low	9.6	Low	9.6	Low	-0.9	-0.7	0.0	0.0	Negligible
Care/Nursing Home, Monks Lane, Newbury	9.7	Low	8.8	Low	8.8	Low	-0.9	-0.7	0.0	0.0	Negligible
Residential Education, Enborne Road, Newbury	10.3	Low	9.6	Low	9.6	Low	-0.7	-0.5	0.0	0.0	Negligible
Newbury College, Monks Lane, Newbury	9.8	Low	8.9	Low	8.9	Low	-0.9	-0.7	0.0	0.0	Negligible
Dentist, St Johns Road, Newbury	10.9	Low	10.1	Low	10.1	Low	-0.8	-0.6	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
General Practice Surgery/Clinic, Wendan Road, Newbury	10.2	Low	9.4	Low	9.4	Low	-0.8	-0.6	0.0	0.0	Negligible
Dentist, Park Street, Newbury	10.3	Low	9.5	Low	9.5	Low	-0.8	-0.6	0.0	0.0	Negligible
Dingleys Promise, Poplar Place, Newbury	10.4	Low	9.5	Low	9.5	Low	-0.9	-0.7	0.0	0.0	Negligible
The Winchcombe School, Maple Crescent, Newbury	10.9	Low	10.0	Low	10.0	Low	-0.9	-0.7	0.0	0.0	Negligible
Speenhamland Cp School, Pelican Lane, Newbury	10.5	Low	9.6	Low	9.6	Low	-0.9	-0.7	0.0	0.0	Negligible
Dentist, West Street, Newbury	10.5	Low	9.6	Low	9.6	Low	-0.9	-0.7	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
General Practice Surgery/Clinic, West Street, Newbury	10.4	Low	9.5	Low	9.5	Low	-0.9	-0.7	0.0	0.0	Negligible
Care/Nursing Home, Love Lane, Newbury	10.0	Low	8.9	Low	9.0	Low	-1.0	-0.8	0.1	0.1	Negligible
Care/Nursing Home, Wantage Road, Newbury	9.8	Low	8.7	Low	8.7	Low	-1.1	-0.8	0.0	0.0	Negligible
Dentist, Cheap Street, Newbury	11.7	Low	10.3	Low	10.3	Low	-1.4	-1.1	0.0	0.0	Negligible
Dentist, Bartholomew Street, Newbury	11.0	Low	10.2	Low	10.2	Low	-0.8	-0.6	0.0	0.0	Negligible
Dentist, Cheap Street, Newbury	11.2	Low	10.3	Low	10.3	Low	-0.9	-0.7	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Medical/Testing/Research Laboratory, Kings Road West, Newbury	11.0	Low	10.2	Low	10.2	Low	-0.8	-0.6	0.0	0.0	Negligible
College, Enborne Road, Newbury	10.3	Low	9.6	Low	9.6	Low	-0.7	-0.5	0.0	0.0	Negligible
Dentist, Essex Street, Newbury	9.8	Low	8.9	Low	8.9	Low	-0.9	-0.7	0.0	0.0	Negligible
Health Care Services, St Johns Road, Newbury	11.2	Low	10.4	Low	10.4	Low	-0.8	-0.6	0.0	0.0	Negligible
Bridgeway Pupil Referral Unit, Newtown Road, Newbury	10.5	Low	9.7	Low	9.7	Low	-0.8	-0.6	0.0	0.0	Negligible
Dentist, St Johns Road, Newbury	11.0	Low	10.2	Low	10.2	Low	-0.8	-0.6	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Health Centre, High Street, Hungerford	9.9	Low	8.8	Low	8.8	Low	-1.1	-0.8	0.0	0.0	Negligible
John O'Gaunt School, Priory Road, Hungerford	9.1	Low	8.0	Low	8.0	Low	-1.1	-0.8	0.0	0.0	Negligible
Care/Nursing Home, Park Street, Hungerford	9.2	Low	8.1	Low	8.1	Low	-1.1	-0.8	0.0	0.0	Negligible
Care/Nursing Home, Park Street, Hungerford	9.2	Low	8.1	Low	8.1	Low	-1.1	-0.8	0.0	0.0	Negligible
Health Care Services, Newbury Street, Hungerford	9.1	Low	8.1	Low	8.1	Low	-1.0	-0.8	0.0	0.0	Negligible
Quackers Day Nursery, High Street, Newbury	10.1	Low	9.0	Low	9.0	Low	-1.1	-0.8	0.0	0.0	Negligible
Chieveley Cp School, School Road, Newbury	10.3	Low	9.3	Low	9.3	Low	-1.0	-0.8	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Dentist, High Street, Hungerford	10.3	Low	9.2	Low	9.2	Low	-1.1	-0.8	0.0	0.0	Negligible
