

High Speed Rail (Crewe – Manchester) Environmental Statement

Volume 5: Appendix AQ-001-0MA03

Air quality

MA03: Pickmere to Agden and Hulseheath

Air quality report

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Department
for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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1 Introduction

- 1.1.1 The report is an appendix to the air quality assessment for the Proposed Scheme in relation to the Pickmere to Agden and Hulseheath area (MA03).
- 1.1.2 This appendix comprises:
- baseline air quality data;
 - construction dust assessment; and
 - assessment of road traffic emissions.
- 1.1.3 Maps referred to throughout this appendix are contained in the Volume 5, Air quality Map Book: map AQ-01-303.
- 1.1.4 Additional data used for the air quality assessment, including traffic data, are set out in Background Information and Data (BID) (BID AQ-002-0MA03)¹.
- 1.1.5 The assessment scope, key assumptions and limitations, and the methodology for determining significance of effects for air quality are set out in Volume 1, Introduction and methodology, Section 9 and the Environmental Impact Assessment Scope and Methodology Report (SMR) (see Volume 5: Appendix CT-001-00001).
- 1.1.6 The air quality standards relevant to this assessment are:
- 40µg/m³ as an annual mean for nitrogen dioxide (NO₂) and fine particulate matter (PM₁₀);
 - 200µg/m³ one-hour mean for NO₂ not to be exceeded more than 18 times a year (equivalent to the 99.8th percentile of the one-hour mean);
 - 50µg/m³ 24-hour mean for PM₁₀ not to be exceeded more than 35 times a year (equivalent to the 90.4th percentile of the 24-hour mean); and
 - 25µg/m³ as an annual mean for fine particulate matter (PM_{2.5}).

¹ High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Background Information and Data, Additional data used in the air quality assessment*, BID AQ-002-0MA03. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement>.

2 Baseline air quality data

2.1 Existing air quality

Local authority review and assessment information

- 2.1.1 Cheshire East Council (CEC) covers most of the Pickmere to Agden and Hulseheath area, with the areas of Cheshire West and Chester Council (CWCC) and Trafford Metropolitan Borough Council (TMBC) lying on the western and northern edges of the area respectively. All councils review air quality throughout the area following the local air quality management (LAQM) regime from the Department for Environment, Food and Rural Affairs (Defra)².
- 2.1.2 There is one air quality management area (AQMA) within the Pickmere to Agden and Hulseheath area; the Chelford Road, Knutsford AQMA which was designated for exceedances of the annual mean NO₂ standard. It covers properties adjacent to a stretch of the Chelford Road, Knutsford and was declared in November 2019.

Local air quality monitoring data

- 2.1.3 Monitoring sites within the study area that are relevant for this assessment are shown in the accompanying map AQ-01-303. The following sections provide a summary of the recorded pollutant concentrations at these sites. Further details on monitoring data are presented in BID (AQ-002-0MA03)¹.

Continuous monitoring

- 2.1.4 There was one continuous air quality monitoring site within the Pickmere to Agden and Hulseheath area (RTA1, near the A556 Chester Road, Mere). Measurements of NO₂ were within the air quality standard for 2016; this site was decommissioned in mid-2017.

Diffusion tubes

- 2.1.5 The local authorities in this area undertake air quality monitoring with the use of passive diffusion tubes as part of their LAQM process. There are 10 diffusion tube sites within the Pickmere to Agden and Hulseheath area. Three sites are located in Tabley near the A556 Chester Road and B5391 Pickmere Lane, two sites are along the A50 Warrington Road and the rest of the sites are along the A50 in Knutsford, at Hoo Green, in Mere, along the A556 Chester Road in Bucklow Hill and along the A56 Lymm Road.

² Department for Environment, Food and Rural Affairs (2020), *Defra Background Pollutant Concentration Maps*. Available online at: <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>.

