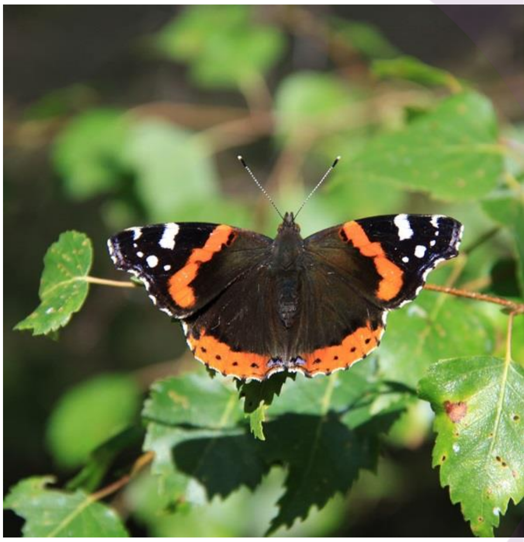
Mid Sussex District Council

Air quality modelling to inform the Site Allocations Development Plan Document

Ashdown Forest - Scenario 4 Results

Air Quality Assessment



Wood Environment & Infrastructure Solutions UK Limited – September 2019

Report for

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Document revisions

No.	Details	Date
1	Draft report	31/05/2019
2	Draft Report for Footprint Ecology	05/06/2019
3	Final report	24/06/2019
4	Final report v2	03/09/2019

Executive summary

Purpose of this report

This report has been produced for the purpose of informing a Habitats Regulations Assessment for Scenario 4 site allocations for the Mid Sussex District Council Site Allocations Development Plan Document to determine potential significant impact to sensitive species and habitats within Ashdown Forest.

ADMS-Roads dispersion model has been used to model the dispersion of pollutants from traffic emissions at ecological receptors by defining a series of transects up to 200 m from the roadside throughout Ashdown Forest. Concentrations of NO_X and NH_3 were predicted without and with traffic flows associated with the Mid Sussex District Council (MSDC) site allocations, including consideration of in-combination traffic flows from adjoining local authorities' development plans.

It should be noted that a conservative approach has been adopted throughout, including the assumption that background concentrations will not improve in future years, as well as the use of the strictest appropriate critical loads and levels.

The main findings of the assessment include:

- Transect T12, located on the A26, consistently had the highest predicted concentrations and deposition values;
- Predicted annual mean concentrations of oxides of nitrogen (NO_X) exceed the 30 μgm^{-3} AQO up to 5 m from the roadside on the busiest roads, including A22, A26 and A275;
- Daily mean NO_X concentrations are not predicted to exceed the 200 μgm^{-3} AQO at any modelled transect;
- Annual mean concentrations of ammonia (NH_3) are predicted to exceed the critical level at a number of modelled transects across Ashdown Forest up to 25 m from the roadside, with concentrations dropping below the critical level further away; and
- Traffic associated with MSDC site allocations are predicted to cause a change of greater than 1% of the critical load for nitrogen and acid deposition up to between 5 – 10 m of the roadside at Transect T12 indicating that an impact on sensitive species and habitats might occur. All other modelled transects were within this threshold.

Overall, it is concluded that the potential for significant impact to air quality posing a risk to sensitive species at Ashdown Forest has been identified and, in line with IAQM Position Statement, assessment by a qualified ecologist is required.

wood.

Contents

1. Introduction

Wood Environment and Infrastructure Solutions Ltd. ('Wood') has undertaken an air quality assessment on behalf of Mid Sussex District Council (MSDC) to inform the preparation of the MSDC Site Allocations Development Plan Document (DPD). This report will be used to inform a Habitats Regulations Assessment (HRA) undertaken by Footprint Ecology to determine the potential risk to species and habitats at designated protected wildlife sites.

Site allocations for the MSDC Site Allocations DPD have been agreed at 876 dwellings per annum (dpa) up to 2023/ 2024, and 1090 dpa to 2031 thereafter subject to further Habitats Regulations Assessment work.

Transport modelling was carried out for eight different site allocation scenarios in total. However, only Scenarios 4, 7 and 8 were brought forward as potential site allocation options to be considered in terms of impact to air quality at Ashdown Forest. The Scenarios modelled for air quality are as follows:

- Scenario 4 comprised 32 sites, plus a large site at Haywards Heath Golf Course (33 sites in total).
- Scenario 7 comprised 26 constant sites, plus a large site at Haywards Heath Golf Course (27 sites in total).
- Scenario 8 comprised 26 constant sites, plus four sites at Folders Lane, Burgess Hill (30 sites in total).

More detailed information on the three MSDC site allocation scenarios modelled (Scenarios 4, 7 and 8) are provided in the Transport Assessment[1].

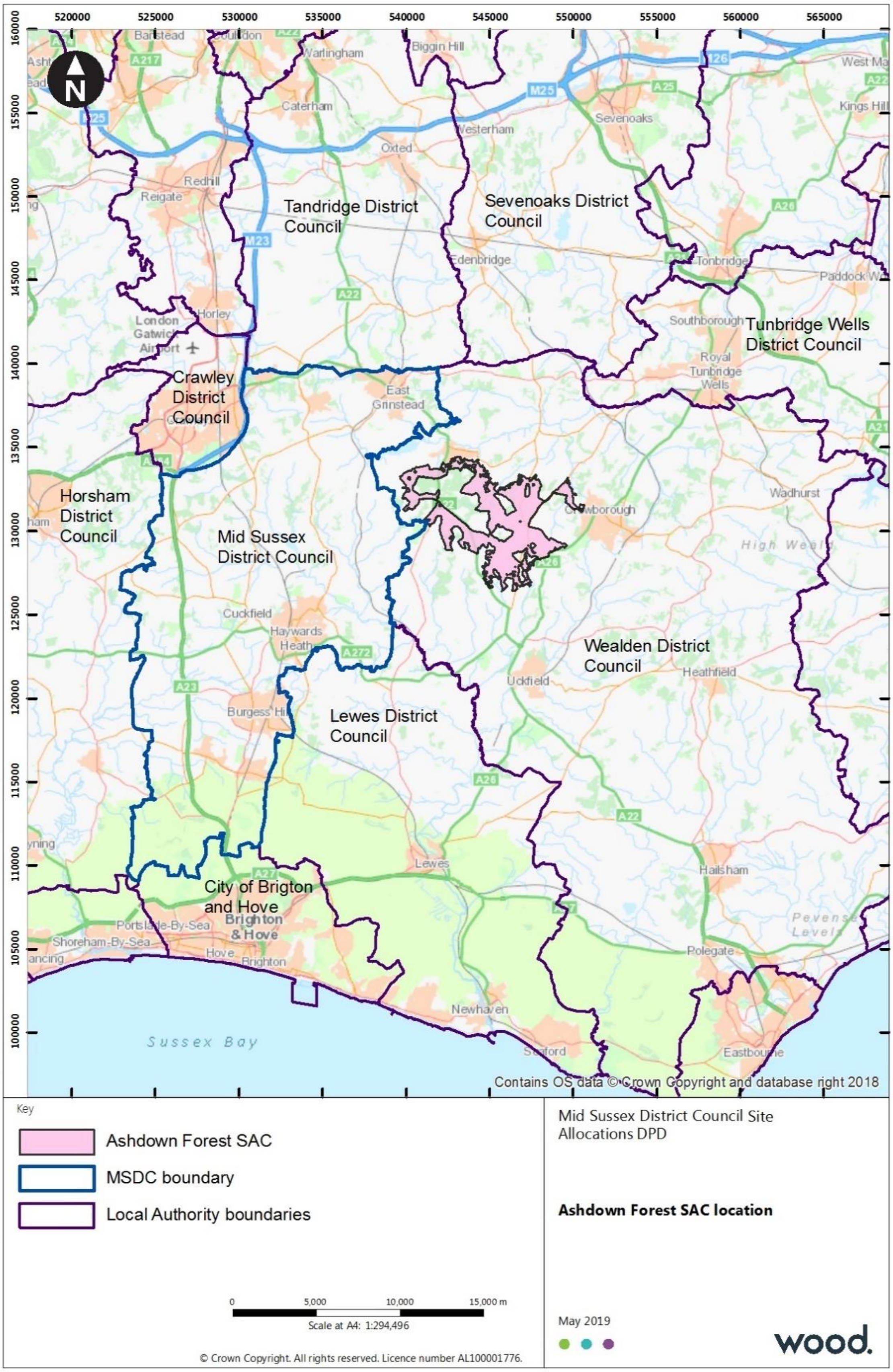
In this report, the Scenario 4 site allocations have been considered in terms of the impact to air quality at Ashdown Forest Special Area of Conservation (SAC), Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI). Additionally, consideration has been made of the potential in-combination impact of the MSDC local plan and other local plans for neighbouring councils. Scenarios 7 and 8 have been assessed in a separate report[2].

Figure 1.1 shows the location of Ashdown Forest in relation to the MSDC boundary and the surrounding local authorities.

[1] Systra (2019) Mid Sussex Transport Study.

[2] Wood (2019) Air quality modelling to inform Mid Sussex District Council Site Allocations Development Plan Document – Scenarios 7 and 8 Results.

Figure 1.1 Ashdown Forest location



2. Relevant legislation, policies and guidance

2.1 Legislation and policy

National Planning Policy Framework (NPPF)

The NPPF[3] outlines the Government's planning policies for England and how these should be applied when developing a locally prepared plan for housing. It is determined that planning policies should:

"sustain compliance with and contribute towards EU limits values or national objectives for pollutants…".

Paragraph 177 relates to the impact of development on sensitive ecological sites and states:

"The presumption in favour of sustainable development does not apply where the plan or project is likely to have significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site."

Conservation of Habitats and Species Regulations

The Conservation of Species and Habitats Regulations[4] came into force in November 2017, consolidating the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations provide the designation for European sites and place responsibility on the UK government to ensure conservation of such sites. The Regulations require appropriate assessment of potentially damaging operations, which includes residential development, to show that there will be no adverse effect on the integrity of the site before planning consent will be granted.

Air Quality Standards Regulations

The legislative framework for air quality consists of legally enforceable EU Limit Values that are transposed into UK legislation as Air Quality Standards (AQS) that must be at least as challenging as the EU Limit Values set by the European directive on air quality (2008/50/EC). These are concentrations recorded over a given time period, which are considered to be acceptable in terms of what is scientifically known about the effects of each pollutant on health and on the environment. Action in the UK is then driven by the UK's Air Quality Strategy[5] that sets the Air Quality Objectives (AQOs), which are the policy objectives.

AQOs relating to concentrations of oxides of nitrogen (NO_X), above which there is an increased risk of damage to ecological receptors, which can include growth effects, physiological effects and biochemical effects, would be considered to assess impacts upon the Ashdown Forest SAC.

[3] Department for Communities and Local Government (2019) National Planning Policy Framework
[4] Conservation of Species and Habitats Regulations (2017) Available from: https://www.legislation.gov.uk/uksi/2017/1012/part/1/made?view=plain
[5] Defra in partnership with the Scottish Executive, Welsh Assembly Government and Department of the Environment Northern Ireland (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland.

2.2 Guidance

H1 Assessment Guidance

The Environment Agency's Horizontal Guidance Note H1[6] provides methods for quantifying the environmental impacts of emissions to all media. It should be noted that this methodology was withdrawn in February 2016 however is still widely used alongside other resources. The H1 Assessment Guidance was replaced by the Environment Agency's Air Emission Risk Assessment for your Environmental Permit[7], which contains long and short-term Environmental Assessment Levels (EALs) and Environmental Quality Standards (EQS) for releases to air derived from a number of published UK and international sources. These EALs and EQS will be used as "standards" for the evaluation of the pollutants considered in this study.

Design Manual for Roads and Bridges (DMRB)

The DMRB guidance[8] states that internationally designated biodiversity sites (SPAs, SACs and Ramsar sites) and SSSIs within 200 m of an affected route or corridor, where there is expected to be an increase >1000 daily vehicle movements, need to be considered within an assessment. Beyond 200 m from the roadside, atmospheric concentrations are likely to be at background concentrations due to sufficient dispersion of traffic emissions. It should be noted that critical loads are not statutory standards which are to be achieved but are an indicator of when harmful effects can occur for different habitat types.

In addition to the objectives for human health, a national objective relating to the protection of vegetation and ecosystems is prescribed for NO_X. This is not a threshold in the sense that damage to vegetation is likely to occur when this concentration is exceeded but that, above this concentration, there is an increased risk of damage.

Wealden District Council High Court Judgement[9]

This case concerned the importance of taking into consideration the in-combination and cumulative effect of proposed developments when assessing the air quality impacts on ecologically sensitive areas, specifically European designated sites. Prior to the high court judgement, the DMRB threshold of an increase in road traffic flow of more than 1,000 AADT was used to scope out air quality assessments. This case concerned the cumulative impact of Local Plans produced by multiple councils impacting Ashdown Forest SAC. The Joint Core Strategy (JCS) prepared by Lewes District Council and South Downs National Park Authority, scoped out an air quality assessment as the AADT increase for the JCS was below 1,000. However, the Judge decided that, whilst the DMRB threshold was relevant to determine potential air quality impacts, the land allocations included in the JCS would impact the Ashdown Forest SAC and, when considered in combination with the allocations in the Wealden District Council (WDC) Core Strategy, the threshold would be breached.

This case set a precedent whereby the cumulative impact of proposed developments should be assessed when there is the possibility of affecting ecologically sensitive sites, which has been demonstrated through subsequent court cases whereby planning permission has not been granted or allowed by appeal. Consequently, in March 2017, a judge quashed Policies SP1 and SP2 in the JCS due to the potential for increased nitrogen deposition adversely impacting Ashdown Forest SAC. This reduced the number of proposed residences in the JCS by 1,177 homes[10].

[6] Environment Agency (2011) Horizontal Guidance Note H1.
[7] https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit
[8] Highways England (2007) Design manual for Roads and Bridges (Volume 11, Section 3).
[9] The Planning Inspectorate (2015) Appeal decision
[10] http://www.bailii.org/ew/cases/EWHC/Admin/2017/351.html

As a consequence of this decision, it is important that Local Authorities thoroughly consider the cumulative effects upon air quality of traffic associated with multiple developments. This is an on-going situation, so there are currently no guidelines as to the spatial extent of the air quality assessment.

Institute of Air Quality Management (IAQM) position statement

IAQM published a statement[11] in 2016 about the use of the 1% criterion[12] in Habitats Regulations Assessments to determine in which circumstances air quality impacts are too small and have insignificant effects on the integrity of a designated site. Above the 1% criterion should be an indication that there may be potential for a significant effect, but this will require evaluation by a qualified ecologist and dependent on the circumstance of the habitat.

A guide to the assessment of air quality impacts on designated nature conservation sites

IAQM released a guidance document[13] in June 2019 with the aim of providing some clarity on carrying out air quality assessments on impacts to designated sites. This guidance discusses the policy and legal background underpinning proposed methodology, including the impact of the Wealden Judgement. It outlines the way in which air quality consultants and ecologists should work together, highlighting the responsibilities of each when carrying out Habitats Regulations Assessments.

Whilst the new IAQM guidance is acknowledged as best practice, methodology for this air quality assessment was agreed prior to the release of the IAQM guidance. Therefore, a separate addendum to the report will be provided addressing any changes to methodology should it be considered necessary.

[11] IAQM (2016) Use of Criterion for the Determination of an Insignificant Effect of Air Quality Impacts on Sensitive Habitats, January 2016.
[12] Environment Agency (2011) H1 Annex F – Air emissions.
[13] IAQM (2019) A guide to the assessment of air quality impacts on designated nature conservation sites.

3. Scope of the assessment

3.1 Sensitive species in Ashdown Forest

Ashdown Forest has been given the European designation of a SPA and SAC, as well as the UK designation of SSSI. Ashdown Forest is adjacent to Mid Sussex District, located between East Grinstead and Crowborough, so is likely to be impacted by emissions from vehicles travelling to or from Mid Sussex District. Habitats and species of interest at Ashdown Forest include[14]:

- Northern Atlantic Wet Heaths and *Erica Tetralix* (Cross-leaved heath);
- European dry heaths;
- *Triturus cristatus* (Great Crested Newt);
- *Caprimulgus europaeus* (European nightjar) (due to impact to breeding habitat); and
- *Sylvia undata* (Dartford warbler) (due to impact to breeding habitat).

Modelled transects

The focus of this air quality assessment is the potential impact of road traffic emissions on the Ashdown Forest SAC. As guidance states that ecological receptors may be affected by traffic emissions up to a distance of 200 m from the road, a series of virtual transects have been used to model concentrations across this area. Transect locations were selected through consultation with Footprint Ecology, who used a habitat map (Figure 3.1) to create the map included in Figure 3.2 categorising road segments by the area of Annex I habitats, defined by the Habitats Directive as habitats of European interest[15]. Any roads with Annex I area of greater than 100 m^2 per 1 m of road was selected for a transect. This approach was discussed and agreed with Natural England. Additionally, advice from Natural England to Footprint Ecology stated that the main roads of concern were the A22 and A26. Receptor points were included at 0 m, 2 m, 5 m, 10 m, 25 m, 50 m, 100 m, 150 m and 200 m from the roadside. It should be noted that transect points were modelled to the SAC boundary only, which in some cases did not extend to 200 m from the roadside, for example Transect T2 where the SAC boundary is 180 m from the roadside. Transect points were modelled at ground level.

3.2 In-combination assessment

In line with the outcome of the Wealden Judgement, the in-combination impact to air quality at Ashdown Forest has been considered. Traffic data provided by Systra and used in this assessment include flows from adjoining councils' development policies, details of which can be provided by Systra.

[14] http://www.apis.ac.uk/
[15] European Commission DG Environment (2013) Interpretation Manual of European Union Habitats.

Figure 3.1 Habitats map for Ashdown Forest (provided by Footprint Ecology, 2019)

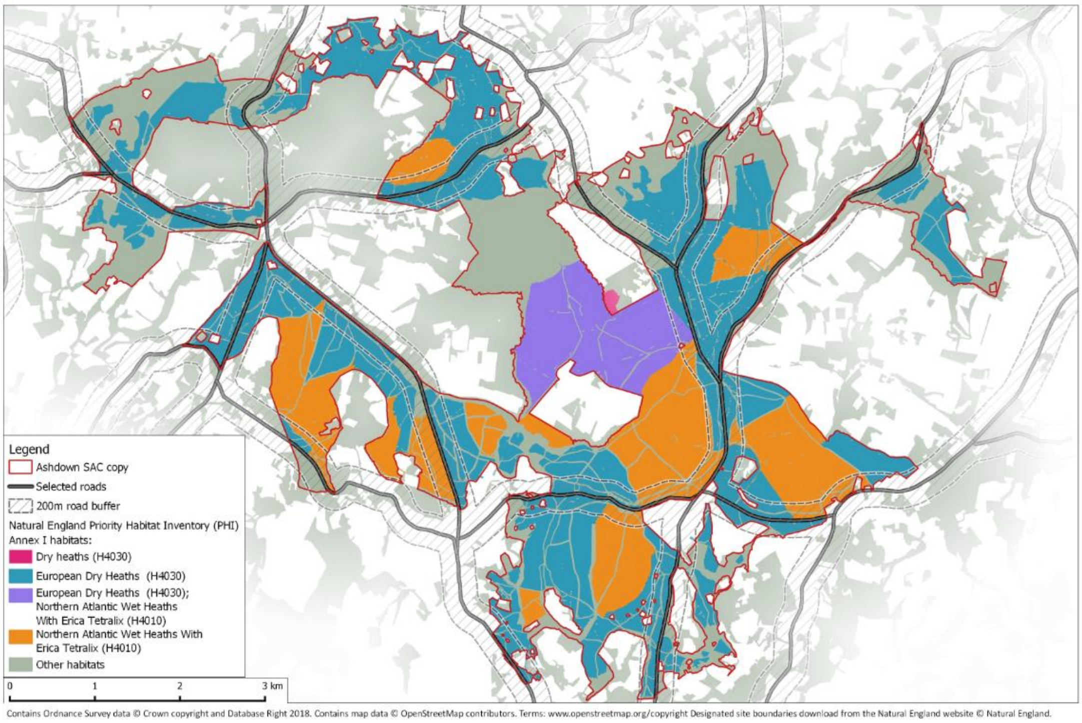
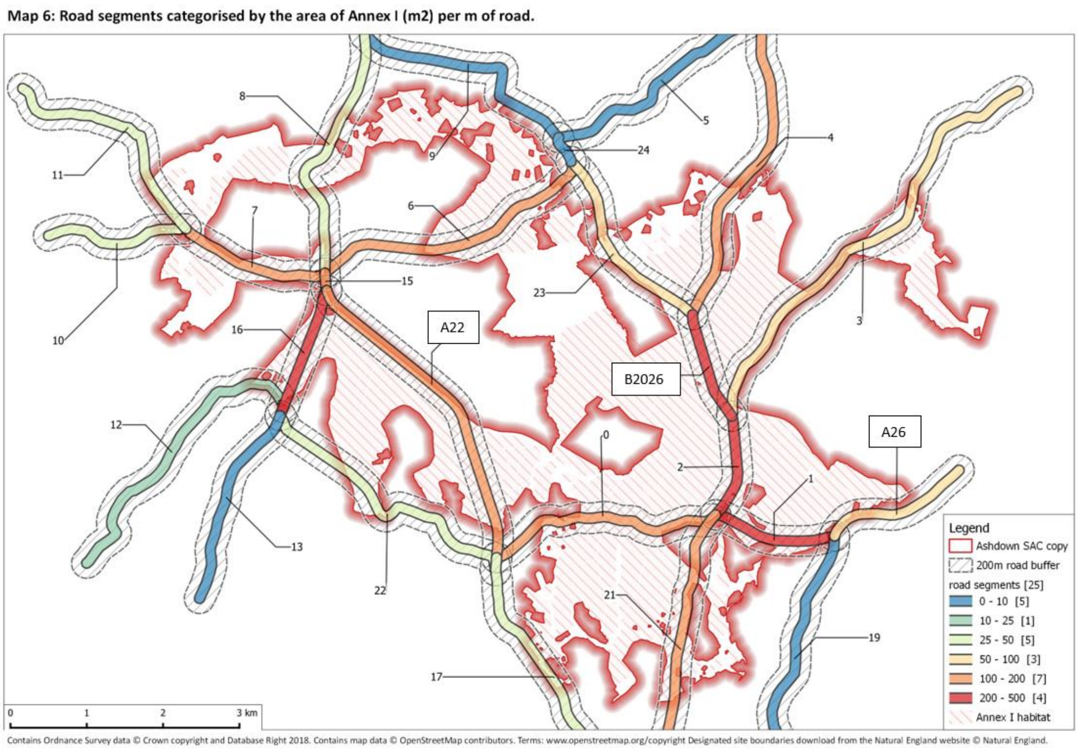
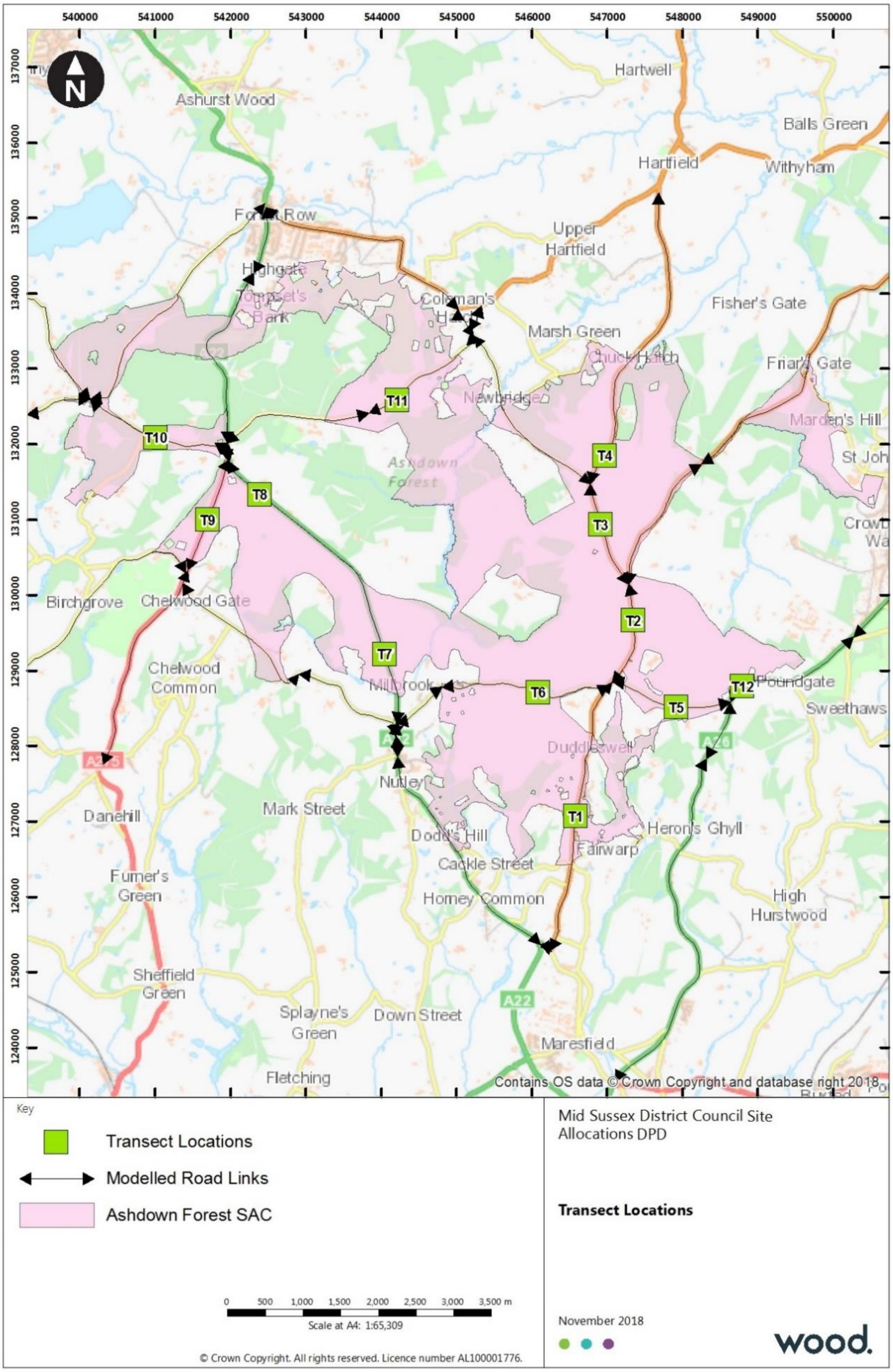


Figure 3.2 Map provided by Footprint Ecology showing roads with the greatest area of Annex 1 species within 200 m (Footprint Ecology, 2018)



Transect locations are shown on Figure 3.3, and additional details of modelled transect points are provided in Appendix B.