Robert Sandilands Primary School & Nursery, Digby Road, Newbury	9.9	Low	9.0	Low	9.0	Low	-0.9	-0.7	0.0	0.0	Negligible
St Nicolas C Of E School, Link Road, Newbury	10.5	Low	9.7	Low	9.7	Low	-0.8	-0.6	0.0	0.0	Negligible
Pelican Nursery, Pelican Lane, Newbury	10.6	Low	9.6	Low	9.6	Low	-1.0	-0.8	0.0	0.0	Negligible
Shaw-Cum-Donnington School, Love Lane, Newbury	10.2	Low	9.3	Low	9.3	Low	-0.9	-0.7	0.0	0.0	Negligible
Care/Nursing Home, High Street, Hungerford	8.9	Low	7.9	Low	7.9	Low	-1.0	-0.8	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Speenhamland Primary School, Pelican Lane, Newbury	10.5	Low	9.6	Low	9.6	Low	-0.9	-0.7	0.0	0.0	Negligible
Newbury Gardens Day Nursery, Greenham Road, Newbury	11.5	Low	10.7	Low	10.6	Low	-0.9	-0.7	-0.1	-0.1	Negligible
West Side & Abacus Nursery School, Oxford Road, Newbury	9.9	Low	8.9	Low	8.9	Low	-1.0	-0.8	0.0	0.0	Negligible
Care/Nursing Home, Hutton Close, Newbury	11.9	Low	11.0	Low	11.0	Low	-0.9	-0.7	0.0	0.0	Negligible
Trinity School & Performing Arts College, Love Lane, Newbury	10.5	Low	9.6	Low	9.6	Low	-0.9	-0.7	0.0	0.0	Negligible
Health Care Services, Monks Lane, Newbury	9.7	Low	8.8	Low	8.8	Low	-0.9	-0.7	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Dentist, Market Place, Hungerford	9.6	Low	8.4	Low	8.4	Low	-1.2	-0.9	0.0	0.0	Negligible
Kintbury St Marys C Of E Primary School, Gainsborough Avenue, Hungerford	9.0	Low	7.9	Low	7.9	Low	-1.1	-0.8	0.0	0.0	Negligible
Professional Medical Service, Enborne Gate, Newbury	9.7	Low	8.9	Low	8.9	Low	-0.8	-0.6	0.0	0.0	Negligible
General Practice Surgery/Clinic, Strawberry Hill, Newbury	10.8	Low	10.0	Low	10.0	Low	-0.8	-0.6	0.0	0.0	Negligible
Health Centre, Bath Road, Thatcham	12.0	Low	10.8	Low	10.8	Low	-1.2	-0.9	0.0	0.0	Negligible
Dentist, Bath Road, Thatcham	12.2	Low	10.9	Low	11.0	Low	-1.2	-0.9	0.1	0.1	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Dentist, Bath Road, Thatcham	11.5	Low	10.4	Low	10.4	Low	-1.1	-0.8	0.0	0.0	Negligible
Compton C Of E Primary School, School Road, Newbury	9.8	Low	8.8	Low	8.9	Low	-0.9	-0.7	0.1	0.1	Negligible
Dentist, Chapel Street, Thatcham	12.3	Low	10.9	Low	11.0	Low	-1.3	-1.0	0.1	0.1	Negligible
Elysium Healthcare, Crookham Hill, Thatcham	9.4	Low	8.4	Low	8.5	Low	-0.9	-0.7	0.1	0.1	Negligible
Thatcham Bright Horizons, Church Gate, Thatcham	10.4	Low	9.5	Low	9.5	Low	-0.9	-0.7	0.0	0.0	Negligible
General Practice Surgery/Clinic, High Street, Newbury	9.9	Low	9.0	Low	9.0	Low	-0.9	-0.7	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Care/Nursing Home, Haysoms Drive, Thatcham	10.1	Low	9.3	Low	9.4	Low	-0.7	-0.5	0.1	0.1	Negligible
West Berkshire Community Hospital, Rookes Way, Thatcham	10.2	Low	9.1	Low	9.1	Low	-1.1	-0.8	0.0	0.0	Negligible
Other Educational Establishment, Urquhart Road, Thatcham	10.4	Low	9.5	Low	9.7	Low	-0.7	-0.5	0.2	0.2	Negligible
Care/Nursing Home, Chapel Street, Thatcham	11.1	Low	10.0	Low	10.0	Low	-1.1	-0.8	0.0	0.0	Negligible
Special Needs Establishment , Gaywood Drive, Newbury	10.3	Low	9.3	Low	9.3	Low	-1.0	-0.8	0.0	0.0	Negligible
Pied Piper Pre School, Chapel Street, Thatcham	11.0	Low	9.9	Low	10.0	Low	-1.0	-0.8	0.1	0.1	Negligible