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- 2.1.6 HS2 Ltd has undertaken additional monitoring for the purpose of verifying the air quality assessment at three locations in this area. The diffusion tube sites are adjacent to the A50 near Hoo Green, the A56 Lymm Road in Little Bollington and the A56 Dunham Road in Bowdon.
- 2.1.7 Measurements of NO₂ were above the air quality standard in 2018 at two sites on the A556, south of M6 junction 19. Measurements of NO₂ were within the air quality standard at the remaining 11 sites in 2018.

Background pollutant concentrations

- 2.1.8 Estimates of background air quality were obtained from the Defra maps². Background pollutant concentrations are within the air quality standards throughout the study area. Table 1 presents the range of background pollutant concentrations within the Pickmere to Agden and Hulseheath area for the existing and future baseline.
- 2.1.9 Background pollutant concentrations for the operational year of 2038 have been taken from the Defra background maps for 2030, which is the latest available year of data. The 2030 background maps have been used as representative of the future baseline conditions during operation of the Proposed Scheme.

Table 1: Range of background pollutant concentrations

| Pollutant | Background concentrations (µg/m ³) | | |
|-------------------------------|--|---|---|
| | 2018 | 2025 | 2038 |
| Annual mean NO _x | 11.7µg/m ³ to 39.0µg/m ³ | 8.9µg/m ³ to 24.8µg/m ³ | 8.0µg/m ³ to 18.9µg/m ³ |
| Annual mean NO ₂ | 9.0µg/m ³ to 26.5µg/m ³ | 7.0µg/m ³ to 17.9µg/m ³ | 6.3µg/m ³ to 14.0µg/m ³ |
| Annual mean PM ₁₀ | 10.1µg/m ³ to 13.8µg/m ³ | 9.2µg/m ³ to 12.8µg/m ³ | 9.1µg/m ³ to 12.8µg/m ³ |
| Annual mean PM _{2.5} | 6.7µg/m ³ to 8.4µg/m ³ | 6.0µg/m ³ to 7.6µg/m ³ | 5.9µg/m ³ to 7.5µg/m ³ |

3 Construction dust assessment

3.1.1 This section provides details of the assessment of dust emissions during construction of the Proposed Scheme. Due to the linear nature of the Proposed Scheme and its associated dust generating activities, the construction dust assessment has been undertaken in detail for distinct assessment areas in the Pickmere to Agden and Hulseheath area.

3.2 Dust soiling and human health effects

Assessed receptors and sensitivity of the area

3.2.1 The assessment of dust soiling and human health effects has been undertaken for the following areas from south to north:

- area around Pickmere: there are no demolition activities in this area. Residential dwellings are located within 20m of earthworks, construction and trackout activities;
- area around Tabley Superior: residential dwellings are located within 20m of demolition, earthworks, construction and trackout activities;
- area around Mere: there are no demolition activities in this area. Residential dwellings are located within 20m of earthworks, construction and trackout activities;
- area around High Legh: residential dwellings are located within 20m of earthworks, construction and trackout activities, and within 200m of demolition activities; and
- area around Hulseheath: residential dwellings are located within 20m of earthworks, construction and trackout activities, and within 50m of demolition activities.

3.2.2 Table 2 presents the sensitivity of each area to dust soiling and human health effects.

Table 2: Sensitivity of area to dust soiling and human health effects

| Effect | Demolition | Earthworks | Construction | Trackout |
|------------------------------------|----------------|------------|--------------|----------|
| Area around Pickmere | | | | |
| Dust soiling | Not applicable | Medium | Medium | Medium |
| Human health | Not applicable | Low | Low | Low |
| Area around Tabley Superior | | | | |
| Dust soiling | Medium | High | High | High |
| Human health | Low | Low | Low | Low |
| Area around High Legh | | | | |
| Dust soiling | Not applicable | Medium | Medium | Medium |
| Human health | Not applicable | Low | Low | Low |
| Area around Hulseheath | | | | |
| Dust soiling | Low | High | High | High |
| Human health | Low | Low | Low | Low |