Figure 3.3 Transect locations



4. Assessment methodology

4.1 Assessment criteria

Table 4.1 shows the air quality standards, objectives, environmental assessment levels, targets, critical loads and levels relevant to this assessment.

Table 4.1 Summary of relevant assessment criteria

Pollutant	AQS/EAL/Target	Objective (UK)	Averaging Period
NO_X	AQS	30 μgm^{-3}	Annual Mean
	AQS	200 μgm^{-3}	Daily Mean
	EAL*	75 μgm^{-3}	Daily Mean
NH_3	Target	1 μgm^{-3} where lichens or bryophytes (including mosses, landworts and hornwarts) are present, where not present 3 μgm^{-3}	Annual Mean
Nutrient Nitrogen deposition	Target	10 – 20 kg N/ ha/ yr for European dry heaths as present in Ashdown Forest	Annual Mean
Acidity deposition	Target	MinCLminN:0.499 – MaxCLminN:0.714 for European dry heaths as present in Ashdown Forest	Annual mean

Notes: * WHO report[16] states that where SO_2 and O_3 are not present at their respective limits, a 200 μgm^{-3} daily mean would be more appropriate.

In addition to NO_X concentrations and nitrogen deposition, ammonia (NH_3) has been calculated. This is not included in the DMRB assessment methodology for road-traffic emissions requiring assessment, but, due to recent developments in the Wealden judgement[17] and research that has shown relatively low concentrations of ammonia are harmful to vegetation, it has been modelled in this assessment for completeness. Modelled concentrations of ammonia have been assessed against 1 μgm^{-3} (if lichens or bryophytes, including mosses, landworts and hornworts, are present) or 3 μgm^{-3} (otherwise).

The Air Pollution Information Service (APIS) database[18] is a comprehensive source of information on air pollution and the effects on specific habitats and species. It provides background deposition data and critical loads and levels for deposition assessments. Unlike for the AQS and EAL values, critical loads differ depending on species sensitivity. Critical loads and background concentrations have been obtained from the APIS database under consultation with the ecologists for the project, Footprint Ecology.

In addition, this assessment will determine increments (difference between Do Minimum and Do Something scenarios) of acid and nitrogen deposition. In Environment Agency permitting, an increment of less than 1% of the site-specific critical load is considered to be inconsequential. This indicative threshold has been used to define a negligible impact and insignificant effect.

[16] World Health Organisation (WHO) regional Office for Europe (2000) Air Quality Guidelines – Second edition (Chapter 11).
[17] The South Downs National Park Authority (2018) Ashdown Forest Statement of Common Ground.
[18] http://www.apis.ac.uk/srcl

4.2 Dispersion modelling methodology

The dispersion model

ADMS-Roads (v4.1) had been used to predict annual mean and daily mean concentrations of NO_X at modelled receptor locations within Ashdown Forest. Full details of the ADMS-Roads model used are provided in Appendix C.

Annual mean concentrations of nitrogen dioxide (NO_2) were derived from the model-predicted NO_X concentrations, through application of the NO_X to NO_2 conversion tool version 7.1 developed for LAQM purposes[19].

The modelling assessment requires source, emissions, meteorological and other site-specific data. For modelling traffic impacts, one year of hourly sequential meteorological data is used and model verification is carried out following Defra guidance[20].

Model Scenarios

The modelled scenarios include:

- Model verification – using 2015 background concentrations, emissions factors, monitoring data from a 2014 to 2016 diffusion tube campaign, and traffic flows from 2017 (which is the year in which the traffic counts were carried out and the baseline traffic model is validated for);
- 2017 Baseline – using 2017 background concentrations, emissions factors and traffic flows;
- Scenario A - 2031 Projected Baseline – using 2017 background concentrations and traffic flows, with 2030 emission factors;
- Scenario B – Do Minimum - 2031 Baseline + in-combination – using 2017 background concentrations, 2030 emission factors and predicted traffic flows; and
- Scenario C – Do Something - 2031 Baseline + in-combination + MSDC impact – using 2017 background concentrations, 2030 emissions factors and predicted traffic flows.

It should be noted that Scenario A is included for reference only as it represents an impossible scenario whereby there is no traffic growth between 2017 and 2031 but is included to demonstrate the impact of improving emission factors in the future.

Meteorology

Detailed dispersion modelling requires hourly sequential meteorological data from a representative synoptic observing station. Hourly sequential meteorological data was obtained for the year 2017 for Gatwick Airport, which is considered to provide representative data for the area of interest.

Figure 4.1 summarises the hourly wind speed and direction for the meteorological data used in this assessment.

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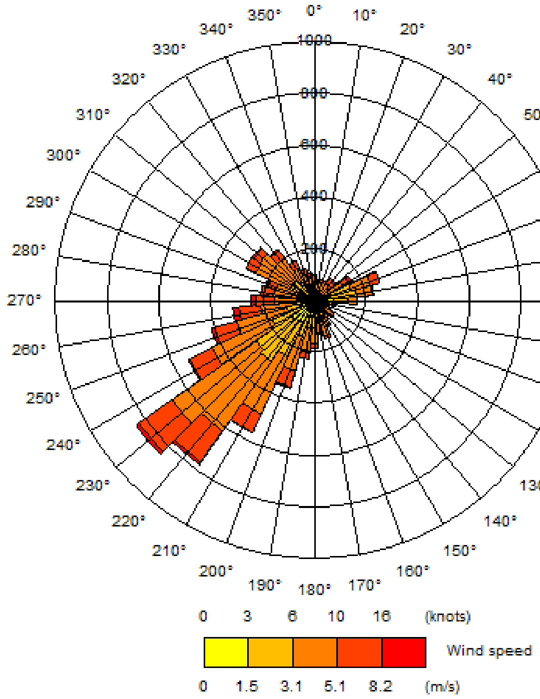
19 AEA Technology (2019). *NO_x to NO_2 Calculator version 7.1.* http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html#NOxNO2calc

20 Defra (2016) Local Air Quality Management Technical Guidance (LAQM.TG(16)).

Figure 4.1 Windrose for Gatwick Airport (2017)



Surface roughness

Surface roughness is determined based on land use within the assessment area and at the appropriate weather station. For this assessment, a surface roughness of 0.5 m was selected for the assessment area and a surface roughness of 0.2 m was used for Gatwick Airport Weather Station[21].

Traffic data

Systra developed the Mid Sussex Strategic Highway Model (MSSHM) in line with Department for Transport WebTAG guidelines. The 2017 Base Year Highway Model has been validated in line with the Department for Transport's WebTAG guidance. The modelling is considered to be reliable and accurate for the purposes of the Transport Study, as well as an input for wider work including air quality modelling. Annual Average Daily Traffic (AADT) flows for 2031 were provided by Systra, Transport Consultants for the project based on traffic counts outlined in the model validation report[22] and Mid Sussex Transport Study[23]. Traffic data for modelled links are provided in Appendix C.

Background concentrations

Defra has made estimates of background pollution concentrations on a 1 km^2 grid for the UK for seven of the main pollutants, including NO_X and NO_2, using data for a base year of 2017, making projections for years from 2017 to 2030 inclusive[24]. Interpolation was carried out using ArcGIS to provide a better representation of background concentration at each transect point.

Table 4.2 shows the estimated background concentrations of NO_X for 2017 for the transects modelled.

[21] Gatwick Airport (2014) A Second Runway for Gatwick.
[22] Systra (2018) Local Model Validation Report – Mid Sussex Strategic Highway Model - Draft.
[23] Systra (2019) Mid Sussex Transport Study.
[24] https://uk-air.defra.gov.uk/data/laqm-background-home

Table 4.2 Defra mapped interpolated background annual mean NO_X concentrations (μgm^{-3}) for 2017

Transect	NO_X concentrations (μgm^{-3})
T1	10.6
T2	10.1
T3	10.1
T4	10.1
T5	10.3
T6	10.2
T7	10.6
T8	11.2
T9	11.3
T10	11.4
T11	10.6
T12	10.4

Due to uncertainty in future predicted concentrations, background concentrations for 2017 will be used in all modelled scenarios.

In line with LAQM.TG(16), the background NO_X concentration has been doubled to calculate the daily mean concentrations at all modelled receptor points as a conservative approach.

In addition, a background concentration specific to Ashdown Forest was obtained from the APIS website for NH_3 of 0.76 μgm^{-3}. There has been very little research on future background concentrations of NH_3, therefore the same background concentration has been used for all scenarios, including future scenarios. Whilst there were two DELTA monitors deployed by Air Quality Consultants (AQC) on behalf of Wealden District Council at background locations that both recorded a concentration of 0.6 μgm^{-3}, the decision was taken to use the APIS concentration to remain consistent with the conservative approach adopted throughout.

The APIS resource was also used to determine deposition rates for both nitrogen and acid for Ashdown Forest. DMRB methodology suggests that to account for the decrease in deposition rates in future years, a reduction of 2% per year should be applied. However, due to uncertainty in future predictions and to ensure a conservative assessment it was agreed with MSDC that there would be no reduction in nitrogen and acid deposition rates for future years.

Additionally, it should be noted that this does not follow the methodology whereby deposition rates will be reduced by 2% to the mid-assessment year outlined in the Statement of Common Ground[25] produced by the Sussex, Surrey and Kent Councils, in which MSDC reserved judgement on this issue. Table 4.3 shows the deposition rates used in this assessment.

[25] The South Downs National Park Authority (2018) Ashdown Forest Statement of Common Ground.

Table 4.3 Nitrogen and acid deposition rates for all scenarios

Deposition	2017 deposition rate
Nitrogen	14.20 kg N/ ha/year
Acid	1.01keq/ ha/ year

Model verification

Model verification is a process by which modelled concentrations of air pollutants from road traffic emissions are adjusted based on actual measurement data. It enables an estimation of uncertainty and systematic errors associated with the dispersion modelling components of the air quality assessment to be considered. There are many explanations for these errors, which may stem from uncertainty in the modelled number of vehicles, speeds and vehicle fleet composition, as well as uncertainty associated with the emission factors. Defra has provided guidance in terms of preferred methods for undertaking dispersion model verification in LAQM.TG(16). Model verification involves the comparison of modelled concentrations and local monitoring data.

Full details of the model verification procedure are provided in Appendix D. In summary, the verification process led to the use of a modelled Road-NO_X adjustment factor of 1.626.

4.3 Pollutant Calculations

Oxides of nitrogen (NO_X)

Air Quality Consultants' Calculator Using Realistic Emissions for Diesels[26] (CURED V3A) was used to predict emissions to import into ADMS-Roads. This tool was originally developed to overcome the disparity between future emissions factors predicted using Defra's Emissions factor Toolkit (EFT) and real-world emissions testing and is considered to be a more conservative approach.

Road-NO_X concentrations were adjusted using the above factor.

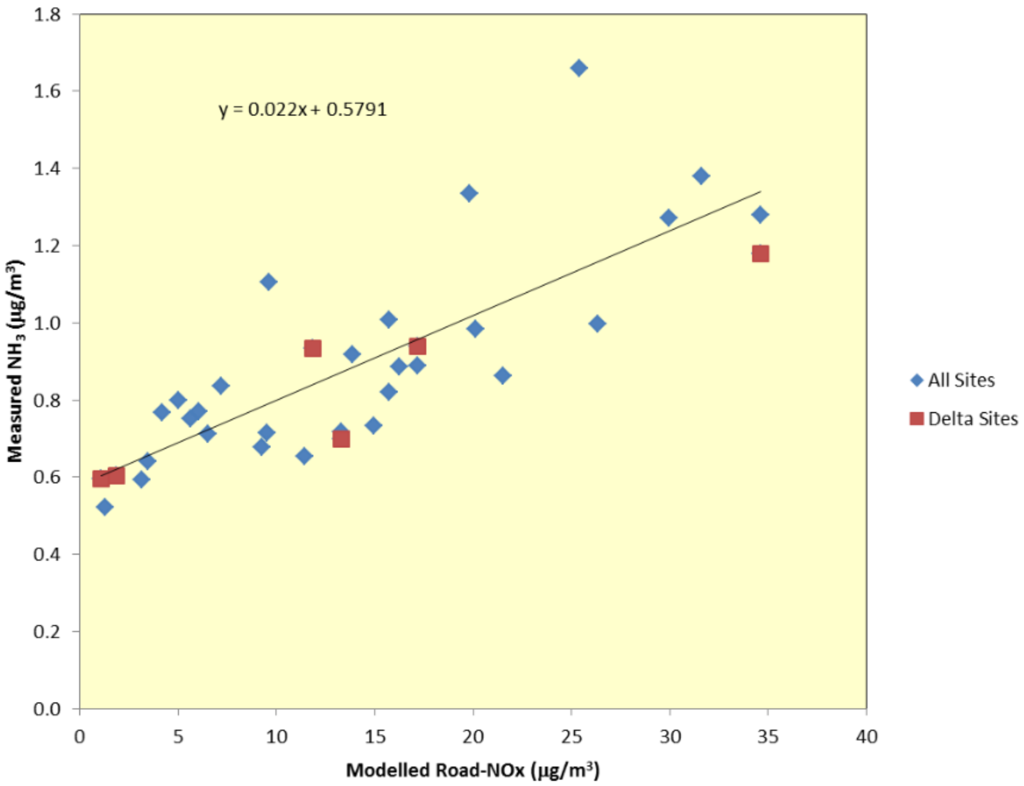
Defra's NO_X to NO_2 calculator[27] was then used to convert predicted concentrations of road-NO_X to road-NO_2 concentrations for use in calculating nitrogen deposition.

Ammonia (NH_3)

The requirement to assess the impact of NH_3 is relatively new, so there is no established reference method available. Therefore, the decision was made to use a factor to convert concentrations of NO_X to NH_3, rather than modelling, especially due to the fact that it would not have been possible to undertake model verification due to the precise location of NH_3 monitors in the AQC Report prepared for Wealden District Council being redacted. This is considered to be a robust approach, as the factors affecting NO_X concentration, such as increase in vehicles, vehicle type and speed, also affect concentrations of NH_3. This relationship was demonstrated in the AQC report in plotting modelled road-NO_X against monitored concentrations of NH_3, as shown in Figure 4.2.

[26] Air Quality Consultants (2018) Calculator Using Realistic Emissions for Diesels (CURED V3A) http://www.aqconsultants.co.uk/News/January-2018/UPDATED-CURED-TO-V3A.aspx
[27] https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html#NOxNO2calc

Figure 4.2 Modelled Road-NO_X vs. Monitored NH_3 concentration



Note: Figure 5.4 in AQC Report prepared for Wealden District Council.

Therefore, this assessment has used the factor 0.022 (i.e., 0.022 g of NH_3 to every 1 g of NO_X emitted) to calculate predicted road-NH_3 from adjusted road-NO_X concentrations in line with the methodology used by AQC and is considered to be a conservative approach.

A sensitivity test has also been carried out, details of which are included in Appendix F, using a factor calculated from the National Atmospheric Emissions Inventory[28] (NAEI) of 0.007 (i.e., 0.007 g/km of NH_3 to 1 g/km of NO_X emitted).

Nitrogen deposition

To calculate nitrogen deposition the AQTAG[29] methodology was used as an alternative to the Design Manual for Roads and Bridges (DMRB) methodology as it allows for calculation of nitrogen deposition from ammonia.

Dry deposition flux was calculated for the NO_2 and NH_3 annual mean concentrations at each modelled receptor using the dry deposition velocities in Table 4.4. As there are a number of species present in Ashdown Forest, the dry deposition velocities for 'forest' area were selected as a conservative approach.

[28] http://naei.beis.gov.uk/data/
[29] Air Quality Technical Advisory Group (AQTAG06) (2014) Technical guidance on detailed modelling approach for an appropriate assessment for emissions to air.

Table 4.4 Dry deposition velocities

Pollutant	Area	Dry deposition velocity (m s^{-1})
NO_2	Forest	0.003
NH_3	Forest	0.03

Dry deposition flux was then converted to kilograms of nitrogen per hectare per year (kg N ha^{-1} yr^{-1}) deposition for both NO_X and NH_3 using the conversion factors shown in Table 4.5.

Table 4.5 Conversion factors to alter from dry deposition flux to kilograms of nitrogen per hectare per year deposited

Pollutant	Conversion factor
NO_2	96
NH_3	259.7

Nitrogen deposition rates from both NO_2 and NH_3 were added together with the background nitrogen deposition rate to give total nitrogen deposition at all modelled transect points.

Acid deposition

As above, the dry flux deposition multiplied by a conversion factor of 0.071428 to calculate the kilo-equivalent of acid deposition. As above, deposition values were added together with the background acid deposition to determine total acid deposition at all modelled transect points. The change in deposition between Scenario B Do Minimum and Scenario C Do Something is used alongside the Critical Load Function Tool provided by APIS[30] to calculate the change as a percentage of the critical load. This approach takes account of background sulphur deposition.

4.4 Limitations

The main limitation to carrying out this assessment has been understanding the current conditions with regard to air quality in Ashdown Forest. There has been an extensive air quality monitoring programme undertaken across the area on behalf of Wealden District Council, however data availability is restricted. This led to the use of 2-year period mean NO_2 concentrations being compared to model predicted annual mean concentrations for model verification.

In addition, it was not clear which monitoring stations were at background locations, therefore it was necessary to use Defra mapped predicted background concentrations for $1km^2$. To improve accuracy, background concentrations were interpolated and extracted at each transect point.

[30] http://www.apis.ac.uk/critical-load-function-tool

5. Baseline air quality

MSDC do not currently carry out any monitoring as part of their LAQM duties in the vicinity of Ashdown Forest. However, Wealden District Council commissioned Air Quality Consultants Ltd. (AQC) to undertake extensive monitoring across Ashdown Forest[31]. The results of this monitoring were published in a report that has since been heavily redacted, therefore this section contains the information available to the public. All monitored concentrations included in this section were taken from the AQC Report undertaken on behalf of Wealden District Council.

5.1 Nitrogen dioxide

Continuous monitoring

An automatic monitor was installed at Kingstanding, the details of which are shown in Table 5.1.

Table 5.1 Automatic monitor location and results October 2014 – August 2016

Monitor ID	X	Y	Distance from road (m)	Data capture (%)	Period mean concentration (μgm^{-3})
A1	547294	129153	1.7	95	17.6

Passive monitoring

Diffusion tubes were deployed in triplicate at a number of locations throughout Ashdown Forest. Table 5.2 includes those tubes where location data is available and that are located in an area of sensitive habitat, as reported in the AQC monitoring report.

Table 5.2 Diffusion tube locations and period mean concentration (October 2014 to August 2016)

Monitor ID	X	Y	Distance from road (m)	Period mean concentration of NO_x (μgm^{-3})	Period mean concentration of NO_2 (μgm^{-3})
T1	542199	134088	1.5	**37.3**	21.7
T2	542041	133770	2.1	21.6	13.9
T3	541849	133049	1.6	**50.9**	27.9
T4	541953	132229	1.7	**45.8**	25.6
T6	546890	131049	3.7	18.9	12.5
T15	547401	130703	1.3	18.5	11.4
T19	549090	128879	2.6	**48.5**	27.3

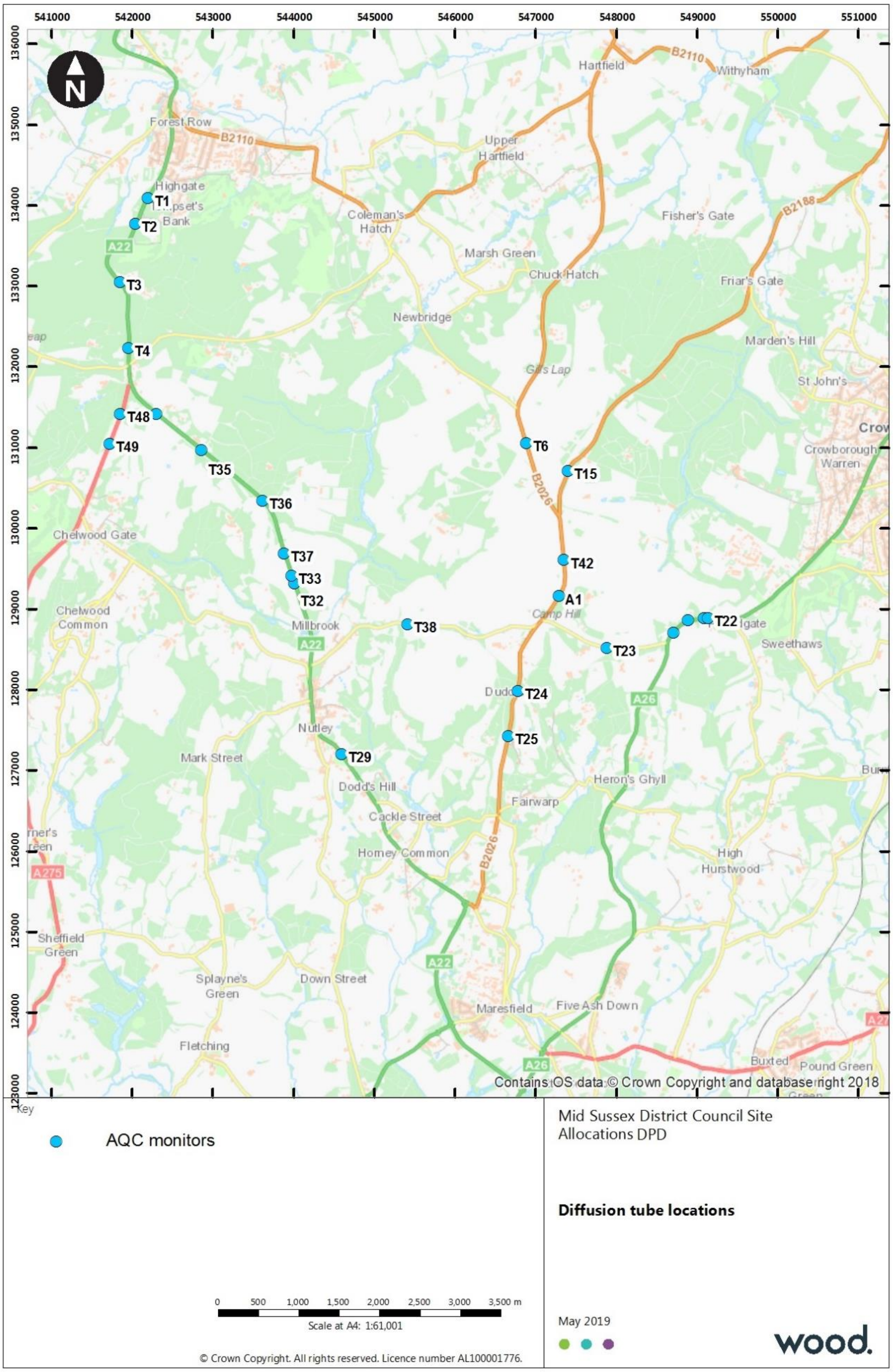
[31] Air Quality Consultants (2018) Ashdown Forest SAC: Air quality monitoring and modelling – Volume 1 (Redacted)

Monitor ID	X	Y	Distance from road (m)	Period mean concentration of NO_X (μgm^{-3})	Period mean concentration of NO_2 (μgm^{-3})
T20	548709	128701	1.2	39.2	22.9
T21	548892	128852	1.3	**63.6**	34.1
T22	549140	128880	2.6	**49.1**	27.6
T23	547885	128514	3.5	23.8	15.1
T24	546788	127981	4.8	19.9	13.0
T25	546665	127421	1.4	23.5	14.9
T29	544600	127196	1.5	28.1	17.0
T31	544020	129316	2.7	**40.6**	23.2
T32	544010	129312	1.2	**44.1**	24.9
T33	543978	129407	1.3	**50.3**	27.7
T34	542302	131412	1.7	26.0	16.0
T35	542861	130963	2.9	**33.5**	19.7
T36	543617	130337	2.0	**39.1**	22.4
T37	543887	129685	1.2	**37.3**	21.7
T38	545412	128806	1.0	18.3	12.2
T42	547353	129600	1.4	19.2	12.7
T48	541856	131411	1.4	22.8	14.4
T49	541722	131040	2.3	19.8	12.9

Notes: ***Bold** denotes exceedance of the 30 μgm-3 annual mean AQO.
AQC monitors and MSDC transect locations have a similar nomenclature but are not in the same locations.

Figure 5.1 shows the location of monitors included in this section. It can be seen that across the assessment area concentrations of NO_X are generally above the annual mean 30 μgm^{-3} AQO at diffusion tubes located either on the A22 or A26, which have been identified by Natural England as the areas of concern when considering impacts to sensitive habitats in Ashdown Forest.

Figure 5.1 AQC monitor locations



Note: All monitors deployed by AQC on behalf of Wealden District Council.

5.2 Ammonia

AQC installed six DELTA monitors (Defra reference method) and 29 ALPHA monitoring sites (passive monitoring) in Ashdown Forest. The ALPHA passive monitors have not been included in this assessment as all locations have been redacted and it is not clear which sites were set up as a transect from the road side. Table 5.3 shows the location and monitored concentration for ammonia from the DELTA monitors.

Table 5.3 DELTA monitoring results for ammonia – period mean between 2014 and 2016

Monitor ID	X	Y	Distance from road (m)	Data capture (%)	Period mean concentration (µgm^{-3})
R1.3 (D1)	*	*	5	91	0.94
T46 (D2)	542172	133039	660	100	0.60
A1 (D3)	547294	129153	1.7	96	0.70
T71 (D4)	547438	128711	5.5	91	0.93
T41 (D5)	*	*	390	53	0.60
R4.3 (D6)	*	*	5	95	**1.18**

*Location redacted in AQC report
Bold denotes exceedance of the 1µgm^{-3} EAL

Table 5.3 shows that a background concentration of NH_3 was monitored at 0.6 µgm^{-3} at two locations, however the location of one monitor has been redacted. At roadside locations, the concentration was between 0.7 µgm^{-3} and 1.18 µgm^{-3}.