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	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Dentist, The Broadway, Thatcham	10.6	Low	9.7	Low	9.7	Low	-0.9	-0.7	0.0	0.0	Negligible
Downe House School, Hermitage Road, Thatcham	9.6	Low	8.5	Low	8.5	Low	-1.1	-0.8	0.0	0.0	Negligible
Cold Ash Pre-School, Hermitage Road, Thatcham	9.9	Low	8.8	Low	8.8	Low	-1.1	-0.8	0.0	0.0	Negligible
Care/Nursing Home, Ashmore Green Road, Thatcham	9.8	Low	8.7	Low	8.7	Low	-1.1	-0.8	0.0	0.0	Negligible
Professional Medical Service, Kiln Road, Newbury	10.7	Low	9.6	Low	9.7	Low	-1.0	-0.8	0.1	0.1	Negligible
Downe House School, Hermitage Road, Thatcham	9.7	Low	8.6	Low	8.6	Low	-1.1	-0.8	0.0	0.0	Negligible

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	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Downe House School, Hermitage Road, Thatcham	9.7	Low	8.5	Low	8.5	Low	-1.2	-0.9	0.0	0.0	Negligible
Professional Medical Service, Stoney Lane, Thatcham	10.1	Low	9.1	Low	9.1	Low	-1.0	-0.8	0.0	0.0	Negligible
Care/Nursing Home, London Road, Newbury	10.7	Low	9.6	Low	9.7	Low	-1.0	-0.8	0.1	0.1	Negligible
Care/Nursing Home, Stanley Road, Newbury	10.5	Low	9.6	Low	9.6	Low	-0.9	-0.7	0.0	0.0	Negligible
Dentist, Stanley Road, Newbury	10.5	Low	9.6	Low	9.6	Low	-0.9	-0.7	0.0	0.0	Negligible
Dentist, Bath Road, Thatcham	11.2	Low	10.1	Low	10.2	Low	-1.0	-0.8	0.1	0.1	Negligible
Children’S Nursery/Crèche, Station Road, Thatcham	10.3	Low	9.3	Low	9.3	Low	-1.0	-0.8	0.0	0.0	Negligible