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| Effect | Demolition | Earthworks | Construction | Trackout |
|-------------------------------|------------|------------|--------------|----------|
| Area around Hulseheath | | | | |
| Dust soiling | Medium | High | High | High |
| Human health | Low | Low | Low | Low |

Dust emission magnitude

3.2.3 Each dust generating activity has been assigned a dust emission magnitude as shown in Table 3.

Table 3: Dust emission magnitude for dust soiling and human health

| Area | Demolition | Earthworks | Construction | Trackout |
|-----------------------------|----------------|------------|--------------|----------|
| Area around Pickmere | Not applicable | Large | Large | Large |
| Area around Tabley Superior | Medium | Large | Large | Large |
| Area around Mere | Not applicable | Large | Large | Large |
| Area around High Legh | Medium | Large | Large | Large |
| Area around Hulseheath | Medium | Large | Large | Large |

Risk of impacts

3.2.4 Taking into consideration the dust emission magnitude of each activity and the sensitivity of each area, the risk of dust effects has been defined for each area as shown in Table 4.

Table 4: Risk of dust soiling and human health effects

| Effect | Demolition | Earthworks | Construction | Trackout |
|------------------------------------|----------------|-------------|--------------|-------------|
| Area around Pickmere | | | | |
| Dust soiling | Not applicable | Medium risk | Medium risk | Medium risk |
| Human health | Not applicable | Low risk | Low risk | Low risk |
| Area around Tabley Superior | | | | |
| Dust soiling | Medium risk | High risk | High risk | High risk |
| Human health | Low risk | Low risk | Low risk | Low risk |
| Area around Mere | | | | |
| Dust soiling | Not applicable | Medium risk | Medium risk | Medium risk |
| Human health | Not applicable | Low risk | Low risk | Low risk |
| Area around High Legh | | | | |
| Dust soiling | Low risk | High risk | High risk | High risk |
| Human health | Low risk | Low risk | Low risk | Low risk |
| Area around Hulseheath | | | | |
| Dust soiling | Medium risk | High risk | High risk | High risk |
| Human health | Low risk | Low risk | Low risk | Low risk |

3.3 Ecological effects

Assessed receptors and sensitivity of the area

3.3.1 The assessment of ecological effects has been undertaken for the following areas from south to north:

- area around Round and Rinks Woods ancient woodland (AW) and Leonard’s and Smoker Woods AW: there are no demolition activities in this area. The ecological sites are located within 20m of earthworks, construction and trackout activities;
- area around Rinks Wood and Round Wood Local Wildlife Site (LWS): there are no demolition activities in this area. The ecological site is located within 20m of earthworks, construction and trackout activities;
- area around Arley and Waterless Brook Corridor LWS: there are no demolition activities in this area. The ecological site is located within 20m of earthworks, construction and trackout activities;
- area around Bongs Wood AW, Bongs Wood and Rough LWS and Tabley Wood AW: there are no demolition or trackout activities in this area. The ecological sites are located within 20m of earthworks and construction activities;
- area around Tabley Pipe Wood LWS, Meremoss Wood AW and Belt Wood LWS: there are no demolition activities in this area. The ecological site is located within 20m of earthworks, construction and trackout activities; and
- area around Fields behind ‘Ye Olde No.3’: there are no demolition or trackout activities in this area. The ecological site is located within 50m of construction and earthworks activities.