6. Results

6.1 Pollutant concentrations

Oxides of nitrogen

Predicted annual mean concentrations of NO_X were below the 30 μgm^{-3} AQO in both Scenario B-Do Minimum and Scenario C-Do Something at all modelled transect points at 5 m from the roadside up to 200 m. There was no exceedance across the whole transect T3, T4, T5, T6 and T11, which are all located on unclassified or B-roads. As expected, the highest concentrations were predicted at the locations with the greatest traffic flow, including A22, A26, A275 and Hindleap Lane. The highest predicted concentration was at transect point T12Wa (0 m from the kerb) at 56.9 μgm^{-3} in Scenario C-Do Something, which reduces to 26.8 μgm^{-3} at 10 m.

The greatest difference in annual mean concentrations between Scenario B-Do Minimum and Scenario C-Do Something is an increase of 0.71 μgm^{-3} at Transect T12, located on the A26. This is greater than 1 % of the AQO, indicating the potential for harm to habitats and species, therefore requiring further assessment by a qualified ecologist.

The daily mean AQO of 200 μgm^{-3}, which is indicative of potential harm to some plant species, is not breached at any of the modelled transects.

Ammonia

With reference to the APIS website, which provides a list of sensitive species specific to Ashdown Forest, predicted annual mean concentrations of ammonia have been compared to the 1 μgm^{-3} critical level due to the presence of lichens and bryophytes.

Predicted annual mean concentrations of NH_3 exceed the critical level at up to 2 m from the roadside at Transects T1, T3, T5 and T9, up to 5 m from the roadside at Transects T2, T4, T8 and T9, and further than 10 m, but less than 25 m, from the roadside at Transect T7, T10 and T12. There are no exceedances of the critical level at a distance greater than 25 m from the kerb.

The greatest NH_3 annual mean concentration is predicted at Transect T12 at 1.8 μgm^{-3} in both Scenario B-Do Minimum and Scenario C-Do Something.

6.2 Deposition

Nitrogen

The minimum critical load of 10 kg N/ ha/ yr, as available from the APIS resource and based on the sensitivity of the species in Ashdown Forest, has been used for comparison to predicted nitrogen deposition rates. Nitrogen deposition exceeds this threshold at all transects and at all modelled points across the transect in both Scenario B-Do Minimum and Scenario C-Do Something, which is due to the use of the background deposition rate of 14.2 kg N/ha /yr. It should be noted that the baseline year background nitrogen deposition was used throughout as a conservative approach.

It can be seen that nitrogen deposition returns to near background levels between 150 m to 200 m from the roadside. Generally, the change in nitrogen deposition as a result of the MSDC site allocations is below the 1% threshold at modelled transects, indicating that impacts are insignificant. However, nitrogen deposition at

Transect T12 from 0 m to between 5 - 10 m from the roadside is predicted to increase by 1% of the critical load indicating that these areas require evaluation by a qualified ecologist.

Acid

The critical load minimum and maximum range for acid deposition from nitrogen is between 0.499 – 0.952 keq N/ ha/ yr with reference to APIS, which is the most conservative critical load for acid deposition at Ashdown Forest. In Scenario B-Do Minimum and Scenario C – Do Something this threshold is exceeded at all transect points at all modelled transects, due to the background concentration of 1.01 keq N/ ha/ yr.

The greatest increase in acid deposition is expected to be at the kerbside on Transect T12 with an increase of 0.015 keq N/ ha/ yr with the MSDC site allocation additional traffic, which is greater than 1% of the MinCLminN threshold. Additionally, at Transect T1 (up to 5 m from the roadside) and T12 (between 10 m and 25 m from the roadside), the change in acid deposition is greater than 1%, suggesting that this area should be considered by a qualified ecologist in line with the IAQM Position Statement.

7. Conclusions

Wood Environment and Infrastructure Solutions Ltd. (Wood) has prepared an air quality assessment on behalf of Mid Sussex District Council (MSDC) to inform a Habitats Regulations Assessment (HRA) for preparation of the MSDC Site Allocations Development Plan Document. This assessment is based on Scenario 4 site allocations and considers the potential risk to sensitive species and habitats at Ashdown Forest SAC, SPA and SSSI.

ADMS-Roads dispersion model has been used to model pollutants from traffic emissions at transects up to 200 m from the roadside throughout Ashdown Forest. Concentrations of NO_X and NH_3 were predicted without and with traffic flows associated with MSDC site allocations, including consideration of in-combination traffic flows from adjoining local authorities' development plans. It should be noted that a conservative approach has been adopted throughout, including the use of baseline year background concentrations and deposition rates, as well as the use of the strictest appropriate critical loads and levels.

Predicted annual mean concentrations of NO_X were generally below the 30 μgm^{-3} AQO at unclassified or B-roads but exceed the AQO up to 5 m from the roadside on busier A-roads. Daily mean concentrations of NO_X were below the 200 μgm^{-3} daily mean AQO at all locations.

Annual mean concentrations of NH_3 are predicted to exceed the 1 μgm^{-3} critical level indicating potential harm to sensitive species at several transects across Ashdown Forest, however at all transects the concentration reduces to within the critical level within 25 m of the roadside.

In terms of nitrogen deposition, the change in deposition values associated with the MSDC site allocations traffic is below the 1% of critical load change indicating significant impacts to sensitive species and habitats at all transects, apart from Transect T12. Nitrogen deposition is predicted to increase by more than 1% of the critical up to between 5 – 10 m of the roadside at T12. This is also the case for predicted acid deposition at Transect T12.

As expected and advised by Natural England, the highest predicted concentrations and deposition values were located on the A26 (Transect T12).

Overall, it is concluded that the potential for significant impact to air quality posing a risk to sensitive species at Ashdown Forest has been identified and, in line with IAQM Position Statement, assessment by a qualified ecologist is required.

Appendix A
ADMS-Roads dispersion model

Introduction

The ADMS-Roads dispersion model, developed by CERC[6], is a tool for investigating air pollution problems due to small networks of roads that may be in combination with industrial sites, for instance small towns or rural road networks. It calculates pollutant concentrations over specified domains at high spatial resolution (street scale) and in a format suitable for direct comparison with a wide variety of air quality standards for the UK and other countries. The latest version of the model, version 4.1, was used in this study.

ADMS-Roads is referred to as an advanced Gaussian or, new generation, dispersion model as it incorporates the latest understanding of the boundary layer structure. It differs from old generation models such as ISC, R91 and CALINE in two main respects:

- It characterises the boundary layer structure and stability using the boundary layer depth and Monin-Obukhov length to calculate height-dependent wind speed and turbulence, rather than using the simpler Pasquill-Gifford stability category approach; and
- It uses a skewed-Gaussian vertical concentration profile in convective meteorological conditions to represent the effect of thermally generated turbulence.

Model features

A description of the science used in ADMS-Roads and the supporting technical references can be found in the model's User Guide[32]. The main features of ADMS-Roads are:

- It is an advanced Gaussian, "new generation" dispersion model;
- Includes a meteorological pre-processor which calculates boundary layer parameters from a variety of input data e.g. wind speed, day, time, cloud cover and air temperature;
- Models the full range of source types encountered in urban areas including industrial sources (up to 3 point sources, up to 3 lines sources, up to 4 area sources, up to 25 volume sources) and road sources (up to 150 roads, each with 50 vertices);
- Generates output in terms of average concentrations for averaging times from 15minutes to 1 year, percentile values and exceedances of threshold values. Averages can be specified as rolling (running) averages or maximum daily values;
- The option to calculate emissions from traffic count data, speed and fleet split (light duty/ heavy duty vehicles) using UK emission factors. Alternatively, road emissions may be entered directly as user specified values;
- Models plume rise by solving the integral conservation equations for mass, momentum and heat;
- Models the effect of street canyons on concentrations within the canyon and vehicle–induced turbulence using a formulation based on the Danish OSPM model. It is usually only important to model street canyons when the aspect ratio (ratio of the height of buildings along the road to the width of the road) is greater than 0.5;
- Models the effects of noise barriers on concentrations outside the road;
- Models NO_X chemistry using the 8 reaction Generic Reaction Set plus transformation of SO_2 to sulphate particles, which are added to the PM_{10} concentration;

[32] CERC (2011) ADMS-Roads, an Air Quality Management System, Version 3.1 User Guide, http://www.cerc.co.uk/environmental-software/assets/data/doc_userguides/CERC_ADMS-Roads3.1_User_Guide.pdf Date of access: 19th October 2012.

- Models the effect of a small number of buildings on dispersion from point sources;
- Models the effect of complex terrain (hills) and spatially varying surface roughness. Terrain effects only become noticeable for gradients greater than 1:10, but for ground level sources in a built up area, such as urban roads, low gradients will have a negligible effect;
- Models concentrations in units of ou_Em^{-3} for odour studies;
- Link to MapInfo and ArcGIS for input of source geometry, display of sources, aggregation of emissions and plotting of contours; and
- Link to an emissions inventory in Microsoft Access for input and export of source and emissions data.

In this study, street canyons, noise barriers, buildings and complex terrain were not modelled.

Validation

ADMS-Roads has been validated using UK and US data and has been compared with the DMRB spreadsheet model and the US model, CALINE. Validation of the ADMS and ADMS-Urban models are also applicable to the performance of ADMS-Roads as they test common features: basic dispersion, modelling of roads and street canyons, the effect of buildings and the effect of complex terrain. These validation studies are all reported on the CERC web site[33]. In addition, ADMS-Urban has been validated during its use in modelling many urban areas in the UK for local authorities as part of LAQM, Heathrow Airport for the Department for Transport[34] and all of Greater London for a Defra model inter-comparison exercise[35].

[33] http://www.cerc.co.uk/environmental-software/model-documentation.html#validation Date of access: 19 October 2012
[34] CERC (2007) Air Quality Studies for Heathrow: Base Case, Segregated Mode, Mixed Mode and Third Runway Scenarios Modelled Using ADMS-Airport, prepared for the Department for Transport, *HMSO* Product code 78APD02904CERC
[35] Carslaw, D. (2011), Defra urban model evaluation analysis – Phase 1, a report to Defra and the Devolved Authorities. http://uk-air.defra.gov.uk/library/reports?report_id=654 Date of access: 19 October 2012

Appendix B
Modelled Transects

Table B.1 Modelled transect points

Road ID	Transect point	Distance from kerb (m)	X	Y	Height (m)
B2026	T1Ea	0	546585	127072	0
	T1Wa	0	546578	127073	0
	T1Eb	2	546587	127072	0
	T1Wb	2	546576	127074	0
	T1Ec	5	546590	127071	0
	T1Wc	5	546574	127075	0
	T1Ed	10	546595	127070	0
	T1Wd	10	546569	127076	0
	T1Ee	25	546609	127067	0
	T1We	25	546554	127079	0
	T1Ef	50	546634	127062	0
	T1Wf	50	546529	127084	0
	T1Eg	100	546683	127051	0
	T1Wg	100	546480	127094	0
	T1Eh	150	546731	127042	0
	T1Wh	150	546431	127105	0
	T1Ei	200	546780	127030	0
	T1Wi	180	546403	127108	0
B2026	T2Ea	0	547345	129673	0
	T2Wa	0	547339	129672	0
	T2Eb	2	547347	129673	0
	T2Wb	2	547337	129672	0
	T2Ec	5	547350	129673	0
	T2Wc	5	547334	129672	0
	T2Ed	10	547355	129674	0
	T2Wd	10	547329	129671	0
	T2Ee	25	547370	129675	0
	T2We	25	547314	129670	0
	T2Ef	50	547395	129677	0

Road ID	Transect point	Distance from kerb (m)	X	Y	Height (m)
	T2Wf	50	547289	129668	0
	T2Eg	100	547445	129681	0
	T2Wg	100	547239	129664	0
	T2Eh	150	547494	129685	0
	T2Wh	150	547189	129659	0
	T2Ei	180	547545	129690	0
	T2Wi	180	547139	129656	0
B2026	T3Ea	0	546919	130942	0
	T3Wa	0	546913	130940	0
	T3Eb	2	546921	130942	0
	T3Wb	2	546911	130939	0
	T3Ec	5	546924	130943	0
	T3Wc	5	546908	130939	0
	T3Ed	10	546929	130944	0
	T3Wd	10	546903	130937	0
	T3Ee	25	546943	130948	0
	T3We	25	546888	130934	0
	T3Ef	50	546967	130954	0
	T3Wf	50	546864	130927	0
	T3Eg	100	547015	130967	0
	T3Wg	100	546816	130914	0
	T3Eh	150	547064	130980	0
	T3Wh	150	546767	130901	0
	T3Ei	200	547112	130993	0
	T3Wi	200	546719	130889	0
B2026	T4Ea	0	546970	131859	0
	T4Wa	0	546965	131863	0
	T4Eb	2	546972	131858	0
	T4Wb	2	546964	131864	0
	T4Ec	5	546975	131856	0

Road ID	Transect point	Distance from kerb (m)	X	Y	Height (m)
	T4Wc	5	546961	131866	0
	T4Ed	10	546979	131854	0
	T4Wd	10	546957	131869	0
	T4Ee	25	546991	131845	0
	T4We	25	546945	131877	0
	T4Ef	50	547012	131831	0
	T4Wf	50	546924	131892	0
	T4Eg	100	547053	131802	0
	T4Wg	100	546883	131920	0
	T4Eh	150	547094	131773	0
	T4Wh	150	546842	131949	0
	T4Ei	200	547135	131745	0
	T4Wi	200	546801	131977	0
New Road	T5Ea	0	547916	128522	0
	T5Wa	0	547915	128516	0
	T5Eb	2	547917	128524	0
	T5Wb	2	547915	128514	0
	T5Ec	5	547917	128527	0
	T5Wc	5	547914	128511	0
	T5Ed	10	547918	128532	0
	T5Wd	10	547913	128506	0
	T5Ee	25	547921	128547	0
	T5We	25	547911	128491	0
	T5Ef	50	547925	128572	0
	T5Wf	50	547906	128466	0
	T5Eg	100	547934	128622	0
	T5Wg	100	547897	128417	0
	T5Eh	150	547944	128671	0
	T5Wh	150	547888	128367	0
	T5Ei	200	547954	128723	0

Road ID	Transect point	Distance from kerb (m)	X	Y	Height (m)
	T5Wi	200	547885	128350	0
Crowborough Road	T6Ea	0	546083	128718	0
	T6Wa	0	546079	128713	0
	T6Eb	2	546084	128720	0
	T6Wb	2	546078	128712	0
	T6Ec	5	546086	128722	0
	T6Wc	5	546076	128709	0
	T6Ed	10	546089	128727	0
	T6Wd	10	546074	128705	0
	T6Ee	25	546098	128739	0
	T6We	25	546065	128693	0
	T6Ef	50	546112	128758	0
	T6Wf	50	546050	128673	0
	T6Eg	100	546141	128799	0
	T6Wg	100	546021	128632	0
	T6Eh	150	546171	128840	0
	T6Wh	150	545992	128591	0
	T6Ei	200	546199	128880	0
	T6Wi	200	545963	128551	0
A22	T7Ea	0	544047	129223	0
	T7Wa	0	544041	129222	0
	T7Eb	2	544049	129224	0
	T7Wb	2	544039	129221	0
	T7Ec	5	544052	129225	0
	T7Wc	5	544036	129220	0
	T7Ed	10	544057	129226	0
	T7Wd	10	544032	129219	0
	T7Ee	25	544071	129231	0
	T7We	25	544017	129214	0

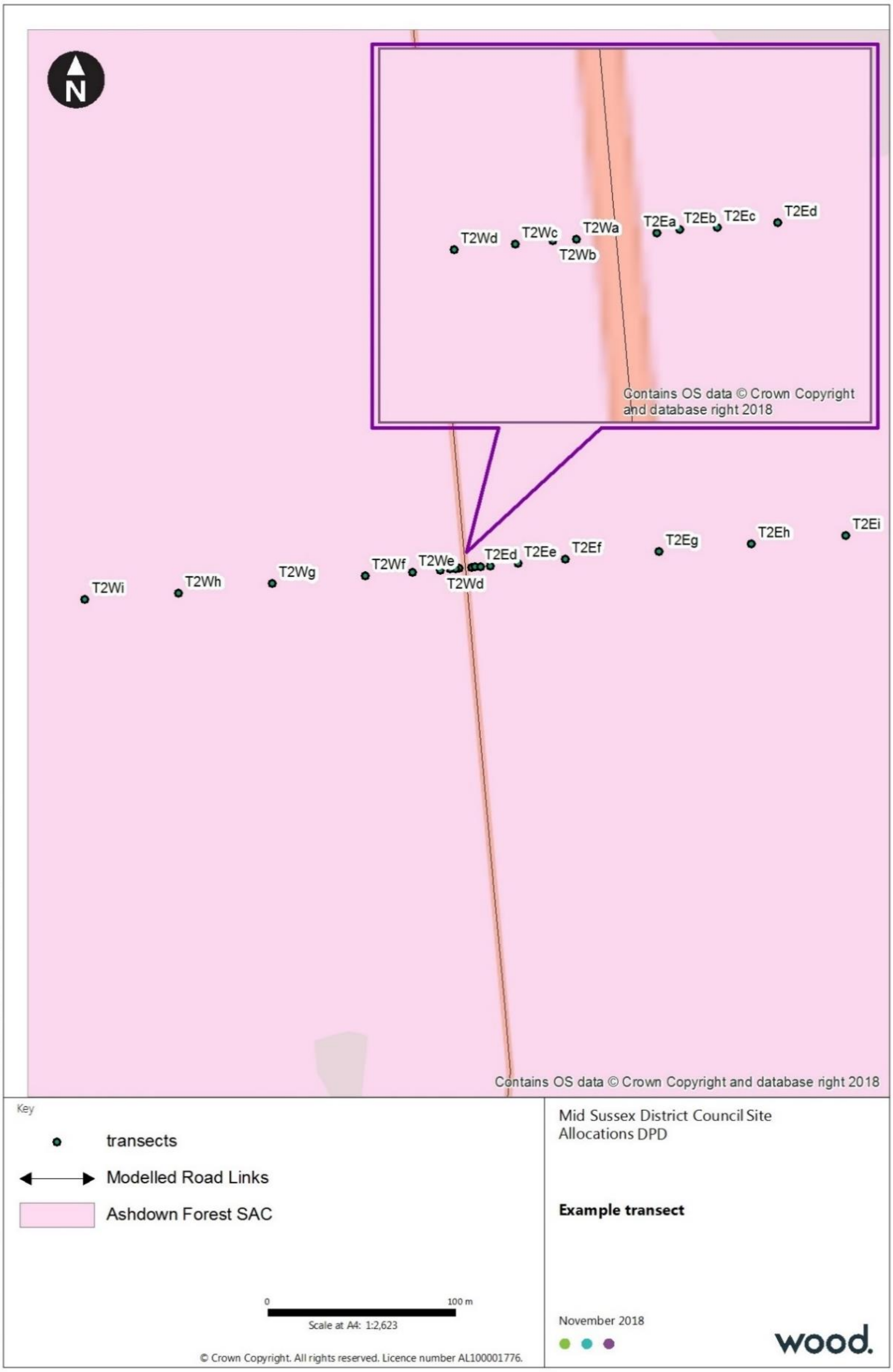
Road ID	Transect point	Distance from kerb (m)	X	Y	Height (m)
	T7Ef	50	544095	129238	0
	T7Wf	50	543993	129207	0
	T7Eg	100	544144	129250	0
	T7Wg	100	543945	129193	0
	T7Eh	150	544191	129268	0
	T7Wh	150	543898	129178	0
	T7Ei	200	544239	129281	0
	T7Wi	175	543850	129162	0
A22	T8Wa	0	542395	131342	0
	T8Wb	2	542393	131340	0
	T8Wc	5	542391	131338	0
	T8Wd	10	542387	131335	0
	T8We	25	542376	131324	0
	T8Wf	50	542358	131307	0
	T8Wg	100	542321	131272	0
	T8Wh	150	542284	131238	0
	T8Wi	200	542247	131203	0
A275	T9Ea	0	541707	131005	0
	T9Wa	0	541700	131007	0
	T9Eb	2	541709	131004	0
	T9Wb	2	541698	131007	0
	T9Ec	5	541711	131004	0
	T9Wc	5	541695	131008	0
	T9Ed	10	541716	131002	0
	T9Wd	10	541691	131009	0
	T9Ee	25	541731	130998	0
	T9We	25	541676	131013	0
	T9Ef	50	541755	130992	0
	T9Wf	50	541652	131020	0
	T9Eg	100	541804	130979	0

Road ID	Transect point	Distance from kerb (m)	X	Y	Height (m)
	T9Wg	100	541603	131033	0
	T9Eh	150	541852	130966	0
	T9Wh	150	541554	131046	0
	T9Ei	200	541901	130953	0
	T9Wi	200	541506	131059	0
Hindleap Lane	T10Ea	0	541008	132098	0
	T10Wa	0	541006	132092	0
	T10Eb	2	541009	132099	0
	T10Wb	2	541005	132091	0
	T10Ec	5	541010	132102	0
	T10Wc	5	541004	132088	0
	T10Ed	10	541012	132107	0
	T10Wd	10	541002	132083	0
	T10Ee	25	541018	132121	0
	T10We	25	540996	132069	0
	T10Ef	50	541027	132144	0
	T10Wf	50	540986	132046	0
	T10Eg	100	541047	132190	0
	T10Wg	100	540966	132000	0
	T10Eh	150	541066	132237	0
	T10Wh	150	540947	131954	0
	T10Wi	200	540934	131924	0
Colemans Hatch Road	T11Ea	0	541734	133412	0
	T11Wa	0	541728	133417	0
	T11Eb	2	541736	133411	0
	T11Wb	2	541726	133418	0
	T11Ec	5	541738	133409	0
	T11Wc	5	541723	133420	0
	T11Ed	10	541742	133406	0

Road ID	Transect point	Distance from kerb (m)	X	Y	Height (m)
	T11Wd	10	541719	133423	0
	T11Ee	25	541755	133397	0
	T11We	25	541707	133432	0
	T11Ef	50	541775	133383	0
	T11Wf	50	541687	133446	0
	T11Eg	100	541815	133353	0
	T11Wg	100	541646	133476	0
	T11Eh	150	541858	133323	0
	T11Wh	150	541606	133505	0
	T11Ei	200	541915	133281	0
	T11Wi	200	541565	133534	0
A26	T12Wa	0	548790	128796	0
	T12Wb	2	548789	128797	0
	T12Wc	5	548787	128800	0
	T12Wd	12	548784	128804	0
	T12We	25	548775	128816	0
	T12Wf	50	548761	128837	0
	T12Wg	100	548733	128878	0
	T12Wh	150	548704	128918	0
	T12Wi	200	548676	128960	0

Notes: E – East of road / W – West of road.

Figure B.1 Transect examples



Appendix C
ADMS-Roads input

Traffic data

Table C.1 shows the combined two-ways traffic data provided by Systra for all modelled scenarios. The speed provided by Systra is the average speed during the AM and PM peak hours. Figure C.1 shows all modelled road links.