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	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Children’S Nursery/Crèche, Station Road, Thatcham	10.3	Low	9.3	Low	9.3	Low	-1.0	-0.8	0.0	0.0	Negligible
Care/Nursing Home, Charlotte Close, Thatcham	10.1	Low	9.0	Low	9.0	Low	-1.1	-0.8	0.0	0.0	Negligible
Care/Nursing Home, Cold Ash Hill, Thatcham	9.7	Low	8.6	Low	8.6	Low	-1.1	-0.8	0.0	0.0	Negligible
Swings & Smiles, Lower Way, Thatcham	10.6	Low	9.7	Low	9.8	Low	-0.8	-0.6	0.1	0.1	Negligible
Parsons Down Junior School, Herons Way, Thatcham	10.4	Low	9.5	Low	9.6	Low	-0.8	-0.6	0.1	0.1	Negligible
Care/Nursing Home, Birchwood Road, Newbury	10.2	Low	9.2	Low	9.2	Low	-1.0	-0.8	0.0	0.0	Negligible

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	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Medical/Testing/Research Laboratory, Worlds End, Newbury	10.9	Low	9.6	Low	9.5	Low	-1.4	-1.1	-0.1	-0.1	Negligible
The Downs School, Newbury Hill, Newbury	9.6	Low	8.4	Low	8.4	Low	-1.2	-0.9	0.0	0.0	Negligible
Hermitage Primary School, Hampstead Norreys Road, Thatcham	10.1	Low	9.0	Low	9.0	Low	-1.1	-0.8	0.0	0.0	Negligible
Fir Tree Cp School & Nursery, Fir Tree Lane, Newbury	10.3	Low	9.2	Low	9.2	Low	-1.1	-0.8	0.0	0.0	Negligible
General Practice Surgery/Clinic, Bath Road, Thatcham	12.0	Low	10.8	Low	10.8	Low	-1.2	-0.9	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Professional Medical Service, Station Road, Thatcham	10.4	Low	9.5	Low	9.5	Low	-0.9	-0.7	0.0	0.0	Negligible
North Thatcham Childrens Centre, Park Lane, Thatcham	10.8	Low	9.9	Low	9.9	Low	-0.9	-0.7	0.0	0.0	Negligible
Whitelands Park Cp School, Sagecroft Road, Thatcham	10.4	Low	9.5	Low	9.5	Low	-0.9	-0.7	0.0	0.0	Negligible
Downe House School, Hermitage Road, Thatcham	9.5	Low	8.3	Low	8.4	Low	-1.1	-0.8	0.1	0.1	Negligible
Care/Nursing Home, Bath Road, Thatcham	10.8	Low	9.9	Low	9.9	Low	-0.9	-0.7	0.0	0.0	Negligible
St Finians School, The Ridge, Thatcham	9.6	Low	8.5	Low	8.5	Low	-1.1	-0.8	0.0	0.0	Negligible

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Kennet Secondary School, Stoney Lane, Thatcham	10.4	Low	9.4	Low	9.4	Low	-1.0	-0.8	0.0	0.0	Negligible
St Josephs Rc Primary School, Newport Road, Newbury	10.7	Low	9.7	Low	9.7	Low	-1.0	-0.8	0.0	0.0	Negligible
Residential Education, Old Street, Thatcham	10.2	Low	9.1	Low	9.1	Low	-1.1	-0.8	0.0	0.0	Negligible
Residential Education, Old Street, Thatcham	10.2	Low	9.1	Low	9.1	Low	-1.1	-0.8	0.0	0.0	Negligible
Residential Education, Old Street, Thatcham	10.2	Low	9.1	Low	9.1	Low	-1.1	-0.8	0.0	0.0	Negligible
Care/Nursing Home, Hambridge Road, Newbury	10.9	Low	9.8	Low	9.8	Low	-1.1	-0.8	0.0	0.0	Negligible
Care/Nursing Home, Priors Court, Thatcham	12.0	Low	10.7	Low	10.8	Low	-1.2	-0.9	0.1	0.1	Negligible