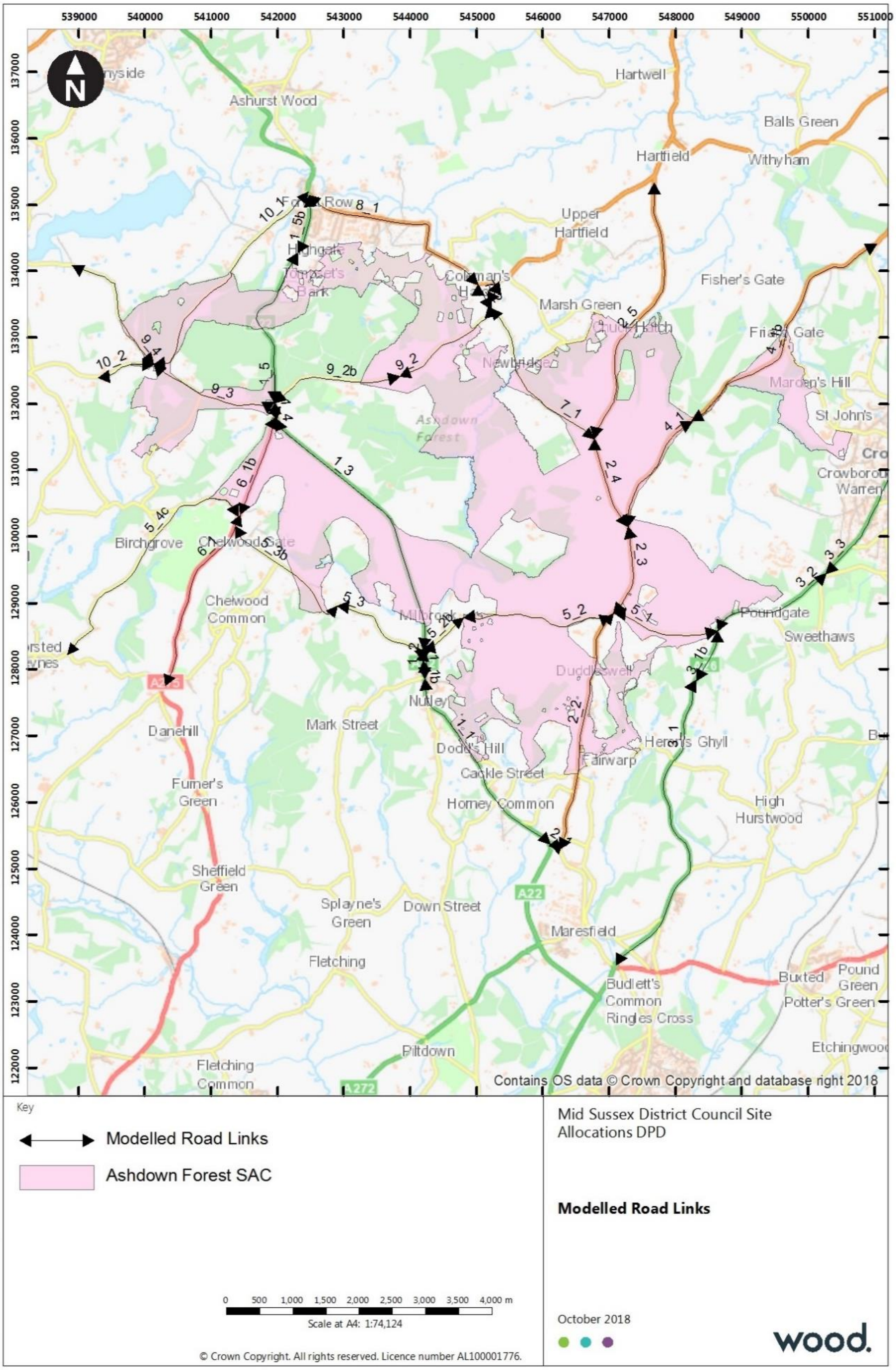
Table C.1 Annual Average Daily Traffic (AADT) flows for modelled scenarios

Link ID	2017 Base / Scenario A - 2031 Projected Baseline			Scenario B – Do Minimum - 2031 Base + in-combination			Scenario C – Do Something - 2031 Base + in-combination + MSDC flows		
	AADT	% HDV	Speed (kph)	AADT	% HDV	Speed (kph)	AADT	% HDV	Speed (kph)
1_1	16380	1.86%	66	17996	1.83%	66	18014	1.84%	66
1_1b	16380	1.96%	66	17996	1.83%	66	18014	1.84%	66
1_2	15804	2.00%	52	17339	1.94%	58	17166	1.96%	58
1_3	19420	2.06%	54	20399	2.09%	54	20144	2.10%	54
1_4	25484	2.31%	38	27176	2.27%	37	26938	2.27%	22
1_5	14166	2.83%	63	15536	2.74%	59	15604	2.72%	59
1_5b	14166	2.83%	45	15536	2.74%	45	15604	2.72%	45
2_1	12358	1.01%	30	15536	2.74%	34	15604	2.72%	34
2_2	9731	0.78%	38	9526	0.91%	38	9678	0.90%	38
2_3	11104	1.18%	43	11314	1.27%	42	11376	1.31%	42
2_4	8271	1.26%	43	8130	1.42%	45	8127	1.48%	43
2_5	8574	0.77%	42	8515	0.90%	43	8504	0.91%	43
3_1	19145	2.46%	53	20059	2.45%	53	20447	2.40%	52
3_1b	19145	2.46%	53	20059	2.45%	53	20447	2.40%	52
3_2	24286	2.62%	52	25060	2.66%	52	25472	2.61%	52
3_3	15253	3.10%	37	15804	3.13%	40	16304	3.03%	40
4_1	2833	0.94%	43	3184	0.89%	43	3249	0.88%	43
4_1b	2833	0.94%	43	3184	0.89%	43	3249	0.88%	43
5_1	5596	2.93%	40	6021	2.87%	40	5924	2.88%	40
5_2	4495	2.38%	41	4742	2.40%	41	4715	2.31%	41
5_2b	4495	2.38%	41	4742	2.40%	41	4715	2.31%	41
5_3	1676	1.29%	43	2514	0.99%	43	2739	0.87%	43
5_3b	1676	1.29%	43	2514	0.99%	43	2739	0.87%	43

Link ID	2017 Base / Scenario A - 2031 Projected Baseline			Scenario B – Do Minimum - 2031 Base + in-combination			Scenario C – Do Something - 2031 Base + in-combination + MSDC flows		
	AADT	% HDV	Speed (kph)	AADT	% HDV	Speed (kph)	AADT	% HDV	Speed (kph)
5_4	1814	1.36%	61	2285	1.22%	51	2348	1.12%	61
5_4b	1814	1.36%	61	2285	1.22%	51	2348	1.12%	61
5_4c	3627	1.36%	61	4569	1.22%	51	4696	1.12%	61
6_1	8801	2.83%	41	10045	2.54%	42	9943	2.55%	42
6_1b	8801	2.83%	41	10045	2.54%	42	9943	2.55%	42
7_1	2207	3.79%	42	2358	3.69%	42	2358	3.86%	42
7_2	5587	2.54%	42	6364	2.27%	40	6250	2.37%	40
8_1	9099	1.95%	32	9493	1.96%	32	9521	1.97%	32
9_1	3799	1.56%	43	4465	1.30%	42	4366	1.34%	42
9_2	3799	1.56%	43	4465	1.30%	42	4366	1.34%	42
9_2b	3799	1.56%	43	4465	1.30%	42	4366	1.34%	42
9_3	12356	0.85%	27	13788	0.83%	33	13618	0.84%	33
10_1	12356	0.85%	61	12356	0.85%	61	12356	0.85%	61
10_2	12356	0.85%	61	12356	0.85%	61	12356	0.85%	61

Note: HDV= Heavy Duty Vehicle.

Figure C.1 Modelled road links



Appendix D
ADMS-Roads model verification

The ADMS-Roads dispersion model has been widely validated for this type of assessment and is specifically listed in the Defra's LAQM.TG(16) guidance as an accepted dispersion model.

Model validation undertaken by the software developer (CERC) will not have included validation in the vicinity of the proposed Development Site. It is therefore necessary to perform a comparison of modelled results with local monitoring data at relevant locations. This process of verification attempts to minimise modelling uncertainty and systematic error by correcting modelled results by an adjustment factor to gain greater confidence in the final results.

The predicted results from a dispersion model may differ from measured concentrations for a large number of reasons, including uncertainties associated with:

- Background concentration estimates;
- Meteorological data;
- Source activity data such as traffic flows and emissions factors;
- Model input parameters such as surface roughness length, minimum Monin-Obukhov length;
- Monitoring data, including locations; and
- Overall model limitations.

Model verification is the process by which these and other uncertainties are investigated and where possible minimised. In reality, the differences between modelled and monitored results are likely to be a combination of all these aspects.

Model setup parameters and input data were checked prior to running the models in order to reduce these uncertainties. The following were checked to the extent possible to ensure accuracy:

- Traffic data;
- Road widths;
- Distance between sources and monitoring as represented in the model;
- Speed estimates on roads;
- Source types, such as elevated roads and street canyons;
- Selection of representative meteorological data;
- Background monitoring and background estimates; and
- Monitoring data.

NO_2 Verification

Table D.1 below shows the diffusion tubes available for model verification. The decision was made to use data collected in Ashdown Forest by Air Quality Consultants (AQC) on behalf of Wealden District Council in the period between October 2014 and August 2016. It was felt that even though this data was collected over a two-year period, the monitoring locations were the most relevant to this assessment. AQC installed monitoring equipment in 72 locations across Ashdown Forest. Of these sites, 24 monitoring stations were used for model verification. The publicly available AQC report has been redacted, so coordinates are unavailable for some monitoring locations. Sites were also screened to only include 'roadside' (between 1 m and 5 m from the kerb) with reference to LAQM.TG(16) and, as the height of the monitors is not provided by AQC, only sites that could be located using Google Streetview were included. Also, monitoring sites were discounted if they were located on a road not identified by Footprint Ecology as a location that should include a transect. Tube T2 and tube T42 met these criteria, however were discounted as the recorded concentrations were not consistent with other monitors in the same areas.

Table D.1 Local monitoring data suitable for ADMS-Roads model verification

AQC monitoring location	Oct 2014 – Aug 2016 period mean NO_2 (μgm^{-3})	Interpolated background NO_X concentration (μgm^{-3})	X (m)	Y (m)	Height (m)
A1	17.6	9.8	547294	129153	1.5
T1	21.7	11.2	542199	134088	2
T3	27.9	10.9	541849	133049	2
T4	25.6	10.7	541953	132229	2
T6	12.5	9.6	546890	131049	2
T15	11.4	9.6	547401	130703	2
T19	27.3	10.1	549090	128879	1.8
T20	22.9	10.1	548709	128701	1.5
T21	34.1	10.1	548892	128852	2
T22	27.6	10.1	549140	128880	1.5
T23	15.1	10.0	547885	128514	1.5
T24	13.0	10.1	546788	127981	2
T25	14.9	10.3	546665	127421	1.5
T29	17.0	10.4	544600	127196	2
T31	23.2	10.3	544020	129316	1.5
T32	24.9	10.3	544010	129312	1.5
T33	27.7	10.2	543978	129407	1.5
T34	16.0	10.7	542302	131412	1.5
T35	19.7	10.5	542861	130963	1.5
T36	22.4	10.3	543617	130337	1.5
T37	21.7	10.2	543887	129685	1.5
T38	12.2	10.0	545412	128806	2.0
T48	14.4	10.7	541856	131411	1.5
T49	12.9	10.7	541722	131040	1.5

Verification calculations

The verification of the modelling output was performed in accordance with the methodology provided in Chapter 7 of LAQM.TG(16). Table D.2 shows variation in the over and under prediction of monitored concentrations at the monitoring sites.

Table D.2 Verification, modelled versus monitored concentrations

AQC monitoring location	2015 Modelled Annual Mean Total NO_2 (μgm^{-3})	Monitored 2014-2016 Period Mean NO_2 (μgm^{-3})	% (Modelled-Monitored)/ Monitored
A1	15.4	17.6	-12%
T1	15.9	21.7	-27%
T3	15.9	27.9	-43%
T4	15.5	25.6	-40%
T6	12.3	12.5	-1%
T15	10.3	11.4	-10%
T19	20.4	27.3	-25%
T20	21.7	22.9	-5%
T21	22.7	34.1	-33%
T22	20.4	27.6	-26%
T23	10.8	15.1	-28%
T24	12.3	13	-5%
T25	13.7	14.9	-8%
T29	17.2	17	1%
T31	18.7	23.2	-20%
T32	17.6	24.9	-29%
T33	16.8	27.7	-39%
T34	15.1	16	-5%
T35	15.0	19.7	-24%
T36	13.0	22.4	-42%
T37	18.2	21.7	-16%
T38	10.3	12.2	-16%
T48	14.8	14.4	3%
T49	14.5	12.9	12%

Table D.3 shows the comparison of modelled road-NO_X, a direct output from the ADMS-Roads modelling, with the monitored road-NO_X, determined from the LAQM NO_X to NO_2 conversion tool. The adjustment factor used in this assessment is 1.626.

Table D.3 Comparison of modelled and monitored road-NO_X to determine verification factor

AQC monitoring location	2015 Modelled Annual Mean Road NO_X (μgm^{-3})	2014-2016 Monitored Period Mean Road NO_X (μgm^{-3})	Ratio
A1	13.3	17.5	1.31
T1	12.9	24.3	1.89
T3	13.1	37.5	2.86
T4	12.5	32.8	2.62
T6	7.8	8.1	1.04
T15	3.9	6.0	1.55
T19	22.7	37.1	1.63
T20	25.4	27.9	1.10
T21	27.5	52.2	1.90
T22	22.8	37.8	1.66
T23	4.4	12.4	2.84
T24	7.2	8.5	1.18
T25	9.5	11.9	1.24
T29	16.1	15.8	0.98
T31	19.2	28.4	1.48
T32	17.2	31.9	1.86
T33	15.6	37.9	2.42
T34	11.9	13.6	1.14
T35	11.8	21.1	1.78
T36	8.4	26.7	3.19
T37	18.4	25.4	1.38
T38	3.4	6.9	2.06
T48	11.3	10.5	0.93
T49	10.7	7.7	0.72

Table D.4 shows the comparison of the modelled NO_2 concentration calculated by multiplying the modelled road NO_X by the adjustment factor and using the LAQM's NO_X to NO_2 conversion tool to calculate the total adjusted modelled NO_2.

Table D.4 Comparison of adjusted modelled NO_2 and monitored NO_2

AQC monitoring location	2015 Adjusted Modelled Annual Mean Total NO_2 (μgm^{-3})	2014-2016 Monitored Period Mean NO_2 (μgm^{-3})	% (modelled/ monitored) / monitored
A1	19.7	17.6	12%
T1	20.0	21.7	-8%
T3	20.1	27.9	-28%
T4	19.5	25.6	-24%
T6	14.9	12.5	19%
T15	11.6	11.4	1%
T19	27.2	27.3	0%
T20	29.3	22.9	28%
T21	30.8	34.1	-10%
T22	27.3	27.6	-1%
T23	12.3	15.1	-19%
T24	14.7	13	13%
T25	16.8	14.9	13%
T29	22.2	17	31%
T31	24.6	23.2	6%
T32	23.0	24.9	-8%
T33	21.8	27.7	-21%
T34	19.0	16	19%
T35	18.8	19.7	-5%
T36	15.8	22.4	-29%
T37	23.9	21.7	10%
T38	11.4	12.2	-6%
T48	18.4	14.4	28%
T49	18.0	12.9	39%

The majority of modelled NO_2 concentrations are within 25% of monitored concentrations as specified by LAQM.TG(16), which is considered acceptable given the high number of monitoring sites used in verification and broad area covered, therefore NO_2 concentrations have been amended using this adjustment factor of 1.626.

Model uncertainty

In line with LAQM.TG(16), statistical procedures have been carried out to assess the uncertainties within the model as shown in Table D.5.

Table D.5 Assessment of model uncertainty

Statistical parameter	Ideal value	Calculated value	Comment
Correlation coefficient	1	0.792	Model shows a relationship between monitored and modelled concentrations.
Root mean square error (RMSE)	0	3.8	Within the 10 μgm^{-3} value indicated by LAQM.TG(16) to revisit model inputs and verification, so no further action taken.
Fractional bias	0	0	Model shows no overall tendency to over or under predict after adjustment

Appendix E
ADMS-Roads results

Table E.1 Predicted annual mean NO_X concentrations (μgm^{-3})

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T1Ea	**43.9**	**31.2**	**30.8**	**31.1**	0.31
T1Wa	**35.5**	25.9	25.6	25.8	0.24
T1Eb	**35.2**	25.7	25.5	25.7	0.23
T1Wb	27.8	21.1	20.9	21.1	0.16
T1Ec	28.5	21.6	21.4	21.6	0.17
T1Wc	22.6	17.9	17.8	17.9	0.11
T1Ed	23.1	18.3	18.2	18.3	0.12
T1Wd	18.7	15.5	15.5	15.5	0.08
T1Ee	17.4	14.7	14.7	14.7	0.06
T1We	14.9	13.2	13.2	13.2	0.04
T1Ef	14.6	13.1	13.0	13.1	0.04
T1Wf	13.1	12.1	12.1	12.2	0.02
T1Eg	13.0	12.1	12.1	12.1	0.02
T1Wg	12.2	11.5	11.6	11.6	0.01
T1Eh	12.5	11.7	11.7	11.8	0.02
T1Wh	11.8	11.3	11.4	11.4	0.01
T1Ei	12.2	11.5	11.6	11.6	0.01
T1Wi	11.7	11.3	11.3	11.3	0.01
T2Ea	**47.8**	**33.5**	**33.9**	**34.1**	0.13
T2Wa	**34.0**	24.7	25.0	25.1	0.08
T2Eb	**38.3**	27.6	27.9	28.0	0.10
T2Wb	26.3	20.0	20.2	20.2	0.06
T2Ec	**30.7**	22.8	23.1	23.1	0.07
T2Wc	21.5	17.0	17.2	17.2	0.04
T2Ed	24.6	19.0	19.2	19.3	0.05
T2Wd	17.9	14.8	14.9	15.0	0.03
T2Ee	18.1	15.0	15.1	15.1	0.03
T2We	14.3	12.7	12.7	12.7	0.02
T2Ef	14.9	13.0	13.1	13.1	0.02

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T2Wf	12.7	11.7	11.7	11.7	0.01
T2Eg	13.0	11.9	11.9	11.9	0.01
T2Wg	11.8	11.1	11.1	11.1	0.01
T2Eh	12.3	11.5	11.5	11.5	0.01
T2Wh	11.4	10.9	10.9	10.9	0.00
T2Ei	12.0	11.2	11.3	11.3	0.01
T2Wi	11.2	10.8	10.8	10.8	0.00
T3Ea	**38.1**	27.4	27.1	27.1	0.00
T3Wa	25.6	19.6	19.5	19.5	0.00
T3Eb	**31.2**	23.1	22.9	22.9	0.00
T3Wb	21.1	16.8	16.7	16.7	0.00
T3Ec	25.7	19.7	19.5	19.5	0.00
T3Wc	17.9	14.9	14.8	14.8	0.00
T3Ed	21.1	16.9	16.8	16.8	0.00
T3Wd	15.5	13.4	13.4	13.4	0.00
T3Ee	16.1	13.8	13.8	13.8	0.00
T3We	13.1	11.9	11.9	11.9	0.00
T3Ef	13.7	12.3	12.3	12.3	0.00
T3Wf	12.0	11.2	11.2	11.2	0.00
T3Eg	12.3	11.4	11.4	11.4	0.00
T3Wg	11.3	10.8	10.8	10.8	0.00
T3Eh	11.8	11.1	11.1	11.1	0.00
T3Wh	11.1	10.7	10.7	10.7	0.00
T3Ei	11.5	11.0	11.0	11.0	0.00
T3Wi	11.0	10.6	10.6	10.6	0.00
T4Ea	**37.9**	27.3	27.2	27.2	-0.02
T4Wa	**36.7**	26.6	26.6	26.5	-0.02
T4Eb	29.6	22.1	22.1	22.0	-0.01
T4Wb	28.6	21.5	21.5	21.5	-0.01
T4Ec	24.1	18.7	18.7	18.7	-0.01

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T4Wc	23.2	18.2	18.2	18.2	-0.01
T4Ed	19.8	16.0	16.0	16.0	-0.01
T4Wd	19.1	15.6	15.6	15.6	0.00
T4Ee	15.3	13.3	13.3	13.3	0.00
T4We	14.9	13.0	13.0	13.0	0.00
T4Ef	13.2	12.0	12.0	12.0	0.00
T4Wf	12.9	11.8	11.9	11.9	0.00
T4Eg	12.0	11.3	11.3	11.3	0.00
T4Wg	11.8	11.2	11.2	11.2	0.00
T4Eh	11.6	11.0	11.0	11.0	0.00
T4Wh	11.4	10.9	11.0	11.0	0.00
T4Ei	11.4	10.9	10.9	10.9	0.00
T4Wi	11.2	10.8	10.8	10.8	0.00
T5Ea	**32.9**	24.2	25.2	25.0	-0.22
T5Wa	24.5	19.0	19.6	19.5	-0.13
T5Eb	26.3	20.1	20.9	20.7	-0.15
T5Wb	19.8	16.1	16.5	16.4	-0.08
T5Ec	21.8	17.4	17.9	17.8	-0.10
T5Wc	17.2	14.5	14.8	14.8	-0.05
T5Ed	18.4	15.2	15.6	15.5	-0.07
T5Wd	15.1	13.3	13.5	13.4	-0.03
T5Ee	14.9	13.1	13.3	13.3	-0.03
T5We	13.2	12.1	12.2	12.2	-0.01
T5Ef	13.2	12.1	12.2	12.2	-0.01
T5Wf	12.3	11.5	11.6	11.6	0.00
T5Eg	12.3	11.5	11.6	11.6	0.00
T5Wg	11.8	11.2	11.3	11.3	0.00
T5Eh	11.9	11.3	11.3	11.3	0.00
T5Wh	11.6	11.1	11.2	11.2	0.00
T5Ei	11.7	11.2	11.2	11.2	0.00

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T5Wi	11.6	11.1	11.1	11.1	0.01
T6Ea	26.4	20.1	20.7	20.6	-0.06
T6Wa	19.4	15.8	16.1	16.1	-0.03
T6Eb	22.4	17.7	18.1	18.0	-0.04
T6Wb	16.7	14.2	14.4	14.4	-0.02
T6Ec	19.3	15.8	16.1	16.1	-0.03
T6Wc	15.0	13.1	13.3	13.3	-0.01
T6Ed	16.7	14.2	14.4	14.4	-0.02
T6Wd	13.7	12.3	12.4	12.4	-0.01
T6Ee	13.9	12.4	12.6	12.6	-0.01
T6We	12.3	11.5	11.6	11.6	0.00
T6Ef	12.6	11.6	11.7	11.7	0.00
T6Wf	11.7	11.1	11.2	11.2	0.00
T6Eg	11.7	11.1	11.2	11.2	0.00
T6Wg	11.4	10.9	11.0	11.0	0.00
T6Eh	11.5	10.9	11.0	11.0	0.00
T6Wh	11.2	10.9	10.9	10.9	0.00
T6Ei	11.3	10.8	10.9	10.9	0.00
T6Wi	11.2	10.8	10.9	10.9	0.00
T7Ea	**69.5**	**47.8**	**49.6**	**49.2**	-0.47
T7Wa	**45.6**	**32.3**	**33.4**	**33.1**	-0.28
T7Eb	**55.4**	**38.8**	**40.2**	**39.9**	-0.36
T7Wb	34.2	25.2	26.0	25.8	-0.19
T7Ec	**43.6**	**31.3**	**32.4**	**32.1**	-0.26
T7Wc	27.2	20.9	21.4	21.3	-0.13
T7Ed	**33.8**	25.1	25.9	25.7	-0.18
T7Wd	21.9	17.6	18.0	17.9	-0.08
T7Ee	23.1	18.4	18.8	18.7	-0.09
T7We	16.5	14.2	14.4	14.4	-0.04
T7Ef	17.8	15.1	15.4	15.3	-0.05

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T7Wf	14.0	12.7	12.8	12.8	-0.02
T7Eg	14.7	13.1	13.3	13.3	-0.03
T7Wg	12.5	11.8	11.9	11.9	-0.01
T7Eh	13.5	12.4	12.5	12.5	-0.02
T7Wh	12.1	11.5	11.6	11.6	0.00
T7Ei	12.9	12.0	12.1	12.1	-0.01
T7Wi	11.8	11.3	11.4	11.4	0.00
T8Wa	**44.3**	**31.9**	**33.0**	**32.7**	-0.27
T8Wb	**34.4**	25.7	26.4	26.3	-0.18
T8Wc	27.9	21.6	22.1	22.0	-0.13
T8Wd	22.7	18.4	18.8	18.7	-0.09
T8We	17.4	15.0	15.3	15.2	-0.05
T8Wf	14.9	13.5	13.6	13.6	-0.02
T8Wg	13.5	12.6	12.7	12.7	-0.01
T8Wh	13.0	12.3	12.4	12.4	-0.01
T8Wi	12.8	12.2	12.3	12.2	-0.01
T9Ea	**41.7**	**30.1**	**32.7**	**32.5**	-0.20
T9Wa	**36.0**	26.5	28.6	28.5	-0.17
T9Eb	**32.4**	24.3	26.1	26.0	-0.14
T9Wb	28.1	21.6	23.0	22.9	-0.11
T9Ec	26.7	20.8	22.1	22.0	-0.10
T9Wc	23.1	18.5	19.5	19.5	-0.08
T9Ed	22.0	17.9	18.8	18.7	-0.07
T9Wd	19.4	16.3	16.9	16.9	-0.05
T9Ee	17.1	14.9	15.4	15.3	-0.04
T9We	15.6	13.9	14.3	14.3	-0.02
T9Ef	14.8	13.4	13.7	13.7	-0.02
T9Wf	13.9	12.9	13.1	13.1	-0.01
T9Eg	13.4	12.6	12.8	12.8	-0.01
T9Wg	12.9	12.3	12.4	12.4	-0.01

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T9Eh	12.9	12.3	12.4	12.4	-0.01
T9Wh	12.6	12.1	12.2	12.2	0.00
T9Ei	12.7	12.1	12.2	12.2	0.00
T9Wi	12.4	12.0	12.0	12.0	0.00
T10Ea	**60.0**	**41.2**	**44.2**	**43.8**	-0.44
T10Wa	**40.9**	29.5	**31.4**	**31.1**	-0.26
T10Eb	**47.6**	**33.6**	**35.8**	**35.5**	-0.33
T10Wb	**30.6**	23.2	24.4	24.2	-0.17
T10Ec	**37.1**	27.1	28.7	28.5	-0.23
T10Wc	25.0	19.7	20.6	20.4	-0.12
T10Ed	29.1	22.2	23.3	23.2	-0.16
T10Wd	20.7	17.1	17.7	17.6	-0.08
T10Ee	20.7	17.0	17.6	17.5	-0.08
T10We	16.4	14.4	14.7	14.7	-0.04
T10Ef	16.8	14.7	15.0	15.0	-0.04
T10Wf	14.4	13.2	13.4	13.4	-0.02
T10Eg	14.5	13.3	13.5	13.4	-0.02
T10Wg	13.2	12.5	12.6	12.6	-0.01
T10Eh	13.7	12.8	12.9	12.9	-0.02
T10Wh	12.7	12.2	12.3	12.3	-0.01
T10Wi	12.5	12.1	12.1	12.1	-0.01
T11Ea	23.7	18.7	20.1	19.8	-0.21
T11Wa	25.4	19.8	21.4	21.1	-0.23
T11Eb	19.0	15.7	16.6	16.5	-0.13
T11Wb	20.7	16.9	17.9	17.8	-0.16
T11Ec	16.6	14.3	14.9	14.8	-0.09
T11Wc	17.9	15.1	15.9	15.8	-0.11
T11Ed	14.6	13.0	13.4	13.4	-0.06
T11Wd	15.7	13.7	14.3	14.2	-0.07
T11Ee	12.8	11.9	12.1	12.1	-0.03

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T11We	13.6	12.4	12.7	12.7	-0.04
T11Ef	12.0	11.5	11.6	11.6	-0.01
T11Wf	12.6	11.8	12.0	12.0	-0.02
T11Eg	11.6	11.2	11.3	11.3	-0.01
T11Wg	12.0	11.5	11.6	11.6	-0.01
T11Eh	11.5	11.1	11.2	11.2	0.00
T11Wh	11.8	11.3	11.4	11.4	-0.01
T11Ei	11.4	11.1	11.1	11.1	0.00
T11Wi	11.7	11.3	11.4	11.4	-0.01
T12Wa	**80.0**	**54.9**	**56.2**	**56.9**	0.71
T12Wb	**65.1**	**45.2**	**46.3**	**46.8**	0.56
T12Wc	**46.5**	**33.2**	**33.9**	**34.3**	0.37
T12Wd	**35.4**	26.1	26.6	26.8	0.26
T12We	23.6	18.6	18.9	19.0	0.13
T12Wf	17.7	14.9	15.1	15.2	0.07
T12Wg	14.2	12.7	12.8	12.9	0.04
T12Wh	13.0	12.0	12.0	12.1	0.02
T12Wi	12.4	11.6	11.6	11.7	0.02

Notes: **Bold** denotes exceedance of the 30 μgm^{-3} annual mean NO_X AQO.

Table E.2 Predicted daily mean concentration of NO_X

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T1Ea	**100.7**	70.8	69.9	70.6	0.74
T1Wa	**106.0**	73.6	72.6	73.4	0.81
T1Eb	**77.7**	56.2	55.6	56.1	0.52
T1Wb	**82.1**	58.8	58.1	58.7	0.58
T1Ec	61.9	46.3	45.9	46.3	0.37
T1Wc	64.0	47.6	47.1	47.5	0.41
T1Ed	49.9	38.8	38.6	38.8	0.25
T1Wd	51.1	39.6	39.3	39.6	0.29

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T1Ee	37.3	31.1	31.0	31.1	0.13
T1We	37.7	31.4	31.2	31.4	0.16
T1Ef	31.3	27.4	27.3	27.4	0.07
T1Wf	31.3	27.4	27.3	27.4	0.10
T1Eg	27.5	25.1	25.1	25.2	0.04
T1Wg	27.3	25.0	24.9	25.0	0.06
T1Eh	26.1	24.2	24.3	24.3	0.03
T1Wh	25.9	24.1	24.1	24.2	0.05
T1Ei	25.4	23.8	23.8	23.8	0.02
T1Wi	25.5	23.8	23.9	23.9	0.04
T2Ea	**112.1**	**77.4**	**78.6**	**78.9**	0.31
T2Wa	**111.1**	**76.5**	**77.6**	**77.9**	0.32
T2Eb	**86.0**	61.0	61.9	62.1	0.22
T2Wb	**84.8**	60.1	60.8	61.1	0.23
T2Ec	65.8	48.6	49.2	49.3	0.15
T2Wc	66.8	48.9	49.4	49.6	0.17
T2Ed	52.6	40.4	40.8	40.9	0.11
T2Wd	52.7	40.2	40.6	40.7	0.12
T2Ee	38.8	31.7	32.0	32.0	0.06
T2We	37.8	31.0	31.2	31.3	0.07
T2Ef	31.9	27.3	27.5	27.6	0.04
T2Wf	30.6	26.6	26.7	26.8	0.05
T2Eg	27.8	24.8	25.0	25.0	0.03
T2Wg	26.2	23.9	24.0	24.0	0.03
T2Eh	26.2	23.9	24.0	24.0	0.02
T2Wh	24.9	23.0	23.1	23.1	0.03
T2Ei	25.3	23.3	23.4	23.4	0.01
T2Wi	24.2	22.6	22.7	22.7	0.03
T3Ea	**89.5**	63.1	62.5	62.5	-0.02
T3Wa	**83.9**	59.6	59.0	59.0	0.00

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T3Eb	69.7	50.8	50.4	50.4	-0.01
T3Wb	66.9	49.0	48.5	48.5	0.00
T3Ec	55.1	41.7	41.5	41.5	-0.01
T3Wc	54.5	41.3	41.0	41.0	0.00
T3Ed	44.5	35.3	35.1	35.1	0.00
T3Wd	44.4	35.0	34.8	34.8	0.00
T3Ee	34.2	28.8	28.8	28.8	0.00
T3We	33.4	28.3	28.2	28.2	0.01
T3Ef	29.1	25.7	25.6	25.7	0.01
T3Wf	28.0	25.0	24.9	24.9	0.01
T3Eg	26.0	23.7	23.8	23.8	0.00
T3Wg	24.8	23.0	23.0	23.0	0.01
T3Eh	24.9	23.0	23.1	23.1	0.01
T3Wh	23.7	22.3	22.4	22.4	0.02
T3Ei	24.3	22.7	22.8	22.8	0.00
T3Wi	23.3	22.0	22.1	22.1	0.02
T4Ea	87.0	62.5	62.4	62.3	-0.05
T4Wa	95.0	66.9	66.7	66.6	-0.04
T4Eb	65.9	48.4	48.4	48.4	-0.04
T4Wb	73.6	53.5	53.3	53.3	-0.03
T4Ec	52.9	40.2	40.2	40.2	-0.03
T4Wc	58.0	43.7	43.6	43.6	-0.01
T4Ed	43.0	34.3	34.2	34.2	-0.02
T4Wd	46.2	36.3	36.3	36.3	0.00
T4Ee	33.1	28.1	28.3	28.2	-0.01
T4We	34.3	29.0	28.9	29.0	0.01
T4Ef	28.5	25.3	25.4	25.4	-0.01
T4Wf	28.8	25.5	25.6	25.6	0.01
T4Eg	25.8	23.6	23.8	23.8	-0.01
T4Wg	25.7	23.6	23.6	23.6	0.01

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T4Eh	24.8	23.0	23.2	23.2	-0.01
T4Wh	24.6	22.9	23.0	23.0	0.01
T4Ei	24.3	22.7	22.9	22.9	-0.01
T4Wi	24.0	22.6	22.6	22.6	0.01
T5Ea	73.4	53.1	55.5	55.0	-0.53
T5Wa	69.1	51.1	53.3	52.8	-0.43
T5Eb	57.9	43.6	45.3	44.9	-0.36
T5Wb	53.3	41.0	42.4	42.1	-0.27
T5Ec	46.8	36.7	37.9	37.7	-0.25
T5Wc	44.7	35.5	36.6	36.4	-0.19
T5Ed	38.7	31.7	32.5	32.3	-0.16
T5Wd	37.8	31.2	31.9	31.8	-0.11
T5Ee	30.9	26.9	27.4	27.3	-0.07
T5We	30.9	26.9	27.3	27.3	-0.04
T5Ef	27.2	24.6	24.9	24.9	-0.03
T5Wf	27.4	24.7	25.0	25.0	-0.01
T5Eg	25.1	23.3	23.5	23.5	-0.01
T5Wg	25.4	23.6	23.7	23.8	0.02
T5Eh	24.5	22.9	23.1	23.1	0.02
T5Wh	24.8	23.2	23.3	23.4	0.02
T5Ei	24.3	22.8	22.9	22.9	0.02
T5Wi	24.7	23.1	23.3	23.3	0.03
T6Ea	60.5	45.2	46.5	46.4	-0.14
T6Wa	61.2	45.7	47.0	46.9	-0.12
T6Eb	48.7	37.8	38.8	38.7	-0.10
T6Wb	50.8	39.2	40.2	40.1	-0.09
T6Ec	40.7	32.9	33.6	33.5	-0.07
T6Wc	43.6	34.7	35.5	35.4	-0.06
T6Ed	34.6	29.1	29.6	29.6	-0.04
T6Wd	37.7	31.1	31.6	31.6	-0.04

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T6Ee	28.7	25.4	25.8	25.7	-0.02
T6We	31.4	27.2	27.5	27.5	-0.01
T6Ef	25.8	23.7	23.9	23.9	-0.01
T6Wf	28.1	25.2	25.4	25.4	0.00
T6Eg	24.5	22.9	23.0	23.0	0.01
T6Wg	25.9	23.8	23.9	23.9	0.01
T6Eh	24.1	22.6	22.8	22.8	0.01
T6Wh	24.8	23.2	23.3	23.3	0.01
T6Ei	23.9	22.5	22.6	22.6	0.01
T6Wi	24.2	22.8	22.9	22.9	0.01
T7Ea	**164.2**	**111.5**	**116.1**	**114.9**	-1.14
T7Wa	**157.4**	**107.0**	**111.2**	**110.1**	-1.06
T7Eb	**124.1**	**86.2**	**89.4**	**88.6**	-0.81
T7Wb	**123.7**	**85.4**	**88.6**	**87.8**	-0.81
T7Ec	**92.8**	66.3	68.6	68.0	-0.56
T7Wc	**96.1**	68.1	70.4	69.9	-0.59
T7Ed	71.0	52.9	54.4	54.1	-0.38
T7Wd	73.9	54.2	55.8	55.4	-0.41
T7Ee	49.7	39.1	40.1	39.8	-0.21
T7We	49.9	39.2	40.1	39.8	-0.21
T7Ef	39.0	32.3	32.9	32.8	-0.13
T7Wf	38.3	31.9	32.4	32.3	-0.12
T7Eg	32.2	28.0	28.4	28.3	-0.07
T7Wg	31.3	27.5	27.8	27.7	-0.06
T7Eh	29.4	26.3	26.6	26.5	-0.05
T7Wh	28.8	25.9	26.2	26.1	-0.04
T7Ei	27.9	25.3	25.6	25.5	-0.04
T7Wi	27.4	25.1	25.3	25.2	-0.03
T8Wa	**156.5**	**108.1**	**112.2**	**111.2**	-1.06
T8Wb	**120.5**	**85.0**	**88.0**	**87.2**	-0.78

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T8Wc	**93.8**	67.9	70.1	69.5	-0.56
T8Wd	72.7	54.3	55.9	55.5	-0.39
T8We	50.1	39.8	40.7	40.5	-0.21
T8Wf	38.9	32.7	33.2	33.1	-0.12
T8Wg	32.1	28.5	28.8	28.7	-0.07
T8Wh	29.5	26.9	27.1	27.0	-0.05
T8Wi	28.2	26.0	26.2	26.2	-0.03
T9Ea	**95.1**	68.0	74.2	73.7	-0.48
T9Wa	**99.3**	70.3	**76.6**	**76.1**	-0.50
T9Eb	70.1	52.1	56.1	55.8	-0.31
T9Wb	**78.3**	57.1	61.7	61.3	-0.36
T9Ec	56.9	43.8	46.8	46.5	-0.23
T9Wc	62.2	47.1	50.3	50.0	-0.25
T9Ed	47.0	37.7	39.8	39.6	-0.16
T9Wd	50.4	39.7	42.0	41.8	-0.17
T9Ee	36.0	30.9	32.0	31.9	-0.09
T9We	38.5	32.4	33.6	33.5	-0.09
T9Ef	30.6	27.5	28.2	28.2	-0.05
T9Wf	32.9	28.9	29.7	29.6	-0.05
T9Eg	27.4	25.5	25.9	25.9	-0.03
T9Wg	29.6	26.9	27.3	27.3	-0.02
T9Eh	26.8	25.1	25.4	25.4	-0.01
T9Wh	28.4	26.1	26.5	26.5	-0.02
T9Ei	26.5	24.9	25.2	25.2	-0.01
T9Wi	27.7	25.7	26.0	26.0	-0.01
T10Ea	**135.5**	**92.2**	**99.0**	**98.0**	-0.98
T10Wa	**132.4**	**92.6**	**99.2**	**98.3**	-0.95
T10Eb	**108.2**	**75.2**	**80.5**	**79.8**	-0.77
T10Wb	**98.9**	70.9	**75.4**	74.8	-0.66
T10Ec	**81.6**	58.8	62.6	62.0	-0.53

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T10Wc	**78.2**	57.5	60.9	60.4	-0.48
T10Ed	62.8	47.3	49.8	49.5	-0.36
T10Wd	62.4	47.5	49.9	49.6	-0.34
T10Ee	43.9	35.7	37.0	36.8	-0.18
T10We	45.6	36.8	38.2	38.0	-0.19
T10Ef	35.0	30.3	31.1	31.0	-0.10
T10Wf	37.3	31.7	32.6	32.4	-0.12
T10Eg	30.2	27.3	27.7	27.7	-0.04
T10Wg	32.1	28.5	29.0	28.9	-0.07
T10Eh	28.6	26.3	26.7	26.6	-0.03
T10Wh	30.0	27.2	27.6	27.5	-0.05
T10Wi	29.2	26.6	27.0	27.0	-0.04
T11Ea	53.7	41.5	44.9	44.4	-0.49
T11Wa	58.9	44.6	48.6	48.0	-0.57
T11Eb	41.9	33.9	36.1	35.8	-0.31
T11Wb	46.7	37.0	39.7	39.3	-0.38
T11Ec	36.6	30.7	32.3	32.0	-0.23
T11Wc	39.3	32.4	34.2	33.9	-0.26
T11Ed	32.1	27.9	29.0	28.9	-0.15
T11Wd	33.7	28.9	30.2	30.0	-0.17
T11Ee	27.9	25.3	25.9	25.8	-0.08
T11We	28.6	25.8	26.5	26.4	-0.08
T11Ef	25.8	24.0	24.4	24.4	-0.05
T11Wf	26.3	24.4	24.8	24.7	-0.05
T11Eg	24.5	23.2	23.5	23.5	-0.03
T11Wg	24.9	23.5	23.8	23.7	-0.03
T11Eh	24.0	22.9	23.1	23.1	-0.02
T11Wh	24.4	23.2	23.4	23.4	-0.02
T11Ei	23.7	22.7	22.9	22.9	-0.01
T11Wi	24.2	23.1	23.3	23.2	-0.02

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T12Wa	**191.7**	**132.1**	**135.4**	**137.1**	1.73
T12Wb	**157.0**	**109.1**	**111.7**	**113.1**	1.38
T12Wc	**111.3**	**79.0**	**80.7**	**81.6**	0.93
T12Wd	**84.1**	61.3	62.5	63.1	0.65
T12We	56.3	43.1	43.9	44.2	0.37
T12Wf	42.3	34.1	34.6	34.8	0.22
T12Wg	33.0	28.2	28.5	28.7	0.12
T12Wh	29.2	25.9	26.1	26.2	0.08
T12Wi	27.2	24.7	24.8	24.9	0.07

Notes: **Bold** denoted exceedance of the 75 µgm^{-3} daily mean NO_X AQO.

Table E.3 Predicted annual mean concentrations of NH_3 (µgm^{-3})

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T1Ea	**1.5**	**1.2**	**1.2**	**1.2**	0.006
T1Wa	**1.3**	**1.1**	**1.1**	**1.1**	0.005
T1Eb	**1.3**	**1.1**	**1.1**	**1.1**	0.005
T1Wb	**1.1**	1.0	1.0	1.0	0.003
T1Ec	**1.2**	**1.0**	1.0	**1.0**	0.003
T1Wc	**1.0**	0.9	0.9	0.9	0.002
T1Ed	**1.0**	0.9	0.9	0.9	0.002
T1Wd	0.9	0.9	0.9	0.9	0.002
T1Ee	0.9	0.9	0.8	0.9	0.001
T1We	0.9	0.8	0.8	0.8	0.001
T1Ef	0.8	0.8	0.8	0.8	0.001
T1Wf	0.8	0.8	0.8	0.8	<0.001
T1Eg	0.8	0.8	0.8	0.8	<0.001
T1Wg	0.8	0.8	0.8	0.8	<0.001
T1Eh	0.8	0.8	0.8	0.8	<0.001

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T1Wh	0.8	0.8	0.8	0.8	<0.001
T1Ei	0.8	0.8	0.8	0.8	<0.001
T1Wi	0.8	0.8	0.8	0.8	<0.001
T2Ea	**1.6**	**1.3**	**1.3**	**1.3**	0.003
T2Wa	**1.3**	**1.1**	**1.1**	**1.1**	0.002
T2Eb	**1.4**	**1.1**	**1.2**	**1.2**	0.002
T2Wb	**1.1**	1.0	1.0	1.0	0.001
T2Ec	**1.2**	**1.0**	**1.0**	**1.0**	0.001
T2Wc	**1.0**	0.9	0.9	0.9	0.001
T2Ed	**1.1**	1.0	1.0	1.0	0.001
T2Wd	0.9	0.9	0.9	0.9	0.001
T2Ee	0.9	0.9	0.9	0.9	0.001
T2We	0.9	0.8	0.8	0.8	<0.001
T2Ef	0.9	0.8	0.8	0.8	<0.001
T2Wf	0.8	0.8	0.8	0.8	<0.001
T2Eg	0.8	0.8	0.8	0.8	<0.001
T2Wg	0.8	0.8	0.8	0.8	<0.001
T2Eh	0.8	0.8	0.8	0.8	<0.001
T2Wh	0.8	0.8	0.8	0.8	<0.001
T2Ei	0.8	0.8	0.8	0.8	<0.001
T2Wi	0.8	0.8	0.8	0.8	<0.001
T3Ea	**1.4**	**1.1**	**1.1**	**1.1**	<0.001
T3Wa	**1.1**	1.0	1.0	1.0	<0.001
T3Eb	**1.2**	**1.0**	**1.0**	**1.0**	<0.001
T3Wb	**1.0**	0.9	0.9	0.9	<0.001
T3Ec	**1.1**	1.0	1.0	1.0	<0.001
T3Wc	0.9	0.9	0.9	0.9	<0.001
T3Ed	**1.0**	0.9	0.9	0.9	<0.001
T3Wd	0.9	0.8	0.8	0.8	<0.001
T3Ee	0.9	0.8	0.8	0.8	<0.001

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T3We	0.8	0.8	0.8	0.8	<0.001
T3Ef	0.8	0.8	0.8	0.8	<0.001
T3Wf	0.8	0.8	0.8	0.8	<0.001
T3Eg	0.8	0.8	0.8	0.8	<0.001
T3Wg	0.8	0.8	0.8	0.8	<0.001
T3Eh	0.8	0.8	0.8	0.8	<0.001
T3Wh	0.8	0.8	0.8	0.8	<0.001
T3Ei	0.8	0.8	0.8	0.8	<0.001
T3Wi	0.8	0.8	0.8	0.8	<0.001
T4Ea	**1.4**	**1.1**	**1.1**	**1.1**	<0.001
T4Wa	**1.3**	**1.1**	**1.1**	**1.1**	<0.001
T4Eb	**1.2**	1.0	1.0	1.0	<0.001
T4Wb	**1.2**	1.0	1.0	1.0	<0.001
T4Ec	**1.1**	0.9	0.9	0.9	<0.001
T4Wc	**1.0**	0.9	0.9	0.9	<0.001
T4Ed	1.0	0.9	0.9	0.9	<0.001
T4Wd	1.0	0.9	0.9	0.9	<0.001
T4Ee	0.9	0.8	0.8	0.8	<0.001
T4We	0.9	0.8	0.8	0.8	<0.001
T4Ef	0.8	0.8	0.8	0.8	<0.001
T4Wf	0.8	0.8	0.8	0.8	<0.001
T4Eg	0.8	0.8	0.8	0.8	<0.001
T4Wg	0.8	0.8	0.8	0.8	<0.001
T4Eh	0.8	0.8	0.8	0.8	<0.001
T4Wh	0.8	0.8	0.8	0.8	<0.001
T4Ei	0.8	0.8	0.8	0.8	<0.001
T4Wi	0.8	0.8	0.8	0.8	<0.001
T5Ea	**1.3**	**1.1**	**1.1**	**1.1**	-0.005
T5Wa	**1.1**	1.0	1.0	1.0	-0.003
T5Eb	**1.1**	1.0	1.0	1.0	-0.003

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T5Wb	1.0	0.9	0.9	0.9	-0.002
T5Ec	**1.0**	0.9	0.9	0.9	-0.002
T5Wc	0.9	0.9	0.9	0.9	-0.001
T5Ed	0.9	0.9	0.9	0.9	-0.001
T5Wd	0.9	0.8	0.8	0.8	-0.001
T5Ee	0.9	0.8	0.8	0.8	-0.001
T5We	0.8	0.8	0.8	0.8	<0.001
T5Ef	0.8	0.8	0.8	0.8	<0.001
T5Wf	0.8	0.8	0.8	0.8	<0.001
T5Eg	0.8	0.8	0.8	0.8	<0.001
T5Wg	0.8	0.8	0.8	0.8	<0.001
T5Eh	0.8	0.8	0.8	0.8	<0.001
T5Wh	0.8	0.8	0.8	0.8	<0.001
T5Ei	0.8	0.8	0.8	0.8	<0.001
T5Wi	0.8	0.8	0.8	0.8	<0.001
T6Ea	**1.1**	1.0	1.0	1.0	-0.001
T6Wa	1.0	0.9	0.9	0.9	-0.001
T6Eb	**1.0**	0.9	0.9	0.9	-0.001
T6Wb	0.9	0.8	0.9	0.9	<0.001
T6Ec	1.0	0.9	0.9	0.9	-0.001
T6Wc	0.9	0.8	0.8	0.8	<0.001
T6Ed	0.9	0.8	0.9	0.9	<0.001
T6Wd	0.8	0.8	0.8	0.8	<0.001
T6Ee	0.8	0.8	0.8	0.8	<0.001
T6We	0.8	0.8	0.8	0.8	<0.001
T6Ef	0.8	0.8	0.8	0.8	<0.001
T6Wf	0.8	0.8	0.8	0.8	<0.001
T6Eg	0.8	0.8	0.8	0.8	<0.001
T6Wg	0.8	0.8	0.8	0.8	<0.001
T6Eh	0.8	0.8	0.8	0.8	<0.001

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T6Wh	0.8	0.8	0.8	0.8	<0.001
T6Ei	0.8	0.8	0.8	0.8	<0.001
T6Wi	0.8	0.8	0.8	0.8	<0.001
T7Ea	**2.1**	**1.6**	**1.6**	**1.6**	-0.010
T7Wa	**1.5**	**1.2**	**1.3**	**1.3**	-0.006
T7Eb	**1.7**	**1.4**	**1.4**	**1.4**	-0.007
T7Wb	**1.3**	**1.1**	**1.1**	**1.1**	-0.004
T7Ec	**1.5**	**1.2**	**1.2**	**1.2**	-0.005
T7Wc	**1.1**	1.0	1.0	1.0	-0.003
T7Ed	**1.3**	**1.1**	**1.1**	**1.1**	-0.004
T7Wd	**1.0**	0.9	0.9	0.9	-0.002
T7Ee	**1.0**	0.9	0.9	0.9	-0.002
T7We	0.9	0.8	0.8	0.8	-0.001
T7Ef	0.9	0.9	0.9	0.9	-0.001
T7Wf	0.8	0.8	0.8	0.8	<0.001
T7Eg	0.9	0.8	0.8	0.8	-0.001
T7Wg	0.8	0.8	0.8	0.8	<0.001
T7Eh	0.8	0.8	0.8	0.8	<0.001
T7Wh	0.8	0.8	0.8	0.8	<0.001
T7Ei	0.8	0.8	0.8	0.8	<0.001
T7Wi	0.8	0.8	0.8	0.8	<0.001
T8Wa	**1.5**	**1.2**	**1.2**	**1.2**	-0.005
T8Wb	**1.3**	**1.1**	**1.1**	**1.1**	-0.004
T8Wc	**1.1**	1.0	**1.0**	1.0	-0.003
T8Wd	**1.0**	0.9	0.9	0.9	-0.002
T8We	0.9	0.8	0.8	0.8	-0.001
T8Wf	0.8	0.8	0.8	0.8	-0.001
T8Wg	0.8	0.8	0.8	0.8	<0.001
T8Wh	0.8	0.8	0.8	0.8	<0.001
T8Wi	0.8	0.8	0.8	0.8	<0.001

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T9Ea	**1.4**	**1.2**	**1.2**	**1.2**	-0.004
T9Wa	**1.3**	**1.1**	**1.1**	**1.1**	-0.003
T9Eb	**1.2**	**1.0**	**1.1**	**1.1**	-0.003
T9Wb	**1.1**	1.0	**1.0**	**1.0**	-0.002
T9Ec	**1.1**	1.0	1.0	1.0	-0.002
T9Wc	**1.0**	0.9	0.9	0.9	-0.002
T9Ed	1.0	0.9	0.9	0.9	-0.001
T9Wd	0.9	0.9	0.9	0.9	-0.001
T9Ee	0.9	0.8	0.9	0.8	-0.001
T9We	0.9	0.8	0.8	0.8	-0.001
T9Ef	0.8	0.8	0.8	0.8	<0.001
T9Wf	0.8	0.8	0.8	0.8	<0.001
T9Eg	0.8	0.8	0.8	0.8	<0.001
T9Wg	0.8	0.8	0.8	0.8	<0.001
T9Eh	0.8	0.8	0.8	0.8	<0.001
T9Wh	0.8	0.8	0.8	0.8	<0.001
T9Ei	0.8	0.8	0.8	0.8	<0.001
T9Wi	0.8	0.8	0.8	0.8	<0.001
T10Ea	**1.8**	**1.4**	**1.5**	**1.5**	-0.009
T10Wa	**1.4**	**1.2**	**1.2**	**1.2**	-0.005
T10Eb	**1.6**	**1.2**	**1.3**	**1.3**	-0.007
T10Wb	**1.2**	**1.0**	**1.0**	**1.0**	-0.004
T10Ec	**1.3**	**1.1**	**1.1**	**1.1**	-0.005
T10Wc	**1.1**	0.9	1.0	1.0	-0.002
T10Ed	**1.2**	1.0	**1.0**	**1.0**	-0.003
T10Wd	1.0	0.9	0.9	0.9	-0.002
T10Ee	1.0	0.9	0.9	0.9	-0.002
T10We	0.9	0.8	0.8	0.8	-0.001
T10Ef	0.9	0.8	0.8	0.8	-0.001
T10Wf	0.8	0.8	0.8	0.8	<0.001

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T10Eg	0.8	0.8	0.8	0.8	<0.001
T10Wg	0.8	0.8	0.8	0.8	<0.001
T10Eh	0.8	0.8	0.8	0.8	<0.001
T10Wh	0.8	0.8	0.8	0.8	<0.001
T10Wi	0.8	0.8	0.8	0.8	<0.001
T11Ea	**1.0**	0.9	1.0	1.0	-0.004
T11Wa	**1.1**	1.0	1.0	1.0	-0.005
T11Eb	0.9	0.9	0.9	0.9	-0.003
T11Wb	1.0	0.9	0.9	0.9	-0.003
T11Ec	0.9	0.8	0.9	0.9	-0.002
T11Wc	0.9	0.9	0.9	0.9	-0.002
T11Ed	0.8	0.8	0.8	0.8	-0.001
T11Wd	0.9	0.8	0.8	0.8	-0.002
T11Ee	0.8	0.8	0.8	0.8	-0.001
T11We	0.8	0.8	0.8	0.8	-0.001
T11Ef	0.8	0.8	0.8	0.8	<0.001
T11Wf	0.8	0.8	0.8	0.8	<0.001
T11Eg	0.8	0.8	0.8	0.8	<0.001
T11Wg	0.8	0.8	0.8	0.8	<0.001
T11Eh	0.8	0.8	0.8	0.8	<0.001
T11Wh	0.8	0.8	0.8	0.8	<0.001
T11Ei	0.8	0.8	0.8	0.8	<0.001
T11Wi	0.8	0.8	0.8	0.8	<0.001
T12Wa	**2.3**	**1.7**	**1.8**	**1.8**	0.015
T12Wb	**2.0**	**1.5**	**1.5**	**1.6**	0.012
T12Wc	**1.6**	**1.3**	**1.3**	**1.3**	0.008
T12Wd	**1.3**	**1.1**	**1.1**	**1.1**	0.005
T12We	**1.1**	0.9	0.9	1.0	0.003
T12Wf	0.9	0.9	0.9	0.9	0.001
T12Wg	0.8	0.8	0.8	0.8	0.001

	2017 Base	Scenario A – 2031 Projected Base	Scenario B –2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T12Wh	0.8	0.8	0.8	0.8	<0.001
T12Wi	0.8	0.8	0.8	0.8	<0.001

Note: **Bold** denotes exceedance of the 1 μgm^{-3} target concentration where certain species are present.