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	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Care/Nursing Home, Priors Court, Thatcham	12.0	Low	10.7	Low	10.7	Low	-1.3	-1.0	0.0	0.0	Negligible
Care/Nursing Home, Priors Court, Thatcham	11.9	Low	10.6	Low	10.6	Low	-1.3	-1.0	0.0	0.0	Negligible
Care/Nursing Home, Priors Court, Thatcham	11.9	Low	10.6	Low	10.6	Low	-1.3	-1.0	0.0	0.0	Negligible
Care/Nursing Home, London Road, Thatcham	10.9	Low	9.8	Low	9.9	Low	-1.0	-0.8	0.1	0.1	Negligible
Care/Nursing Home, Priors Court, Thatcham	12.0	Low	10.7	Low	10.7	Low	-1.3	-1.0	0.0	0.0	Negligible
Care/Nursing Home, Priors Court, Thatcham	12.0	Low	10.7	Low	10.7	Low	-1.3	-1.0	0.0	0.0	Negligible
Acres Of Fun Day Nursery, Priors Court Road, Thatcham	11.1	Low	10.0	Low	10.0	Low	-1.1	-0.8	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Thatcham Park C Of E Primary School, Park Avenue, Thatcham	10.5	Low	9.6	Low	9.6	Low	-0.9	-0.7	0.0	0.0	Negligible
St Marks C Of E School, Cold Ash Hill, Thatcham	10.0	Low	8.8	Low	8.8	Low	-1.2	-0.9	0.0	0.0	Negligible
Pangbourne Primary School, Kennedy Drive, Reading	10.3	Low	9.2	Low	9.2	Low	-1.1	-0.8	0.0	0.0	Negligible
Bradfield College, Common Hill, Reading	10.0	Low	8.7	Low	8.7	Low	-1.3	-1.0	0.0	0.0	Negligible
Pangbourne Primary School, Kennedy Drive, Reading	10.2	Low	9.1	Low	9.1	Low	-1.1	-0.8	0.0	0.0	Negligible
Beenham Primary School, Back Lane, Reading	9.5	Low	8.4	Low	8.5	Low	-1.0	-0.8	0.1	0.1	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Professional Medical Service, Gardeners Lane, Reading	9.7	Low	8.5	Low	8.5	Low	-1.2	-0.9	0.0	0.0	Negligible
Aldermaston C Of E School, Wasing Lane, Reading	9.8	Low	8.8	Low	8.8	Low	-1.0	-0.8	0.0	0.0	Negligible
St Pauls Rc Primary School, City Road, Reading	10.6	Low	9.8	Low	9.8	Low	-0.8	-0.6	0.0	0.0	Negligible
Long Lane Primary School, Long Lane, Reading	10.2	Low	9.2	Low	9.2	Low	-1.0	-0.8	0.0	0.0	Negligible
St Johns School Infant School, West End Road, Reading	9.9	Low	9.0	Low	9.0	Low	-0.9	-0.7	0.0	0.0	Negligible
Health Centre, Whitchurch Road, Reading	10.4	Low	9.4	Low	9.4	Low	-1.0	-0.8	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Health Care Services, The Avenue, Reading	9.4	Low	8.3	Low	8.4	Low	-1.0	-0.8	0.1	0.1	Negligible
Health Care Services, Victoria Road, Reading	9.7	Low	8.8	Low	8.8	Low	-0.9	-0.7	0.0	0.0	Negligible
St Marys School, The Street, Reading	10.0	Low	9.1	Low	9.1	Low	-0.9	-0.7	0.0	0.0	Negligible
Professional Medical Service, Reading Road, Reading	11.3	Low	10.1	Low	10.2	Low	-1.1	-0.8	0.1	0.1	Negligible
Dentist, Church Street, Reading	11.0	Low	10.0	Low	10.0	Low	-1.0	-0.8	0.0	0.0	Negligible
Theale C Of E Primary School, Englefield Road, Reading	10.2	Low	9.2	Low	9.2	Low	-1.0	-0.8	0.0	0.0	Negligible