Table E.4 Total nitrogen deposition at each transect point (kg N/ha/yr)

	2017 Base	Scenario A – 2031 Projected Base	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	As a % of the 10 kgN/ha/yr min critical load
T1Ea	24.83	20.79	20.66	20.76	0.097	0%
T1Wa	22.21	19.11	19.02	19.09	0.075	0%
T1Eb	22.10	19.07	18.98	19.05	0.074	0%
T1Wb	19.77	17.59	17.53	17.58	0.054	0%
T1Ec	19.98	17.75	17.68	17.74	0.055	0%
T1Wc	18.11	16.58	16.54	16.57	0.034	0%
T1Ed	18.27	16.69	16.65	16.69	0.037	0%
T1Wd	16.85	15.80	15.78	15.80	0.022	0%
T1Ee	16.41	15.55	15.53	15.55	0.019	0%
T1We	15.60	15.05	15.04	15.06	0.012	0%
T1Ef	15.52	15.00	15.00	15.01	0.012	0%
T1Wf	15.03	14.70	14.70	14.71	0.007	0%
T1Eg	14.99	14.68	14.68	14.69	0.006	0%
T1Wg	14.71	14.51	14.51	14.52	0.005	0%
T1Eh	14.81	14.57	14.57	14.58	0.005	0%
T1Wh	14.60	14.44	14.45	14.45	0.004	0%
T1Ei	14.70	14.51	14.51	14.52	0.002	0%
T1Wi	14.56	14.42	14.43	14.43	0.001	0%
T2Ea	26.19	21.66	21.80	21.84	0.039	0%
T2Wa	21.92	18.92	19.01	19.04	0.029	0%
T2Eb	23.27	19.82	19.93	19.96	0.031	0%
T2Wb	19.48	17.41	17.48	17.50	0.018	0%
T2Ec	20.87	18.32	18.40	18.42	0.021	0%

	2017 Base	Scenario A – 2031 Projected Base	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	As a % of the 10 kgN/ha/yr min critical load
T2Wc	17.92	16.46	16.51	16.52	0.013	0%
T2Ed	18.94	17.11	17.17	17.19	0.014	0%
T2Wd	16.76	15.75	15.79	15.80	0.010	0%
T2Ee	16.83	15.81	15.84	15.85	0.008	0%
T2We	15.60	15.05	15.07	15.07	0.003	0%
T2Ef	15.78	15.17	15.19	15.19	0.006	0%
T2Wf	15.06	14.73	14.74	14.75	0.002	0%
T2Eg	15.16	14.79	14.80	14.81	0.002	0%
T2Wg	14.76	14.54	14.55	14.56	0.004	0%
T2Eh	14.94	14.65	14.67	14.67	0.001	0%
T2Wh	14.65	14.47	14.48	14.49	0.001	0%
T2Ei	14.82	14.58	14.59	14.59	0.004	0%
T2Wi	14.59	14.44	14.45	14.45	0.001	0%
T3Ea	23.19	19.76	19.68	19.68	-0.001	**1%**
T3Wa	19.27	17.29	17.25	17.25	0.000	0%
T3Eb	21.03	18.42	18.36	18.36	0.000	**1%**
T3Wb	17.79	16.39	16.36	16.36	0.000	0%
T3Ec	19.27	17.32	17.28	17.28	0.000	0%
T3Wc	16.78	15.77	15.75	15.75	0.000	0%
T3Ed	17.80	16.41	16.38	16.38	0.000	0%
T3Wd	15.99	15.29	15.28	15.28	0.000	0%
T3Ee	16.19	15.42	15.41	15.41	0.000	0%
T3We	15.19	14.81	14.81	14.81	0.000	0%
T3Ef	15.41	14.94	14.94	14.94	0.000	0%
T3Wf	14.82	14.58	14.59	14.59	0.000	0%
T3Eg	14.94	14.65	14.66	14.66	0.003	0%
T3Wg	14.61	14.45	14.46	14.46	0.000	0%
T3Eh	14.77	14.55	14.55	14.56	0.003	0%
T3Wh	14.53	14.41	14.41	14.41	0.000	0%

	2017 Base	Scenario A – 2031 Projected Base	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	As a % of the 10 kgN/ha/yr min critical load
T3Ei	14.68	14.50	14.50	14.50	0.000	0%
T3Wi	14.49	14.38	14.39	14.39	0.000	0%
T4Ea	23.12	19.71	19.69	19.68	-0.006	0%
T4Wa	22.75	19.51	19.48	19.47	-0.006	0%
T4Eb	20.50	18.07	18.05	18.05	-0.005	0%
T4Wb	20.18	17.89	17.87	17.87	-0.005	0%
T4Ec	18.76	16.99	16.98	16.98	-0.002	0%
T4Wc	18.47	16.82	16.81	16.81	-0.004	0%
T4Ed	17.35	16.13	16.12	16.12	-0.001	0%
T4Wd	17.13	15.99	15.99	15.99	-0.001	0%
T4Ee	15.90	15.23	15.24	15.24	0.000	0%
T4We	15.76	15.15	15.15	15.15	0.000	0%
T4Ef	15.21	14.82	14.82	14.82	0.000	0%
T4Wf	15.12	14.76	14.76	14.76	0.000	0%
T4Eg	14.82	14.58	14.59	14.59	0.000	0%
T4Wg	14.75	14.54	14.54	14.54	0.000	0%
T4Eh	14.68	14.50	14.50	14.50	0.000	0%
T4Wh	14.63	14.46	14.47	14.47	0.000	0%
T4Ei	14.61	14.45	14.46	14.46	0.000	0%
T4Wi	14.56	14.42	14.43	14.43	0.000	0%
T5Ea	21.50	18.69	19.01	18.95	-0.069	0%
T5Wa	18.83	17.04	17.24	17.20	-0.043	0%
T5Eb	19.42	17.40	17.63	17.58	-0.049	0%
T5Wb	17.32	16.11	16.24	16.21	-0.029	0%
T5Ec	17.98	16.51	16.68	16.65	-0.032	0%
T5Wc	16.47	15.59	15.68	15.67	-0.018	0%
T5Ed	16.86	15.82	15.94	15.92	-0.020	0%
T5Wd	15.81	15.18	15.25	15.24	-0.009	0%
T5Ee	15.73	15.13	15.20	15.19	-0.008	0%

	2017 Base	Scenario A – 2031 Projected Base	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	As a % of the 10 kgN/ha/yr min critical load
T5We	15.16	14.79	14.82	14.82	-0.005	0%
T5Ef	15.18	14.80	14.84	14.84	-0.005	0%
T5Wf	14.86	14.60	14.63	14.63	-0.003	0%
T5Eg	14.87	14.61	14.64	14.63	-0.003	0%
T5Wg	14.69	14.50	14.51	14.52	0.000	0%
T5Eh	14.76	14.54	14.56	14.56	0.000	0%
T5Wh	14.62	14.46	14.47	14.47	0.001	0%
T5Ei	14.69	14.50	14.52	14.52	0.000	0%
T5Wi	14.61	14.45	14.47	14.47	0.001	0%
T6Ea	19.46	17.43	17.60	17.58	-0.018	0%
T6Wa	17.20	16.03	16.14	16.13	-0.011	0%
T6Eb	18.18	16.63	16.77	16.75	-0.013	0%
T6Wb	16.34	15.51	15.58	15.57	-0.006	0%
T6Ec	17.19	16.03	16.13	16.12	-0.011	0%
T6Wc	15.78	15.17	15.22	15.22	-0.005	0%
T6Ed	16.33	15.50	15.57	15.57	-0.006	0%
T6Wd	15.35	14.90	14.94	14.93	-0.004	0%
T6Ee	15.42	14.95	14.98	14.98	-0.002	0%
T6We	14.90	14.63	14.65	14.65	-0.001	0%
T6Ef	14.99	14.68	14.71	14.70	-0.004	0%
T6Wf	14.69	14.50	14.52	14.52	0.000	0%
T6Eg	14.72	14.52	14.54	14.54	0.000	0%
T6Wg	14.57	14.43	14.44	14.44	0.000	0%
T6Eh	14.63	14.46	14.48	14.48	0.000	0%
T6Wh	14.52	14.40	14.41	14.41	0.000	0%
T6Ei	14.58	14.43	14.45	14.45	0.000	0%
T6Wi	14.49	14.38	14.39	14.39	0.000	0%
T7Ea	32.53	25.87	26.43	26.28	-0.141	0%
T7Wa	25.33	21.12	21.48	21.39	-0.088	0%

	2017 Base	Scenario A – 2031 Projected Base	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	As a % of the 10 kgN/ha/yr min critical load
T7Eb	28.32	23.14	23.58	23.47	-0.110	0%
T7Wb	21.80	18.90	19.14	19.08	-0.058	0%
T7Ec	24.72	20.82	21.15	21.07	-0.079	0%
T7Wc	19.58	17.52	17.69	17.65	-0.042	0%
T7Ed	21.67	18.88	19.11	19.06	-0.057	0%
T7Wd	17.88	16.46	16.58	16.56	-0.026	0%
T7Ee	18.26	16.73	16.86	16.83	-0.030	0%
T7We	16.12	15.38	15.45	15.43	-0.015	0%
T7Ef	16.57	15.67	15.75	15.73	-0.017	0%
T7Wf	15.30	14.88	14.92	14.91	-0.006	0%
T7Eg	15.55	15.03	15.08	15.07	-0.007	0%
T7Wg	14.84	14.59	14.62	14.62	-0.001	0%
T7Eh	15.17	14.80	14.84	14.83	-0.006	0%
T7Wh	14.67	14.49	14.52	14.51	0.000	0%
T7Ei	14.98	14.68	14.71	14.71	-0.002	0%
T7Wi	14.59	14.44	14.46	14.46	0.000	0%
T8Wa	24.77	20.82	21.15	21.07	-0.083	0%
T8Wb	21.69	18.87	19.11	19.05	-0.058	0%
T8Wc	19.62	17.56	17.74	17.70	-0.043	0%
T8Wd	17.97	16.53	16.66	16.63	-0.030	0%
T8We	16.24	15.45	15.53	15.52	-0.016	0%
T8Wf	15.42	14.95	15.00	14.99	-0.007	0%
T8Wg	14.95	14.66	14.70	14.69	-0.005	0%
T8Wh	14.78	14.56	14.59	14.59	-0.002	0%
T8Wi	14.70	14.51	14.53	14.53	-0.001	0%
T9Ea	23.94	20.24	21.05	20.98	-0.064	0%
T9Wa	22.16	19.10	19.77	19.72	-0.051	0%
T9Eb	21.03	18.41	18.98	18.93	-0.044	0%
T9Wb	19.64	17.54	17.99	17.96	-0.036	0%

	2017 Base	Scenario A – 2031 Projected Base	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	As a % of the 10 kgN/ha/yr min critical load
T9Ec	19.21	17.28	17.69	17.66	-0.032	0%
T9Wc	18.06	16.55	16.88	16.86	-0.025	0%
T9Ed	17.71	16.35	16.65	16.62	-0.023	0%
T9Wd	16.87	15.82	16.05	16.03	-0.017	0%
T9Ee	16.13	15.38	15.54	15.53	-0.012	0%
T9We	15.64	15.07	15.19	15.18	-0.007	0%
T9Ef	15.37	14.92	15.01	15.00	-0.006	0%
T9Wf	15.07	14.73	14.80	14.80	-0.005	0%
T9Eg	14.92	14.64	14.70	14.70	-0.002	0%
T9Wg	14.75	14.53	14.58	14.58	-0.001	0%
T9Eh	14.76	14.54	14.58	14.58	-0.001	0%
T9Wh	14.63	14.46	14.50	14.50	-0.001	0%
T9Ei	14.67	14.49	14.52	14.52	-0.001	0%
T9Wi	14.57	14.43	14.46	14.46	0.000	0%
T10Ea	29.46	23.63	24.55	24.42	-0.133	0%
T10Wa	23.64	20.01	20.59	20.51	-0.083	0%
T10Eb	25.73	21.28	21.99	21.88	-0.102	0%
T10Wb	20.43	18.02	18.40	18.34	-0.055	0%
T10Ec	22.48	19.26	19.77	19.70	-0.072	0%
T10Wc	18.63	16.91	17.18	17.14	-0.038	0%
T10Ed	19.95	17.70	18.05	18.00	-0.050	0%
T10Wd	17.27	16.07	16.26	16.23	-0.028	0%
T10Ee	17.24	16.05	16.23	16.21	-0.025	0%
T10We	15.85	15.20	15.30	15.29	-0.013	0%
T10Ef	15.98	15.28	15.39	15.37	-0.013	0%
T10Wf	15.19	14.80	14.86	14.85	-0.007	0%
T10Eg	15.22	14.82	14.88	14.87	-0.007	0%
T10Wg	14.79	14.56	14.59	14.59	-0.005	0%
T10Eh	14.95	14.66	14.70	14.70	-0.006	0%

	2017 Base	Scenario A – 2031 Projected Base	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	As a % of the 10 kgN/ha/yr min critical load
T10Wh	15.64	14.47	14.50	14.49	-0.004	0%
T10Wi	16.59	14.44	14.46	14.46	-0.001	0%
T11Ea	21.46	16.80	17.25	17.19	-0.067	0%
T11Wa	23.01	17.17	17.68	17.60	-0.074	0%
T11Eb	21.93	15.86	16.15	16.11	-0.042	0%
T11Wb	23.49	16.22	16.57	16.52	-0.050	0%
T11Ec	23.15	15.39	15.59	15.56	-0.030	0%
T11Wc	24.58	15.66	15.91	15.87	-0.036	0%
T11Ed	24.49	14.98	15.11	15.09	-0.018	0%
T11Wd	25.86	15.22	15.39	15.36	-0.024	0%
T11Ee	25.90	14.63	14.69	14.69	-0.007	0%
T11We	27.17	14.80	14.89	14.88	-0.012	0%
T11Ef	27.65	14.48	14.51	14.51	-0.005	0%
T11Wf	28.85	14.60	14.66	14.65	-0.007	0%
T11Eg	29.52	14.40	14.42	14.42	-0.004	0%
T11Wg	30.65	14.48	14.51	14.51	-0.005	0%
T11Eh	31.48	14.37	14.39	14.39	-0.004	0%
T11Wh	32.58	14.43	14.46	14.46	-0.002	0%
T11Ei	33.46	14.36	14.38	14.38	-0.001	0%
T11Wi	34.54	14.41	14.43	14.43	-0.004	0%
T12Wa	56.64	28.05	28.46	28.67	0.211	**1%**
T12Wb	53.29	25.15	25.48	25.65	0.171	**1%**
T12Wc	48.70	21.48	21.71	21.82	0.116	**1%**
T12Wd	46.24	19.25	19.41	19.49	0.081	0%
T12We	43.50	16.87	16.96	17.00	0.043	0%
T12Wf	42.62	15.69	15.74	15.76	0.024	0%
T12Wg	42.48	14.98	15.01	15.02	0.012	0%
T12Wh	43.07	14.73	14.76	14.76	0.007	0%
T12Wi	43.87	14.61	14.63	14.64	0.006	0%

Notes: **Bold** denotes change of greater than 1% of critical load.

Table E.5 Total acid deposition at modelled transect points (keq N / ha/yr)

	2017 Base	Scenario A – 2031 Projected Base	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	As a % of the min CLminN (0.499 keq N/ ha/ yr)
T1Ea	1.77	1.48	1.47	1.48	0.007	**1%**
T1Wa	1.58	1.36	1.35	1.36	0.005	**1%**
T1Eb	1.57	1.36	1.35	1.36	0.005	**1%**
T1Wb	1.41	1.25	1.25	1.25	0.003	0%
T1Ec	1.42	1.26	1.26	1.26	0.004	0%
T1Wc	1.29	1.18	1.18	1.18	0.003	0%
T1Ed	1.30	1.19	1.18	1.19	0.002	0%
T1Wd	1.20	1.12	1.12	1.12	0.002	0%
T1Ee	1.17	1.11	1.10	1.11	0.001	0%
T1We	1.11	1.07	1.07	1.07	0.001	0%
T1Ef	1.10	1.07	1.07	1.07	0.001	0%
T1Wf	1.07	1.05	1.05	1.05	<0.001	0%
T1Eg	1.07	1.04	1.04	1.04	<0.001	0%
T1Wg	1.05	1.03	1.03	1.03	<0.001	0%
T1Eh	1.05	1.04	1.04	1.04	<0.001	0%
T1Wh	1.04	1.03	1.03	1.03	<0.001	0%
T1Ei	1.05	1.03	1.03	1.03	<0.001	0%
T1Wi	1.04	1.03	1.03	1.03	<0.001	0%
T2Ea	1.86	1.54	1.55	1.55	0.003	0%
T2Wa	1.56	1.35	1.35	1.36	0.002	0%
T2Eb	1.66	1.41	1.42	1.42	0.002	0%
T2Wb	1.39	1.24	1.24	1.24	0.001	0%
T2Ec	1.49	1.30	1.31	1.31	0.002	0%
T2Wc	1.27	1.17	1.17	1.18	0.001	0%
T2Ed	1.35	1.22	1.22	1.22	0.001	0%
T2Wd	1.19	1.12	1.12	1.12	0.001	0%

	2017 Base	Scenario A – 2031 Projected Base	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	As a % of the min CLminN (0.499 keq N/ ha/ yr)
T2Ee	1.20	1.12	1.13	1.13	0.001	0%
T2We	1.11	1.07	1.07	1.07	<0.001	0%
T2Ef	1.12	1.08	1.08	1.08	<0.001	0%
T2Wf	1.07	1.05	1.05	1.05	<0.001	0%
T2Eg	1.08	1.05	1.05	1.05	<0.001	0%
T2Wg	1.05	1.03	1.04	1.04	<0.001	0%
T2Eh	1.06	1.04	1.04	1.04	<0.001	0%
T2Wh	1.04	1.03	1.03	1.03	<0.001	0%
T2Ei	1.05	1.04	1.04	1.04	<0.001	0%
T2Wi	1.04	1.03	1.03	1.03	<0.001	0%
T3Ea	1.65	1.41	1.40	1.40	<0.001	0%
T3Wa	1.37	1.23	1.23	1.23	<0.001	0%
T3Eb	1.50	1.31	1.31	1.31	<0.001	0%
T3Wb	1.27	1.17	1.16	1.16	<0.001	0%
T3Ec	1.37	1.23	1.23	1.23	<0.001	0%
T3Wc	1.19	1.12	1.12	1.12	<0.001	0%
T3Ed	1.27	1.17	1.17	1.17	<0.001	0%
T3Wd	1.14	1.09	1.09	1.09	<0.001	0%
T3Ee	1.15	1.10	1.10	1.10	<0.001	0%
T3We	1.08	1.05	1.05	1.05	<0.001	0%
T3Ef	1.10	1.06	1.06	1.06	<0.001	0%
T3Wf	1.05	1.04	1.04	1.04	<0.001	0%
T3Eg	1.06	1.04	1.04	1.04	<0.001	0%
T3Wg	1.04	1.03	1.03	1.03	<0.001	0%
T3Eh	1.05	1.03	1.04	1.04	<0.001	0%
T3Wh	1.03	1.02	1.03	1.03	<0.001	0%
T3Ei	1.04	1.03	1.03	1.03	<0.001	0%
T3Wi	1.03	1.02	1.02	1.02	<0.001	0%
T4Ea	1.65	1.40	1.40	1.40	<0.001	0%

	2017 Base	Scenario A – 2031 Projected Base	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	As a % of the min CLminN (0.499 keq N/ ha/ yr)
T4Wa	1.62	1.39	1.39	1.39	<0.001	0%
T4Eb	1.46	1.29	1.28	1.28	<0.001	0%
T4Wb	1.44	1.27	1.27	1.27	<0.001	0%
T4Ec	1.33	1.21	1.21	1.21	<0.001	0%
T4Wc	1.31	1.20	1.20	1.20	<0.001	0%
T4Ed	1.23	1.15	1.15	1.15	<0.001	0%
T4Wd	1.22	1.14	1.14	1.14	<0.001	0%
T4Ee	1.13	1.08	1.08	1.08	<0.001	0%
T4We	1.12	1.08	1.08	1.08	<0.001	0%
T4Ef	1.08	1.05	1.05	1.05	<0.001	0%
T4Wf	1.08	1.05	1.05	1.05	<0.001	0%
T4Eg	1.05	1.04	1.04	1.04	<0.001	0%
T4Wg	1.05	1.03	1.03	1.03	<0.001	0%
T4Eh	1.04	1.03	1.03	1.03	<0.001	0%
T4Wh	1.04	1.03	1.03	1.03	<0.001	0%
T4Ei	1.04	1.03	1.03	1.03	<0.001	0%
T4Wi	1.04	1.03	1.03	1.03	<0.001	0%
T5Ea	1.53	1.33	1.35	1.35	-0.005	0%
T5Wa	1.34	1.21	1.23	1.22	-0.003	0%
T5Eb	1.38	1.24	1.25	1.25	-0.003	0%
T5Wb	1.23	1.15	1.16	1.15	-0.002	0%
T5Ec	1.28	1.17	1.19	1.18	-0.002	0%
T5Wc	1.17	1.11	1.12	1.11	-0.001	0%
T5Ed	1.20	1.13	1.13	1.13	-0.001	0%
T5Wd	1.12	1.08	1.08	1.08	-0.001	0%
T5Ee	1.12	1.08	1.08	1.08	-0.001	0%
T5We	1.08	1.05	1.05	1.05	<0.001	0%
T5Ef	1.08	1.05	1.06	1.06	<0.001	0%
T5Wf	1.06	1.04	1.04	1.04	<0.001	0%

	2017 Base	Scenario A – 2031 Projected Base	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	As a % of the min CLminN (0.499 keq N/ ha/ yr)
T5Eg	1.06	1.04	1.04	1.04	<0.001	0%
T5Wg	1.04	1.03	1.03	1.03	<0.001	0%
T5Eh	1.05	1.03	1.04	1.04	<0.001	0%
T5Wh	1.04	1.03	1.03	1.03	<0.001	0%
T5Ei	1.05	1.03	1.03	1.03	<0.001	0%
T5Wi	1.04	1.03	1.03	1.03	<0.001	0%
T6Ea	1.38	1.24	1.25	1.25	-0.001	0%
T6Wa	1.22	1.14	1.15	1.15	-0.001	0%
T6Eb	1.29	1.18	1.19	1.19	-0.001	0%
T6Wb	1.16	1.10	1.11	1.11	<0.001	0%
T6Ec	1.22	1.14	1.15	1.15	-0.001	0%
T6Wc	1.12	1.08	1.08	1.08	<0.001	0%
T6Ed	1.16	1.10	1.11	1.11	<0.001	0%
T6Wd	1.09	1.06	1.06	1.06	<0.001	0%
T6Ee	1.10	1.06	1.07	1.07	<0.001	0%
T6We	1.06	1.04	1.04	1.04	<0.001	0%
T6Ef	1.07	1.04	1.05	1.05	<0.001	0%
T6Wf	1.05	1.03	1.03	1.03	<0.001	0%
T6Eg	1.05	1.03	1.03	1.03	<0.001	0%
T6Wg	1.04	1.03	1.03	1.03	<0.001	0%
T6Eh	1.04	1.03	1.03	1.03	<0.001	0%
T6Wh	1.03	1.02	1.03	1.03	<0.001	0%
T6Ei	1.04	1.03	1.03	1.03	<0.001	0%
T6Wi	1.03	1.02	1.02	1.02	<0.001	0%
T7Ea	2.32	1.84	1.88	1.87	-0.009	0%
T7Wa	1.80	1.50	1.53	1.52	-0.006	0%
T7Eb	2.02	1.65	1.68	1.67	-0.007	0%
T7Wb	1.55	1.34	1.36	1.36	-0.004	0%
T7Ec	1.76	1.48	1.51	1.50	-0.005	0%

	2017 Base	Scenario A – 2031 Projected Base	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	As a % of the min CLminN (0.499 keq N/ ha/ yr)
T7Wc	1.39	1.25	1.26	1.26	-0.003	0%
T7Ed	1.54	1.34	1.36	1.36	-0.004	0%
T7Wd	1.27	1.17	1.18	1.18	-0.002	0%
T7Ee	1.30	1.19	1.20	1.20	-0.002	0%
T7We	1.15	1.09	1.10	1.10	-0.001	0%
T7Ef	1.18	1.11	1.12	1.12	-0.001	0%
T7Wf	1.09	1.06	1.06	1.06	<0.001	0%
T7Eg	1.11	1.07	1.07	1.07	<0.001	0%
T7Wg	1.06	1.04	1.04	1.04	<0.001	0%
T7Eh	1.08	1.05	1.06	1.05	<0.001	0%
T7Wh	1.04	1.03	1.03	1.03	<0.001	0%
T7Ei	1.07	1.04	1.05	1.05	<0.001	0%
T7Wi	1.04	1.03	1.03	1.03	<0.001	0%
T8Wa	1.76	1.48	1.51	1.50	-0.005	0%
T8Wb	1.54	1.34	1.36	1.36	-0.004	0%
T8Wc	1.40	1.25	1.26	1.26	-0.003	0%
T8Wd	1.28	1.18	1.19	1.18	-0.002	0%
T8We	1.16	1.10	1.10	1.10	-0.001	0%
T8Wf	1.10	1.06	1.07	1.07	<0.001	0%
T8Wg	1.06	1.04	1.05	1.05	<0.001	0%
T8Wh	1.05	1.04	1.04	1.04	<0.001	0%
T8Wi	1.05	1.03	1.03	1.03	<0.001	0%
T9Ea	1.70	1.44	1.50	1.49	-0.004	0%
T9Wa	1.58	1.36	1.41	1.40	-0.004	0%
T9Eb	1.50	1.31	1.35	1.35	-0.003	0%
T9Wb	1.40	1.25	1.28	1.28	-0.002	0%
T9Ec	1.37	1.23	1.26	1.26	-0.002	0%
T9Wc	1.28	1.18	1.20	1.20	-0.001	0%
T9Ed	1.26	1.16	1.18	1.18	-0.002	0%

	2017 Base	Scenario A – 2031 Projected Base	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	As a % of the min CLminN (0.499 keq N/ ha/ yr)
T9Wd	1.20	1.13	1.14	1.14	-0.001	0%
T9Ee	1.15	1.09	1.11	1.10	-0.001	0%
T9We	1.11	1.07	1.08	1.08	<0.001	0%
T9Ef	1.09	1.06	1.07	1.07	<0.001	0%
T9Wf	1.07	1.05	1.05	1.05	<0.001	0%
T9Eg	1.06	1.04	1.05	1.05	<0.001	0%
T9Wg	1.05	1.03	1.04	1.04	<0.001	0%
T9Eh	1.05	1.03	1.04	1.04	<0.001	0%
T9Wh	1.04	1.03	1.03	1.03	<0.001	0%
T9Ei	1.04	1.03	1.03	1.03	<0.001	0%
T9Wi	1.04	1.03	1.03	1.03	<0.001	0%
T10Ea	2.10	1.68	1.75	1.74	-0.009	0%
T10Wa	1.68	1.42	1.47	1.46	-0.005	0%
T10Eb	1.83	1.51	1.56	1.56	-0.007	0%
T10Wb	1.45	1.28	1.31	1.31	-0.004	0%
T10Ec	1.60	1.37	1.41	1.40	-0.005	0%
T10Wc	1.33	1.20	1.22	1.22	-0.003	0%
T10Ed	1.42	1.26	1.28	1.28	-0.003	0%
T10Wd	1.23	1.14	1.16	1.15	-0.002	0%
T10Ee	1.23	1.14	1.15	1.15	-0.002	0%
T10We	1.13	1.08	1.09	1.09	-0.001	0%
T10Ef	1.14	1.09	1.09	1.09	-0.001	0%
T10Wf	1.08	1.05	1.06	1.06	<0.001	0%
T10Eg	1.08	1.05	1.06	1.06	<0.001	0%
T10Wg	1.05	1.04	1.04	1.04	<0.001	0%
T10Eh	1.06	1.04	1.05	1.05	<0.001	0%
T10Wh	2.04	1.03	1.03	1.03	<0.001	0%
T10Wi	3.04	1.03	1.03	1.03	<0.001	0%
T11Ea	4.31	1.20	1.23	1.22	-0.004	0%

	2017 Base	Scenario A – 2031 Projected Base	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	As a % of the min CLminN (0.499 keq N/ ha/ yr)
T11Wa	5.35	1.22	1.26	1.25	-0.005	0%
T11Eb	6.20	1.13	1.15	1.15	-0.003	0%
T11Wb	7.24	1.15	1.18	1.18	-0.003	0%
T11Ec	8.15	1.09	1.11	1.11	-0.002	0%
T11Wc	9.18	1.11	1.13	1.13	-0.002	0%
T11Ed	10.10	1.07	1.07	1.07	-0.001	0%
T11Wd	11.13	1.08	1.09	1.09	-0.001	0%
T11Ee	12.06	1.04	1.05	1.04	<0.001	0%
T11We	13.08	1.05	1.06	1.06	-0.001	0%
T11Ef	14.04	1.03	1.03	1.03	<0.001	0%
T11Wf	15.06	1.04	1.04	1.04	<0.001	0%
T11Eg	16.03	1.02	1.03	1.03	<0.001	0%
T11Wg	17.04	1.03	1.03	1.03	<0.001	0%
T11Eh	18.03	1.02	1.02	1.02	<0.001	0%
T11Wh	19.04	1.03	1.03	1.03	<0.001	0%
T11Ei	20.03	1.02	1.02	1.02	<0.001	0%
T11Wi	21.03	1.02	1.03	1.03	<0.001	0%
T12Wa	23.54	2.00	2.03	2.04	0.014	**1%**
T12Wb	24.23	1.79	1.81	1.83	0.011	**1%**
T12Wc	24.83	1.53	1.54	1.55	0.008	**1%**
T12Wd	25.58	1.37	1.38	1.39	0.005	**1%**
T12We	26.32	1.20	1.21	1.21	0.003	0%
T12Wf	27.18	1.12	1.12	1.12	0.002	0%
T12Wg	28.10	1.07	1.07	1.07	0.001	0%
T12Wh	29.07	1.05	1.05	1.05	<0.001	0%
T12Wi	30.06	1.04	1.04	1.04	<0.001	0%

Note: **Bold** denotes a change in deposition of 1% of the critical load.