Vulnerable Receptor Location	2017 Baseline		2037 Baseline		2037 with Pre-Submission Local Plan		2037 with Pre-Submission Local Plan - 2017 Baseline		2037 with Pre-Submission Local Plan - 2037 Baseline		
	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Dentist, Reading Road, Reading	12.0	Low	10.7	Low	10.8	Low	-1.2	-0.9	0.1	0.1	Negligible
Professional Medical Service, Beech Hill Road, Reading	9.6	Low	8.7	Low	8.7	Low	-0.9	-0.7	0.0	0.0	Negligible
Special Needs Establishment , Langley Hill, Reading	11.2	Low	10.3	Low	10.3	Low	-0.9	-0.7	0.0	0.0	Negligible
Apricot Day Nursery, Pangbourne Road, Reading	9.7	Low	8.6	Low	8.6	Low	-1.1	-0.8	0.0	0.0	Negligible
St Peters Pre School, Southend Road, Reading	9.6	Low	8.5	Low	8.5	Low	-1.1	-0.8	0.0	0.0	Negligible
Playground, Hollybush Lane, Reading	9.8	Low	8.9	Low	8.9	Low	-0.9	-0.7	0.0	0.0	Negligible

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	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change (µg/m^3)	RR Change	Change (µg/m^3)	RR Change	IAQM Impact
Barn Owl Day Nursery, Oxford Road, Reading	10.3	Low	9.3	Low	9.3	Low	-1.0	-0.8	0.0	0.0	Negligible
Pangbourne Valley Playgroup, Kennedy Drive, Reading	10.3	Low	9.2	Low	9.2	Low	-1.1	-0.8	0.0	0.0	Negligible
Health Care Services, Royal Avenue, Reading	10.9	Low	10.0	Low	10.0	Low	-0.9	-0.7	0.0	0.0	Negligible
General Practice Surgery/Clinic, Ashampstead Road, Reading	10.5	Low	9.5	Low	9.5	Low	-1.0	-0.8	0.0	0.0	Negligible
Bradfield College, Common Hill, Reading	10.0	Low	8.7	Low	8.7	Low	-1.3	-1.0	0.0	0.0	Negligible
Care/Nursing Home, Sulhamstead Road, Reading	10.0	Low	8.9	Low	8.9	Low	-1.1	-0.8	0.0	0.0	Negligible

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	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Higher Education, Daytona Drive, Thatcham	9.9	Low	8.8	Low	8.8	Low	-1.1	-0.8	0.0	0.0	Negligible
Bradfield College, Common Hill, Reading	10.5	Low	9.5	Low	9.5	Low	-1.0	-0.8	0.0	0.0	Negligible
Health Care Services, Wheelers Green Way, Thatcham	10.4	Low	9.4	Low	9.5	Low	-0.9	-0.7	0.1	0.1	Negligible
Bradfield College, Common Hill, Reading	9.9	Low	8.7	Low	8.7	Low	-1.2	-0.9	0.0	0.0	Negligible
Bradfield College, Common Hill, Reading	9.9	Low	8.7	Low	8.7	Low	-1.2	-0.9	0.0	0.0	Negligible
Health Centre, Reading Road, Reading	11.9	Low	10.7	Low	10.8	Low	-1.1	-0.8	0.1	0.1	Negligible
Dentist, Tarragon Way, Reading	10.8	Low	9.7	Low	9.8	Low	-1.0	-0.8	0.1	0.1	Negligible