Appendix F
Sensitivity test – NH_3 alternative conversion factor

As the factor of 0.022 used to convert NO_X to NH_3, derived from the AQC report, is considered to be a worst case approach, a sensitivity test has been carried out using a factor of 0.007 derived from the NAEI emission factors. This has been used to recalculate the predicted NH_3 annual mean concentration in Table F.1, as well as the nitrogen (Table F.2) and acid deposition (Table F.3), for Scenario B – Do Minimum and Scenario C – Do Something. As expected, predicted concentrations and deposition values are lower when the NAEI factor Is used to convert NO_x to NH_3. Due to the uncertainty around ammonia emissions, it is considered more robust to use the AQC conversion factor.

Table F.1 Predicted annual mean NH_3 (μgm^{-3}) – comparison of conversion factors

	NAEI conversion factor (0.007)			**AQC conversion factor (0.022)**		
	Scenario B – 2031 Do Minimum	**Scenario C – 2031 Do Something**	**Difference (C-B)**	**Scenario B – 2031 Do Minimum**	**Scenario C – 2031 Do Something**	**Difference (C-B)**
T1Ea	0.9	0.9	0.002	**1.2**	**1.2**	0.006
T1Wa	0.9	0.9	0.002	**1.1**	**1.1**	0.005
T1Eb	0.9	0.9	0.002	**1.1**	**1.1**	0.005
T1Wb	0.8	0.8	0.001	1.0	1.0	0.003
T1Ec	0.8	0.8	0.001	1.0	**1.0**	0.003
T1Wc	0.8	0.8	0.001	0.9	0.9	0.002
T1Ed	0.8	0.8	0.001	0.9	0.9	0.002
T1Wd	0.8	0.8	0.001	0.9	0.9	0.002
T1Ee	0.8	0.8	<0.001	0.8	0.9	0.001
T1We	0.8	0.8	<0.001	0.8	0.8	0.001
T1Ef	0.8	0.8	<0.001	0.8	0.8	0.001
T1Wf	0.8	0.8	<0.001	0.8	0.8	<0.001
T1Eg	0.8	0.8	<0.001	0.8	0.8	<0.001
T1Wg	0.8	0.8	<0.001	0.8	0.8	<0.001
T1Eh	0.8	0.8	<0.001	0.8	0.8	<0.001
T1Wh	0.8	0.8	<0.001	0.8	0.8	<0.001
T1Ei	0.8	0.8	<0.001	0.8	0.8	<0.001
T1Wi	0.8	0.8	<0.001	0.8	0.8	<0.001
T2Ea	0.9	0.9	0.001	**1.3**	**1.3**	0.003
T2Wa	0.9	0.9	0.001	**1.1**	**1.1**	0.002
T2Eb	0.9	0.9	0.001	**1.2**	**1.2**	0.002
T2Wb	0.8	0.8	<0.001	1.0	1.0	0.001

wood.

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	**Scenario C – 2031 Do Something**	**Difference (C-B)**	**Scenario B – 2031 Do Minimum**	**Scenario C – 2031 Do Something**	**Difference (C-B)**
T2Ec	0.9	0.9	<0.001	**1.0**	**1.0**	0.001
T2Wc	0.8	0.8	<0.001	0.9	0.9	0.001
T2Ed	0.8	0.8	<0.001	1.0	1.0	0.001
T2Wd	0.8	0.8	<0.001	0.9	0.9	0.001
T2Ee	0.8	0.8	<0.001	0.9	0.9	0.001
T2We	0.8	0.8	<0.001	0.8	0.8	<0.001
T2Ef	0.8	0.8	<0.001	0.8	0.8	<0.001
T2Wf	0.8	0.8	<0.001	0.8	0.8	<0.001
T2Eg	0.8	0.8	<0.001	0.8	0.8	<0.001
T2Wg	0.8	0.8	<0.001	0.8	0.8	<0.001
T2Eh	0.8	0.8	<0.001	0.8	0.8	<0.001
T2Wh	0.8	0.8	<0.001	0.8	0.8	<0.001
T2Ei	0.8	0.8	<0.001	0.8	0.8	<0.001
T2Wi	0.8	0.8	<0.001	0.8	0.8	<0.001
T3Ea	0.9	0.9	<0.001	**1.1**	**1.1**	<0.001
T3Wa	0.8	0.8	<0.001	1.0	1.0	<0.001
T3Eb	0.9	0.9	<0.001	**1.0**	**1.0**	<0.001
T3Wb	0.8	0.8	<0.001	0.9	0.9	<0.001
T3Ec	0.8	0.8	<0.001	1.0	1.0	<0.001
T3Wc	0.8	0.8	<0.001	0.9	0.9	<0.001
T3Ed	0.8	0.8	<0.001	0.9	0.9	<0.001
T3Wd	0.8	0.8	<0.001	0.8	0.8	<0.001
T3Ee	0.8	0.8	<0.001	0.8	0.8	<0.001
T3We	0.8	0.8	<0.001	0.8	0.8	<0.001
T3Ef	0.8	0.8	<0.001	0.8	0.8	<0.001
T3Wf	0.8	0.8	<0.001	0.8	0.8	<0.001
T3Eg	0.8	0.8	<0.001	0.8	0.8	<0.001
T3Wg	0.8	0.8	<0.001	0.8	0.8	<0.001

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	**Scenario C – 2031 Do Something**	**Difference (C-B)**	**Scenario B – 2031 Do Minimum**	**Scenario C – 2031 Do Something**	**Difference (C-B)**
T3Eh	0.8	0.8	<0.001	0.8	0.8	<0.001
T3Wh	0.8	0.8	<0.001	0.8	0.8	<0.001
T3Ei	0.8	0.8	<0.001	0.8	0.8	<0.001
T3Wi	0.8	0.8	<0.001	0.8	0.8	<0.001
T4Ea	0.9	0.9	<0.001	**1.1**	**1.1**	<0.001
T4Wa	0.9	0.9	<0.001	**1.1**	**1.1**	<0.001
T4Eb	0.8	0.8	<0.001	1.0	1.0	<0.001
T4Wb	0.8	0.8	<0.001	1.0	1.0	<0.001
T4Ec	0.8	0.8	<0.001	0.9	0.9	<0.001
T4Wc	0.8	0.8	<0.001	0.9	0.9	<0.001
T4Ed	0.8	0.8	<0.001	0.9	0.9	<0.001
T4Wd	0.8	0.8	<0.001	0.9	0.9	<0.001
T4Ee	0.8	0.8	<0.001	0.8	0.8	<0.001
T4We	0.8	0.8	<0.001	0.8	0.8	<0.001
T4Ef	0.8	0.8	<0.001	0.8	0.8	<0.001
T4Wf	0.8	0.8	<0.001	0.8	0.8	<0.001
T4Eg	0.8	0.8	<0.001	0.8	0.8	<0.001
T4Wg	0.8	0.8	<0.001	0.8	0.8	<0.001
T4Eh	0.8	0.8	<0.001	0.8	0.8	<0.001
T4Wh	0.8	0.8	<0.001	0.8	0.8	<0.001
T4Ei	0.8	0.8	<0.001	0.8	0.8	<0.001
T4Wi	0.8	0.8	<0.001	0.8	0.8	<0.001
T5Ea	0.9	0.9	-0.002	**1.1**	**1.1**	-0.005
T5Wa	0.8	0.8	-0.001	1.0	1.0	-0.003
T5Eb	0.8	0.8	-0.001	1.0	1.0	-0.003
T5Wb	0.8	0.8	-0.001	0.9	0.9	-0.002
T5Ec	0.8	0.8	-0.001	0.9	0.9	-0.002
T5Wc	0.8	0.8	<0.001	0.9	0.9	-0.001

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	**Scenario C – 2031 Do Something**	**Difference (C-B)**	**Scenario B – 2031 Do Minimum**	**Scenario C – 2031 Do Something**	**Difference (C-B)**
T5Ed	0.8	0.8	<0.001	0.9	0.9	-0.001
T5Wd	0.8	0.8	<0.001	0.8	0.8	-0.001
T5Ee	0.8	0.8	<0.001	0.8	0.8	-0.001
T5We	0.8	0.8	<0.001	0.8	0.8	<0.001
T5Ef	0.8	0.8	<0.001	0.8	0.8	<0.001
T5Wf	0.8	0.8	<0.001	0.8	0.8	<0.001
T5Eg	0.8	0.8	<0.001	0.8	0.8	<0.001
T5Wg	0.8	0.8	<0.001	0.8	0.8	<0.001
T5Eh	0.8	0.8	<0.001	0.8	0.8	<0.001
T5Wh	0.8	0.8	<0.001	0.8	0.8	<0.001
T5Ei	0.8	0.8	<0.001	0.8	0.8	<0.001
T5Wi	0.8	0.8	<0.001	0.8	0.8	<0.001
T6Ea	0.8	0.8	<0.001	1.0	1.0	-0.001
T6Wa	0.8	0.8	<0.001	0.9	0.9	-0.001
T6Eb	0.8	0.8	<0.001	0.9	0.9	-0.001
T6Wb	0.8	0.8	<0.001	0.9	0.9	<0.001
T6Ec	0.8	0.8	<0.001	0.9	0.9	-0.001
T6Wc	0.8	0.8	<0.001	0.8	0.8	<0.001
T6Ed	0.8	0.8	<0.001	0.9	0.9	<0.001
T6Wd	0.8	0.8	<0.001	0.8	0.8	<0.001
T6Ee	0.8	0.8	<0.001	0.8	0.8	<0.001
T6We	0.8	0.8	<0.001	0.8	0.8	<0.001
T6Ef	0.8	0.8	<0.001	0.8	0.8	<0.001
T6Wf	0.8	0.8	<0.001	0.8	0.8	<0.001
T6Eg	0.8	0.8	<0.001	0.8	0.8	<0.001
T6Wg	0.8	0.8	<0.001	0.8	0.8	<0.001
T6Eh	0.8	0.8	<0.001	0.8	0.8	<0.001
T6Wh	0.8	0.8	<0.001	0.8	0.8	<0.001

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	**Scenario C – 2031 Do Something**	**Difference (C-B)**	**Scenario B – 2031 Do Minimum**	**Scenario C – 2031 Do Something**	**Difference (C-B)**
T6Ei	0.8	0.8	<0.001	0.8	0.8	<0.001
T6Wi	0.8	0.8	<0.001	0.8	0.8	<0.001
T7Ea	**1.1**	**1.0**	-0.003	**1.6**	**1.6**	-0.010
T7Wa	0.9	0.9	-0.002	**1.3**	**1.3**	-0.006
T7Eb	1.0	1.0	-0.002	**1.4**	**1.4**	-0.007
T7Wb	0.9	0.9	-0.001	**1.1**	**1.1**	-0.004
T7Ec	0.9	0.9	-0.002	**1.2**	**1.2**	-0.005
T7Wc	0.8	0.8	-0.001	1.0	1.0	-0.003
T7Ed	0.9	0.9	-0.001	**1.1**	**1.1**	-0.004
T7Wd	0.8	0.8	-0.001	0.9	0.9	-0.002
T7Ee	0.8	0.8	-0.001	0.9	0.9	-0.002
T7We	0.8	0.8	<0.001	0.8	0.8	-0.001
T7Ef	0.8	0.8	<0.001	0.9	0.9	-0.001
T7Wf	0.8	0.8	<0.001	0.8	0.8	<0.001
T7Eg	0.8	0.8	<0.001	0.8	0.8	-0.001
T7Wg	0.8	0.8	<0.001	0.8	0.8	<0.001
T7Eh	0.8	0.8	<0.001	0.8	0.8	<0.001
T7Wh	0.8	0.8	<0.001	0.8	0.8	<0.001
T7Ei	0.8	0.8	<0.001	0.8	0.8	<0.001
T7Wi	0.8	0.8	<0.001	0.8	0.8	<0.001
T8Wa	0.9	0.9	-0.002	**1.2**	**1.2**	-0.005
T8Wb	0.9	0.9	-0.001	**1.1**	**1.1**	-0.004
T8Wc	0.8	0.8	-0.001	**1.0**	1.0	-0.003
T8Wd	0.8	0.8	-0.001	0.9	0.9	-0.002
T8We	0.8	0.8	<0.001	0.8	0.8	-0.001
T8Wf	0.8	0.8	<0.001	0.8	0.8	-0.001
T8Wg	0.8	0.8	<0.001	0.8	0.8	<0.001
T8Wh	0.8	0.8	<0.001	0.8	0.8	<0.001

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	**Scenario C – 2031 Do Something**	**Difference (C-B)**	**Scenario B – 2031 Do Minimum**	**Scenario C – 2031 Do Something**	**Difference (C-B)**
T8Wi	0.8	0.8	<0.001	0.8	0.8	<0.001
T9Ea	0.9	0.9	-0.001	**1.2**	**1.2**	-0.004
T9Wa	0.9	0.9	-0.001	**1.1**	**1.1**	-0.003
T9Eb	0.9	0.9	-0.001	**1.1**	**1.1**	-0.003
T9Wb	0.8	0.8	-0.001	**1.0**	**1.0**	-0.002
T9Ec	0.8	0.8	-0.001	1.0	1.0	-0.002
T9Wc	0.8	0.8	-0.001	0.9	0.9	-0.002
T9Ed	0.8	0.8	<0.001	0.9	0.9	-0.001
T9Wd	0.8	0.8	<0.001	0.9	0.9	-0.001
T9Ee	0.8	0.8	<0.001	0.9	0.8	-0.001
T9We	0.8	0.8	<0.001	0.8	0.8	-0.001
T9Ef	0.8	0.8	<0.001	0.8	0.8	<0.001
T9Wf	0.8	0.8	<0.001	0.8	0.8	<0.001
T9Eg	0.8	0.8	<0.001	0.8	0.8	<0.001
T9Wg	0.8	0.8	<0.001	0.8	0.8	<0.001
T9Eh	0.8	0.8	<0.001	0.8	0.8	<0.001
T9Wh	0.8	0.8	<0.001	0.8	0.8	<0.001
T9Ei	0.8	0.8	<0.001	0.8	0.8	<0.001
T9Wi	0.8	0.8	<0.001	0.8	0.8	<0.001
T10Ea	**1.0**	**1.0**	-0.003	**1.5**	**1.5**	-0.009
T10Wa	0.9	0.9	-0.002	**1.2**	**1.2**	-0.005
T10Eb	0.9	0.9	-0.002	**1.3**	**1.3**	-0.007
T10Wb	0.9	0.9	-0.001	**1.0**	**1.0**	-0.004
T10Ec	0.9	0.9	-0.002	**1.1**	**1.1**	-0.005
T10Wc	0.8	0.8	-0.001	1.0	1.0	-0.002
T10Ed	0.8	0.8	-0.001	**1.0**	**1.0**	-0.003
T10Wd	0.8	0.8	-0.001	0.9	0.9	-0.002
T10Ee	0.8	0.8	-0.001	0.9	0.9	-0.002

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	**Scenario C – 2031 Do Something**	**Difference (C-B)**	**Scenario B – 2031 Do Minimum**	**Scenario C – 2031 Do Something**	**Difference (C-B)**
T10We	0.8	0.8	<0.001	0.8	0.8	-0.001
T10Ef	0.8	0.8	<0.001	0.8	0.8	-0.001
T10Wf	0.8	0.8	<0.001	0.8	0.8	<0.001
T10Eg	0.8	0.8	<0.001	0.8	0.8	<0.001
T10Wg	0.8	0.8	<0.001	0.8	0.8	<0.001
T10Eh	0.8	0.8	<0.001	0.8	0.8	<0.001
T10Wh	0.8	0.8	<0.001	0.8	0.8	<0.001
T10Wi	0.8	0.8	<0.001	0.8	0.8	<0.001
T11Ea	0.8	0.8	-0.001	1.0	1.0	-0.004
T11Wa	0.8	0.8	-0.002	1.0	1.0	-0.005
T11Eb	0.8	0.8	-0.001	0.9	0.9	-0.003
T11Wb	0.8	0.8	-0.001	0.9	0.9	-0.003
T11Ec	0.8	0.8	-0.001	0.9	0.9	-0.002
T11Wc	0.8	0.8	-0.001	0.9	0.9	-0.002
T11Ed	0.8	0.8	<0.001	0.8	0.8	-0.001
T11Wd	0.8	0.8	-0.001	0.8	0.8	-0.002
T11Ee	0.8	0.8	<0.001	0.8	0.8	-0.001
T11We	0.8	0.8	<0.001	0.8	0.8	-0.001
T11Ef	0.8	0.8	<0.001	0.8	0.8	<0.001
T11Wf	0.8	0.8	<0.001	0.8	0.8	<0.001
T11Eg	0.8	0.8	<0.001	0.8	0.8	<0.001
T11Wg	0.8	0.8	<0.001	0.8	0.8	<0.001
T11Eh	0.8	0.8	<0.001	0.8	0.8	<0.001
T11Wh	0.8	0.8	<0.001	0.8	0.8	<0.001
T11Ei	0.8	0.8	<0.001	0.8	0.8	<0.001
T11Wi	0.8	0.8	<0.001	0.8	0.8	<0.001
T12Wa	**1.1**	**1.1**	0.005	**1.8**	**1.8**	0.015
T12Wb	**1.0**	**1.0**	0.004	**1.5**	**1.6**	0.012

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T12Wc	0.9	0.9	0.003	**1.3**	**1.3**	0.008
T12Wd	0.9	0.9	0.002	**1.1**	**1.1**	0.005
T12We	0.8	0.8	0.001	0.9	1.0	0.003
T12Wf	0.8	0.8	0.001	0.9	0.9	0.001
T12Wg	0.8	0.8	<0.001	0.8	0.8	0.001
T12Wh	0.8	0.8	<0.001	0.8	0.8	<0.001
T12Wi	0.8	0.8	<0.001	0.8	0.8	<0.001

Table F.2 Predicted total nitrogen deposition (kg N / ha/yr) – comparison of conversion factors

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T1Ea	18.37	18.43	0.061	20.66	20.76	0.097
T1Wa	17.32	17.37	0.048	19.02	19.09	0.075
T1Eb	17.29	17.34	0.048	18.98	19.05	0.074
T1Wb	16.36	16.40	0.035	17.53	17.58	0.054
T1Ec	16.46	16.50	0.036	17.68	17.74	0.055
T1Wc	15.72	15.74	0.021	16.54	16.57	0.034
T1Ed	15.79	15.82	0.024	16.65	16.69	0.037
T1Wd	15.23	15.24	0.013	15.78	15.80	0.022
T1Ee	15.07	15.08	0.012	15.53	15.55	0.019
T1We	14.75	14.76	0.008	15.04	15.06	0.012
T1Ef	14.72	14.73	0.008	15.00	15.01	0.012
T1Wf	14.53	14.53	0.004	14.70	14.71	0.007
T1Eg	14.52	14.52	0.004	14.68	14.69	0.006
T1Wg	14.41	14.41	0.004	14.51	14.52	0.005
T1Eh	14.44	14.45	0.004	14.57	14.58	0.005
T1Wh	14.36	14.37	0.003	14.45	14.45	0.004

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	**Scenario C – 2031 Do Something**	**Difference (C-B)**	**Scenario B – 2031 Do Minimum**	**Scenario C – 2031 Do Something**	**Difference (C-B)**
T1Ei	14.41	14.41	0.001	14.51	14.52	0.002
T1Wi	14.35	14.35	<0.001	14.43	14.43	0.001
T2Ea	19.10	19.12	0.025	21.80	21.84	0.039
T2Wa	17.32	17.34	0.019	19.01	19.04	0.029
T2Eb	17.90	17.92	0.020	19.93	19.96	0.031
T2Wb	16.33	16.34	0.012	17.48	17.50	0.018
T2Ec	16.92	16.93	0.013	18.40	18.42	0.021
T2Wc	15.70	15.71	0.008	16.51	16.52	0.013
T2Ed	16.13	16.14	0.009	17.17	17.19	0.014
T2Wd	15.23	15.24	0.007	15.79	15.80	0.010
T2Ee	15.27	15.27	0.005	15.84	15.85	0.008
T2We	14.77	14.77	0.001	15.07	15.07	0.003
T2Ef	14.85	14.85	0.004	15.19	15.19	0.006
T2Wf	14.56	14.56	0.001	14.74	14.75	0.002
T2Eg	14.60	14.60	0.001	14.80	14.81	0.002
T2Wg	14.43	14.43	0.003	14.55	14.56	0.004
T2Eh	14.50	14.50	<0.001	14.67	14.67	0.001
T2Wh	14.39	14.39	<0.001	14.48	14.49	0.001
T2Ei	14.45	14.46	0.003	14.59	14.59	0.004
T2Wi	14.36	14.36	<0.001	14.45	14.45	0.001
T3Ea	17.74	17.74	<0.001	19.68	19.68	-0.001
T3Wa	16.18	16.18	<0.001	17.25	17.25	0.000
T3Eb	16.89	16.89	<0.001	18.36	18.36	0.000
T3Wb	15.61	15.61	<0.001	16.36	16.36	0.000
T3Ec	16.20	16.20	<0.001	17.28	17.28	0.000
T3Wc	15.21	15.21	<0.001	15.75	15.75	0.000
T3Ed	15.62	15.62	<0.001	16.38	16.38	0.000
T3Wd	14.91	14.91	<0.001	15.28	15.28	0.000

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	**Scenario C – 2031 Do Something**	**Difference (C-B)**	**Scenario B – 2031 Do Minimum**	**Scenario C – 2031 Do Something**	**Difference (C-B)**
T3Ee	14.99	14.99	<0.001	15.41	15.41	0.000
T3We	14.60	14.60	<0.001	14.81	14.81	0.000
T3Ef	14.68	14.68	<0.001	14.94	14.94	0.000
T3Wf	14.45	14.45	<0.001	14.59	14.59	0.000
T3Eg	14.50	14.50	0.003	14.66	14.66	0.003
T3Wg	14.37	14.37	<0.001	14.46	14.46	0.000
T3Eh	14.43	14.43	0.003	14.55	14.56	0.003
T3Wh	14.34	14.34	<0.001	14.41	14.41	0.000
T3Ei	14.40	14.40	<0.001	14.50	14.50	0.000
T3Wi	14.32	14.32	<0.001	14.39	14.39	0.000
T4Ea	17.75	17.74	-0.004	19.69	19.68	-0.006
T4Wa	17.62	17.61	-0.004	19.48	19.47	-0.006
T4Eb	16.70	16.70	-0.004	18.05	18.05	-0.005
T4Wb	16.58	16.58	-0.004	17.87	17.87	-0.005
T4Ec	16.01	16.01	-0.001	16.98	16.98	-0.002
T4Wc	15.90	15.90	-0.003	16.81	16.81	-0.004
T4Ed	15.45	15.45	<0.001	16.12	16.12	-0.001
T4Wd	15.37	15.37	<0.001	15.99	15.99	-0.001
T4Ee	14.88	14.88	<0.001	15.24	15.24	0.000
T4We	14.82	14.82	<0.001	15.15	15.15	0.000
T4Ef	14.61	14.61	<0.001	14.82	14.82	0.000
T4Wf	14.57	14.57	<0.001	14.76	14.76	0.000
T4Eg	14.45	14.45	<0.001	14.59	14.59	0.000
T4Wg	14.43	14.43	<0.001	14.54	14.54	0.000
T4Eh	14.40	14.40	<0.001	14.50	14.50	0.000
T4Wh	14.38	14.38	<0.001	14.47	14.47	0.000
T4Ei	14.37	14.37	<0.001	14.46	14.46	0.000
T4Wi	14.35	14.35	<0.001	14.43	14.43	0.000

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T5Ea	17.32	17.27	-0.044	19.01	18.95	-0.069
T5Wa	16.18	16.15	-0.028	17.24	17.20	-0.043
T5Eb	16.43	16.40	-0.032	17.63	17.58	-0.049
T5Wb	15.53	15.51	-0.019	16.24	16.21	-0.029
T5Ec	15.81	15.79	-0.020	16.68	16.65	-0.032
T5Wc	15.17	15.16	-0.012	15.68	15.67	-0.018
T5Ed	15.33	15.32	-0.013	15.94	15.92	-0.020
T5Wd	14.88	14.88	-0.005	15.25	15.24	-0.009
T5Ee	14.85	14.85	-0.005	15.20	15.19	-0.008
T5We	14.61	14.60	-0.004	14.82	14.82	-0.005
T5Ef	14.62	14.62	-0.004	14.84	14.84	-0.005
T5Wf	14.48	14.48	-0.003	14.63	14.63	-0.003
T5Eg	14.48	14.48	-0.003	14.64	14.63	-0.003
T5Wg	14.41	14.41	<0.001	14.51	14.52	0.000
T5Eh	14.43	14.43	<0.001	14.56	14.56	0.000
T5Wh	14.38	14.38	<0.001	14.47	14.47	0.001
T5Ei	14.41	14.41	<0.001	14.52	14.52	0.000
T5Wi	14.37	14.37	<0.001	14.47	14.47	0.001
T6Ea	16.41	16.40	-0.012	17.60	17.58	-0.018
T6Wa	15.46	15.45	-0.007	16.14	16.13	-0.011
T6Eb	15.87	15.86	-0.008	16.77	16.75	-0.013
T6Wb	15.10	15.09	-0.004	15.58	15.57	-0.006
T6Ec	15.46	15.45	-0.007	16.13	16.12	-0.011
T6Wc	14.87	14.86	-0.004	15.22	15.22	-0.005
T6Ed	15.10	15.09	-0.004	15.57	15.57	-0.006
T6Wd	14.68	14.68	-0.003	14.94	14.93	-0.004
T6Ee	14.71	14.71	-0.001	14.98	14.98	-0.002
T6We	14.49	14.49	0.000	14.65	14.65	-0.001

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T6Ef	14.53	14.53	-0.003	14.71	14.70	-0.004
T6Wf	14.41	14.41	<0.001	14.52	14.52	0.000
T6Eg	14.42	14.42	<0.001	14.54	14.54	0.000
T6Wg	14.36	14.36	<0.001	14.44	14.44	0.000
T6Eh	14.38	14.38	<0.001	14.48	14.48	0.000
T6Wh	14.34	14.34	<0.001	14.41	14.41	0.000
T6Ei	14.36	14.36	<0.001	14.45	14.45	0.000
T6Wi	14.33	14.33	<0.001	14.39	14.39	0.000
T7Ea	22.00	21.91	-0.088	26.43	26.28	-0.141
T7Wa	18.89	18.83	-0.057	21.48	21.39	-0.088
T7Eb	20.22	20.15	-0.070	23.58	23.47	-0.110
T7Wb	17.40	17.36	-0.037	19.14	19.08	-0.058
T7Ec	18.68	18.63	-0.050	21.15	21.07	-0.079
T7Wc	16.46	16.44	-0.028	17.69	17.65	-0.042
T7Ed	17.38	17.34	-0.036	19.11	19.06	-0.057
T7Wd	15.75	15.73	-0.016	16.58	16.56	-0.026
T7Ee	15.93	15.91	-0.020	16.86	16.83	-0.030
T7We	15.01	15.00	-0.011	15.45	15.43	-0.015
T7Ef	15.21	15.20	-0.012	15.75	15.73	-0.017
T7Wf	14.67	14.67	-0.004	14.92	14.91	-0.006
T7Eg	14.77	14.77	-0.004	15.08	15.07	-0.007
T7Wg	14.47	14.47	<0.001	14.62	14.62	-0.001
T7Eh	14.62	14.61	-0.004	14.84	14.83	-0.006
T7Wh	14.41	14.41	<0.001	14.52	14.51	0.000
T7Ei	14.53	14.53	-0.001	14.71	14.71	-0.002
T7Wi	14.37	14.37	<0.001	14.46	14.46	0.000
T8Wa	18.68	18.63	-0.053	21.15	21.07	-0.083
T8Wb	17.38	17.34	-0.037	19.11	19.05	-0.058

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T8Wc	16.50	16.47	-0.028	17.74	17.70	-0.043
T8Wd	15.80	15.78	-0.020	16.66	16.63	-0.030
T8We	15.07	15.06	-0.011	15.53	15.52	-0.016
T8Wf	14.72	14.72	-0.004	15.00	14.99	-0.007
T8Wg	14.52	14.52	-0.004	14.70	14.69	-0.005
T8Wh	14.45	14.45	-0.001	14.59	14.59	-0.002
T8Wi	14.42	14.42	0.000	14.53	14.53	-0.001
T9Ea	18.61	18.57	-0.041	21.05	20.98	-0.064
T9Wa	17.80	17.77	-0.033	19.77	19.72	-0.051
T9Eb	17.29	17.26	-0.028	18.98	18.93	-0.044
T9Wb	16.66	16.64	-0.024	17.99	17.96	-0.036
T9Ec	16.47	16.45	-0.020	17.69	17.66	-0.032
T9Wc	15.94	15.93	-0.016	16.88	16.86	-0.025
T9Ed	15.79	15.77	-0.016	16.65	16.62	-0.023
T9Wd	15.40	15.39	-0.012	16.05	16.03	-0.017
T9Ee	15.07	15.06	-0.008	15.54	15.53	-0.012
T9We	14.85	14.84	-0.004	15.19	15.18	-0.007
T9Ef	14.73	14.72	-0.004	15.01	15.00	-0.006
T9Wf	14.59	14.59	-0.004	14.80	14.80	-0.005
T9Eg	14.52	14.52	-0.001	14.70	14.70	-0.002
T9Wg	14.45	14.45	<0.001	14.58	14.58	-0.001
T9Eh	14.45	14.45	<0.001	14.58	14.58	-0.001
T9Wh	14.39	14.39	<0.001	14.50	14.50	-0.001
T9Ei	14.41	14.41	<0.001	14.52	14.52	-0.001
T9Wi	14.37	14.37	<0.001	14.46	14.46	0.000
T10Ea	20.82	20.74	-0.083	24.55	24.42	-0.133
T10Wa	18.32	18.27	-0.053	20.59	20.51	-0.083
T10Eb	19.21	19.14	-0.065	21.99	21.88	-0.102

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T10Wb	16.92	16.88	-0.036	18.40	18.34	-0.055
T10Ec	17.80	17.75	-0.045	19.77	19.70	-0.072
T10Wc	16.13	16.11	-0.024	17.18	17.14	-0.038
T10Ed	16.70	16.67	-0.032	18.05	18.00	-0.050
T10Wd	15.54	15.52	-0.019	16.26	16.23	-0.028
T10Ee	15.52	15.51	-0.016	16.23	16.21	-0.025
T10We	14.92	14.91	-0.008	15.30	15.29	-0.013
T10Ef	14.97	14.96	-0.008	15.39	15.37	-0.013
T10Wf	14.63	14.62	-0.004	14.86	14.85	-0.007
T10Eg	14.64	14.64	-0.004	14.88	14.87	-0.007
T10Wg	14.46	14.45	-0.004	14.59	14.59	-0.005
T10Eh	14.53	14.52	-0.004	14.70	14.70	-0.006
T10Wh	14.39	14.39	-0.003	14.50	14.49	-0.004
T10Wi	14.37	14.37	<0.001	14.46	14.46	-0.001
T11Ea	16.18	16.14	-0.044	17.25	17.19	-0.067
T11Wa	16.46	16.41	-0.048	17.68	17.60	-0.074
T11Eb	15.47	15.44	-0.028	16.15	16.11	-0.042
T11Wb	15.74	15.71	-0.032	16.57	16.52	-0.050
T11Ec	15.10	15.08	-0.020	15.59	15.56	-0.030
T11Wc	15.31	15.29	-0.024	15.91	15.87	-0.036
T11Ed	14.79	14.78	-0.012	15.11	15.09	-0.018
T11Wd	14.97	14.96	-0.016	15.39	15.36	-0.024
T11Ee	14.52	14.52	-0.004	14.69	14.69	-0.007
T11We	14.65	14.64	-0.008	14.89	14.88	-0.012
T11Ef	14.41	14.40	-0.004	14.51	14.51	-0.005
T11Wf	14.50	14.49	-0.004	14.66	14.65	-0.007
T11Eg	14.35	14.34	-0.003	14.42	14.42	-0.004
T11Wg	14.41	14.40	-0.004	14.51	14.51	-0.005

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T11Eh	14.33	14.32	-0.003	14.39	14.39	-0.004
T11Wh	14.37	14.37	-0.001	14.46	14.46	-0.002
T11Ei	14.31	14.31	<0.001	14.38	14.38	-0.001
T11Wi	14.35	14.35	-0.003	14.43	14.43	-0.004
T12Wa	23.26	23.39	0.131	28.46	28.67	0.211
T12Wb	21.41	21.52	0.107	25.48	25.65	0.171
T12Wc	19.03	19.11	0.073	21.71	21.82	0.116
T12Wd	17.57	17.62	0.052	19.41	19.49	0.081
T12We	15.99	16.02	0.028	16.96	17.00	0.043
T12Wf	15.20	15.22	0.016	15.74	15.76	0.024
T12Wg	14.73	14.74	0.008	15.01	15.02	0.012
T12Wh	14.56	14.57	0.004	14.76	14.76	0.007
T12Wi	14.48	14.48	0.004	14.63	14.64	0.006

Table F.3 Predicted acid deposition (keq N / ha/yr) – comparison of conversion factors

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T1Ea	1.31	1.31	0.004	1.47	1.48	0.007
T1Wa	1.23	1.24	0.003	1.35	1.36	0.005
T1Eb	1.23	1.23	0.003	1.35	1.36	0.005
T1Wb	1.16	1.17	0.002	1.25	1.25	0.003
T1Ec	1.17	1.17	0.002	1.26	1.26	0.004
T1Wc	1.12	1.12	0.002	1.18	1.18	0.003
T1Ed	1.12	1.13	0.001	1.18	1.19	0.002
T1Wd	1.08	1.08	0.001	1.12	1.12	0.002
T1Ee	1.07	1.07	0.001	1.10	1.11	0.001
T1We	1.05	1.05	<0.001	1.07	1.07	0.001

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T1Ef	1.05	1.05	<0.001	1.07	1.07	0.001
T1Wf	1.03	1.03	<0.001	1.05	1.05	<0.001
T1Eg	1.03	1.03	<0.001	1.04	1.04	<0.001
T1Wg	1.02	1.02	<0.001	1.03	1.03	<0.001
T1Eh	1.03	1.03	<0.001	1.04	1.04	<0.001
T1Wh	1.02	1.02	<0.001	1.03	1.03	<0.001
T1Ei	1.02	1.02	<0.001	1.03	1.03	<0.001
T1Wi	1.02	1.02	<0.001	1.03	1.03	<0.001
T2Ea	1.36	1.36	0.002	1.55	1.55	0.003
T2Wa	1.23	1.23	0.001	1.35	1.36	0.002
T2Eb	1.27	1.28	0.001	1.42	1.42	0.002
T2Wb	1.16	1.16	0.001	1.24	1.24	0.001
T2Ec	1.20	1.20	0.001	1.31	1.31	0.002
T2Wc	1.12	1.12	0.001	1.17	1.18	0.001
T2Ed	1.15	1.15	0.001	1.22	1.22	0.001
T2Wd	1.08	1.08	<0.001	1.12	1.12	0.001
T2Ee	1.09	1.09	0.001	1.13	1.13	0.001
T2We	1.05	1.05	<0.001	1.07	1.07	<0.001
T2Ef	1.06	1.06	<0.001	1.08	1.08	<0.001
T2Wf	1.04	1.04	<0.001	1.05	1.05	<0.001
T2Eg	1.04	1.04	<0.001	1.05	1.05	<0.001
T2Wg	1.03	1.03	<0.001	1.04	1.04	<0.001
T2Eh	1.03	1.03	<0.001	1.04	1.04	<0.001
T2Wh	1.02	1.02	<0.001	1.03	1.03	<0.001
T2Ei	1.03	1.03	<0.001	1.04	1.04	<0.001
T2Wi	1.02	1.02	<0.001	1.03	1.03	<0.001
T3Ea	1.26	1.26	<0.001	1.40	1.40	<0.001
T3Wa	1.15	1.15	<0.001	1.23	1.23	<0.001

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T3Eb	1.20	1.20	<0.001	1.31	1.31	<0.001
T3Wb	1.11	1.11	<0.001	1.16	1.16	<0.001
T3Ec	1.15	1.15	<0.001	1.23	1.23	<0.001
T3Wc	1.08	1.08	<0.001	1.12	1.12	<0.001
T3Ed	1.11	1.11	<0.001	1.17	1.17	<0.001
T3Wd	1.06	1.06	<0.001	1.09	1.09	<0.001
T3Ee	1.07	1.07	<0.001	1.10	1.10	<0.001
T3We	1.04	1.04	<0.001	1.05	1.05	<0.001
T3Ef	1.04	1.04	<0.001	1.06	1.06	<0.001
T3Wf	1.03	1.03	<0.001	1.04	1.04	<0.001
T3Eg	1.03	1.03	<0.001	1.04	1.04	<0.001
T3Wg	1.02	1.02	<0.001	1.03	1.03	<0.001
T3Eh	1.03	1.03	<0.001	1.04	1.04	<0.001
T3Wh	1.02	1.02	<0.001	1.03	1.03	<0.001
T3Ei	1.02	1.02	<0.001	1.03	1.03	<0.001
T3Wi	1.02	1.02	<0.001	1.02	1.02	<0.001
T4Ea	1.26	1.26	<0.001	1.40	1.40	<0.001
T4Wa	1.25	1.25	<0.001	1.39	1.39	<0.001
T4Eb	1.19	1.19	<0.001	1.28	1.28	<0.001
T4Wb	1.18	1.18	<0.001	1.27	1.27	<0.001
T4Ec	1.14	1.14	<0.001	1.21	1.21	<0.001
T4Wc	1.13	1.13	<0.001	1.20	1.20	<0.001
T4Ed	1.10	1.10	<0.001	1.15	1.15	<0.001
T4Wd	1.09	1.09	<0.001	1.14	1.14	<0.001
T4Ee	1.06	1.06	<0.001	1.08	1.08	<0.001
T4We	1.05	1.05	<0.001	1.08	1.08	<0.001
T4Ef	1.04	1.04	<0.001	1.05	1.05	<0.001
T4Wf	1.04	1.04	<0.001	1.05	1.05	<0.001

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	**Scenario C – 2031 Do Something**	**Difference (C-B)**	**Scenario B – 2031 Do Minimum**	**Scenario C – 2031 Do Something**	**Difference (C-B)**
T4Eg	1.03	1.03	<0.001	1.04	1.04	<0.001
T4Wg	1.03	1.03	<0.001	1.03	1.03	<0.001
T4Eh	1.02	1.02	<0.001	1.03	1.03	<0.001
T4Wh	1.02	1.02	<0.001	1.03	1.03	<0.001
T4Ei	1.02	1.02	<0.001	1.03	1.03	<0.001
T4Wi	1.02	1.02	<0.001	1.03	1.03	<0.001
T5Ea	1.23	1.23	-0.003	1.35	1.35	-0.005
T5Wa	1.15	1.15	-0.002	1.23	1.22	-0.003
T5Eb	1.17	1.17	-0.002	1.25	1.25	-0.003
T5Wb	1.10	1.10	-0.001	1.16	1.15	-0.002
T5Ec	1.12	1.12	-0.001	1.19	1.18	-0.002
T5Wc	1.08	1.08	-0.001	1.12	1.11	-0.001
T5Ed	1.09	1.09	-0.001	1.13	1.13	-0.001
T5Wd	1.06	1.06	-0.001	1.08	1.08	-0.001
T5Ee	1.06	1.06	<0.001	1.08	1.08	-0.001
T5We	1.04	1.04	<0.001	1.05	1.05	<0.001
T5Ef	1.04	1.04	<0.001	1.06	1.06	<0.001
T5Wf	1.03	1.03	<0.001	1.04	1.04	<0.001
T5Eg	1.03	1.03	<0.001	1.04	1.04	<0.001
T5Wg	1.02	1.02	<0.001	1.03	1.03	<0.001
T5Eh	1.03	1.03	<0.001	1.04	1.04	<0.001
T5Wh	1.02	1.02	<0.001	1.03	1.03	<0.001
T5Ei	1.02	1.02	<0.001	1.03	1.03	<0.001
T5Wi	1.02	1.02	<0.001	1.03	1.03	<0.001
T6Ea	1.17	1.17	-0.001	1.25	1.25	-0.001
T6Wa	1.10	1.10	-0.001	1.15	1.15	-0.001
T6Eb	1.13	1.13	-0.001	1.19	1.19	-0.001
T6Wb	1.07	1.07	<0.001	1.11	1.11	<0.001

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	**Scenario C – 2031 Do Something**	**Difference (C-B)**	**Scenario B – 2031 Do Minimum**	**Scenario C – 2031 Do Something**	**Difference (C-B)**
T6Ec	1.10	1.10	-0.001	1.15	1.15	-0.001
T6Wc	1.06	1.06	<0.001	1.08	1.08	<0.001
T6Ed	1.07	1.07	<0.001	1.11	1.11	<0.001
T6Wd	1.04	1.04	<0.001	1.06	1.06	<0.001
T6Ee	1.05	1.05	<0.001	1.07	1.07	<0.001
T6We	1.03	1.03	<0.001	1.04	1.04	<0.001
T6Ef	1.03	1.03	<0.001	1.05	1.05	<0.001
T6Wf	1.02	1.02	<0.001	1.03	1.03	<0.001
T6Eg	1.03	1.03	<0.001	1.03	1.03	<0.001
T6Wg	1.02	1.02	<0.001	1.03	1.03	<0.001
T6Eh	1.02	1.02	<0.001	1.03	1.03	<0.001
T6Wh	1.02	1.02	<0.001	1.03	1.03	<0.001
T6Ei	1.02	1.02	<0.001	1.03	1.03	<0.001
T6Wi	1.02	1.02	<0.001	1.02	1.02	<0.001
T7Ea	1.57	1.56	-0.006	1.88	1.87	-0.009
T7Wa	1.34	1.34	-0.004	1.53	1.52	-0.006
T7Eb	1.44	1.43	-0.005	1.68	1.67	-0.007
T7Wb	1.24	1.24	-0.003	1.36	1.36	-0.004
T7Ec	1.33	1.33	-0.003	1.51	1.50	-0.005
T7Wc	1.17	1.17	-0.002	1.26	1.26	-0.003
T7Ed	1.24	1.23	-0.002	1.36	1.36	-0.004
T7Wd	1.12	1.12	-0.001	1.18	1.18	-0.002
T7Ee	1.13	1.13	-0.001	1.20	1.20	-0.002
T7We	1.07	1.07	-0.001	1.10	1.10	-0.001
T7Ef	1.08	1.08	-0.001	1.12	1.12	-0.001
T7Wf	1.04	1.04	<0.001	1.06	1.06	<0.001
T7Eg	1.05	1.05	<0.001	1.07	1.07	<0.001
T7Wg	1.03	1.03	<0.001	1.04	1.04	<0.001

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	**Scenario C – 2031 Do Something**	**Difference (C-B)**	**Scenario B – 2031 Do Minimum**	**Scenario C – 2031 Do Something**	**Difference (C-B)**
T7Eh	1.04	1.04	<0.001	1.06	1.05	<0.001
T7Wh	1.02	1.02	<0.001	1.03	1.03	<0.001
T7Ei	1.03	1.03	<0.001	1.05	1.05	<0.001
T7Wi	1.02	1.02	<0.001	1.03	1.03	<0.001
T8Wa	1.33	1.33	-0.003	1.51	1.50	-0.005
T8Wb	1.24	1.23	-0.003	1.36	1.36	-0.004
T8Wc	1.17	1.17	-0.002	1.26	1.26	-0.003
T8Wd	1.12	1.12	-0.001	1.19	1.18	-0.002
T8We	1.07	1.07	-0.001	1.10	1.10	-0.001
T8Wf	1.05	1.05	<0.001	1.07	1.07	<0.001
T8Wg	1.03	1.03	<0.001	1.05	1.05	<0.001
T8Wh	1.03	1.03	<0.001	1.04	1.04	<0.001
T8Wi	1.03	1.03	<0.001	1.03	1.03	<0.001
T9Ea	1.32	1.32	-0.003	1.50	1.49	-0.004
T9Wa	1.27	1.26	-0.002	1.41	1.40	-0.004
T9Eb	1.23	1.23	-0.002	1.35	1.35	-0.003
T9Wb	1.19	1.18	-0.001	1.28	1.28	-0.002
T9Ec	1.17	1.17	-0.001	1.26	1.26	-0.002
T9Wc	1.13	1.13	-0.001	1.20	1.20	-0.001
T9Ed	1.12	1.12	-0.001	1.18	1.18	-0.002
T9Wd	1.10	1.09	-0.001	1.14	1.14	-0.001
T9Ee	1.07	1.07	<0.001	1.11	1.10	-0.001
T9We	1.06	1.06	<0.001	1.08	1.08	<0.001
T9Ef	1.05	1.05	<0.001	1.07	1.07	<0.001
T9Wf	1.04	1.04	<0.001	1.05	1.05	<0.001
T9Eg	1.03	1.03	<0.001	1.05	1.05	<0.001
T9Wg	1.03	1.03	<0.001	1.04	1.04	<0.001
T9Eh	1.03	1.03	<0.001	1.04	1.04	<0.001

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	**Scenario C – 2031 Do Something**	**Difference (C-B)**	**Scenario B – 2031 Do Minimum**	**Scenario C – 2031 Do Something**	**Difference (C-B)**
T9Wh	1.02	1.02	<0.001	1.03	1.03	<0.001
T9Ei	1.02	1.02	<0.001	1.03	1.03	<0.001
T9Wi	1.02	1.02	<0.001	1.03	1.03	<0.001
T10Ea	1.48	1.48	-0.006	1.75	1.74	-0.009
T10Wa	1.30	1.30	-0.003	1.47	1.46	-0.005
T10Eb	1.37	1.36	-0.004	1.56	1.56	-0.007
T10Wb	1.20	1.20	-0.002	1.31	1.31	-0.004
T10Ec	1.27	1.26	-0.003	1.41	1.40	-0.005
T10Wc	1.15	1.15	-0.002	1.22	1.22	-0.003
T10Ed	1.19	1.19	-0.002	1.28	1.28	-0.003
T10Wd	1.11	1.10	-0.001	1.16	1.15	-0.002
T10Ee	1.10	1.10	-0.001	1.15	1.15	-0.002
T10We	1.06	1.06	-0.001	1.09	1.09	-0.001
T10Ef	1.07	1.06	-0.001	1.09	1.09	-0.001
T10Wf	1.04	1.04	<0.001	1.06	1.06	<0.001
T10Eg	1.04	1.04	<0.001	1.06	1.06	<0.001
T10Wg	1.03	1.03	<0.001	1.04	1.04	<0.001
T10Eh	1.03	1.03	<0.001	1.05	1.05	<0.001
T10Wh	1.02	1.02	<0.001	1.03	1.03	<0.001
T10Wi	1.02	1.02	<0.001	1.03	1.03	<0.001
T11Ea	1.15	1.15	-0.003	1.23	1.22	-0.004
T11Wa	1.17	1.17	-0.003	1.26	1.25	-0.005
T11Eb	1.10	1.10	-0.002	1.15	1.15	-0.003
T11Wb	1.12	1.12	-0.002	1.18	1.18	-0.003
T11Ec	1.07	1.07	-0.001	1.11	1.11	-0.002
T11Wc	1.09	1.09	-0.002	1.13	1.13	-0.002
T11Ed	1.05	1.05	-0.001	1.07	1.07	-0.001
T11Wd	1.07	1.06	-0.001	1.09	1.09	-0.001

	NAEI conversion factor (0.007)			AQC conversion factor (0.022)		
	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)	Scenario B – 2031 Do Minimum	Scenario C – 2031 Do Something	Difference (C-B)
T11Ee	1.03	1.03	<0.001	1.05	1.04	<0.001
T11We	1.04	1.04	-0.001	1.06	1.06	-0.001
T11Ef	1.02	1.02	<0.001	1.03	1.03	<0.001
T11Wf	1.03	1.03	<0.001	1.04	1.04	<0.001
T11Eg	1.02	1.02	<0.001	1.03	1.03	<0.001
T11Wg	1.02	1.02	<0.001	1.03	1.03	<0.001
T11Eh	1.02	1.02	<0.001	1.02	1.02	<0.001
T11Wh	1.02	1.02	<0.001	1.03	1.03	<0.001
T11Ei	1.02	1.02	<0.001	1.02	1.02	<0.001
T11Wi	1.02	1.02	<0.001	1.03	1.03	<0.001
T12Wa	1.66	1.66	0.009	2.03	2.04	0.014
T12Wb	1.52	1.53	0.007	1.81	1.83	0.011
T12Wc	1.35	1.36	0.005	1.54	1.55	0.008
T12Wd	1.25	1.25	0.003	1.38	1.39	0.005
T12We	1.14	1.14	0.002	1.21	1.21	0.003
T12Wf	1.08	1.08	0.001	1.12	1.12	0.002
T12Wg	1.05	1.05	0.001	1.07	1.07	0.001
T12Wh	1.04	1.04	<0.001	1.05	1.05	<0.001
T12Wi	1.03	1.03	<0.001	1.04	1.04	<0.001