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	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Yattendon C Of E Primary School, Yattendon Lane, Thatcham	9.8	Low	8.6	Low	8.6	Low	-1.2	-0.9	0.0	0.0	Negligible
Hampstead Norreys Primary School, Newbury Hill, Thatcham	9.7	Low	8.5	Low	8.5	Low	-1.2	-0.9	0.0	0.0	Negligible
Health Care Services, Overdown Road, Reading	10.6	Low	9.8	Low	9.8	Low	-0.8	-0.6	0.0	0.0	Negligible
Burghfield St Marys C Of E Primary School, Theale Road, Reading	10.2	Low	9.1	Low	9.1	Low	-1.1	-0.8	0.0	0.0	Negligible
Dentist, Reading Road, Reading	10.9	Low	9.8	Low	9.8	Low	-1.1	-0.8	0.0	0.0	Negligible
Dentist, High Street, Reading	12.2	Low	10.9	Low	11.0	Low	-1.2	-0.9	0.1	0.1	Negligible

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	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
College, Shooters Hill, Reading	10.6	Low	9.3	Low	9.4	Low	-1.2	-0.9	0.1	0.1	Negligible
Pangbourne Day Nursery, Reading Road, Reading	10.9	Low	9.8	Low	9.8	Low	-1.1	-0.8	0.0	0.0	Negligible
Former Theale Church Of England Primary School, Church Street, Reading	10.3	Low	9.3	Low	9.3	Low	-1.0	-0.8	0.0	0.0	Negligible
Children'S Nursery/Crèche, Church Street, Reading	10.4	Low	9.4	Low	9.4	Low	-1.0	-0.8	0.0	0.0	Negligible
Dentist, High Street, Reading	11.3	Low	10.2	Low	10.2	Low	-1.1	-0.8	0.0	0.0	Negligible
Dentist, High Street, Reading	11.3	Low	10.3	Low	10.3	Low	-1.0	-0.8	0.0	0.0	Negligible
Care/Nursing Home, Bath Road, Reading	11.0	Low	9.7	Low	9.7	Low	-1.3	-1.0	0.0	0.0	Negligible

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	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	$PM_{2.5}$ Conc.	PHE Risk Band	Change ($\mu g/m^3$)	RR Change	Change ($\mu g/m^3$)	RR Change	IAQM Impact
Health Centre, Englefield Road, Reading	10.5	Low	9.5	Low	9.5	Low	-1.0	-0.8	0.0	0.0	Negligible
Brimpton C E Primary School, Brimpton Lane, Reading	9.5	Low	8.5	Low	8.5	Low	-1.0	-0.8	0.0	0.0	Negligible
Care/Nursing Home, Reading Road, Reading	10.3	Low	9.2	Low	9.2	Low	-1.1	-0.8	0.0	0.0	Negligible
Willink School, School Lane, Reading	9.6	Low	8.7	Low	8.7	Low	-0.9	-0.7	0.0	0.0	Negligible
Dentist, West End Road, Reading	10.1	Low	9.3	Low	9.3	Low	-0.8	-0.6	0.0	0.0	Negligible
Residential Education, Mill Lane, Reading	10.5	Low	9.3	Low	9.3	Low	-1.2	-0.9	0.0	0.0	Negligible
Care/Nursing Home, The Green, Reading	10.1	Low	9.0	Low	9.0	Low	-1.1	-0.8	0.0	0.0	Negligible

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Care/Nursing Home, Broad Lane, Reading	9.7	Low	8.7	Low	8.8	Low	-0.9	-0.7	0.1	0.1	Negligible
Francis Baily Primary School, Skillman Drive, Thatcham	11.0	Low	9.9	Low	9.9	Low	-1.1	-0.8	0.0	0.0	Negligible
The Cedars School, Church Road, Reading	10.3	Low	9.5	Low	9.5	Low	-0.8	-0.6	0.0	0.0	Negligible

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