3.3.2 Table 5 presents the sensitivity of each area to ecological effects.

Table 5: Sensitivity of area to ecological effects

| Area | Demolition | Earthworks | Construction | Trackout |
|--|----------------|------------|--------------|----------------|
| Area around Round and Rinks Woods AW and Leonard’s and Smoker Woods AW | Not applicable | Low | Low | Low |
| Area around Rinks Wood and Round Wood LWS | Not applicable | Low | Low | Low |
| Area around Arley and Waterless Brook Corridor LWS | Not applicable | Low | Low | Low |
| Area around Bongs Wood AW, Bongs Wood and Rough LWS and Tabley Wood AW | Not applicable | Low | Low | Not applicable |
| Area around Tabley Pipe Wood LWS, Meremoss Wood AW and Belt Wood LWS | Not applicable | Low | Low | Low |

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| Area | Demolition | Earthworks | Construction | Trackout |
|--|----------------|------------|--------------|----------------|
| Area around Fields behind 'Ye Olde No.3' | Not applicable | Low | Low | Not applicable |

Dust emission magnitude

3.3.3 Each dust generating activity has been assigned a dust emission magnitude as shown in Table 6.

Table 6: Dust emission magnitude for ecological effects

| Area | Demolition | Earthworks | Construction | Trackout |
|--|----------------|------------|--------------|----------------|
| Area around Round and Rinks Woods AW and Leonard's and Smoker Woods AW | Not applicable | Large | Large | Large |
| Area around Rinks Wood and Round Wood Local Wildlife Site LWS | Not applicable | Large | Large | Large |
| Area around Arley and Wateress Brook Corridor LWS | Not applicable | Large | Large | Large |
| Area around Bongs Wood AW, Bongs Wood and Rough LWS and Tabley Wood AW | Not applicable | Large | Large | Not applicable |
| Area around Tableypipe Wood LWS, Meremoss Wood AW and Belt Wood LWS | Not applicable | Large | Large | Large |
| Area around Fields behind 'Ye Olde No.3' | Not applicable | Large | Large | Not applicable |

Risk of impacts

3.3.4 Taking into consideration the dust emission magnitude of each activity and the sensitivity of each area, the risk of dust effects has been defined for each area as shown in Table 7.

Table 7: Risk of ecological effects

| Area | Demolition | Earthworks | Construction | Trackout |
|--|----------------|------------|--------------|----------------|
| Area around Round and Rinks Woods AW and Leonard's and Smoker Woods AW | Not applicable | Low risk | Low risk | Low risk |
| Area around Rinks Wood and Round Wood LWS | Not applicable | Low risk | Low risk | Low risk |
| Area around Arley and Wateress Brook Corridor LWS | Not applicable | Low risk | Low risk | Low risk |
| Area around Bongs Wood AW, Bongs Wood and Rough LWS and Tabley Wood AW | Not applicable | Low risk | Low risk | Not applicable |

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| Area | Demolition | Earthworks | Construction | Trackout |
|---|----------------|------------|--------------|----------------|
| Area around Tableypipe Wood LWS, Meremoss Wood AW and Belt Wood LWS | Not applicable | Low risk | Low risk | Low risk |
| Area around Fields behind 'Ye Olde No.3' | Not applicable | Low risk | Low risk | Not applicable |

3.4 Summary of risks

3.4.1 The summary of risks identified within the Pickmere to Agden and Hulseheath area is shown in Table 8. As there are several construction locations in this area, a range of risks is shown which depend on the location of sensitive receptors and the magnitude of dust generating activities.

Table 8: Summary of risks for construction dust assessment

| Activity | Dust soiling | Human health | Ecological effects |
|--------------|----------------|--------------|--------------------|
| Demolition | Low to Medium | Low | Not applicable |
| Earthworks | Medium to High | Low | Low |
| Construction | Medium to High | Low | Low |
| Trackout | Medium to High | Low | Low |

4 Assessment of road traffic emissions

4.1 Overall assessment approach

4.1.1 The air quality assessment for road traffic emissions has used the approach described in the SMR (see Volume 5: Appendix CT-001-00001). Pollutant concentrations have been predicted at sensitive human and ecological receptors where these are located within 200m of the affected road network. Where ecological sites have been assessed, the change in nitrogen (N) deposition has been predicted for comparison against the lower critical load for the site.

4.2 Model inputs and verification

Model parameters

4.2.1 The ADMS-Roads model was used to predict pollutant concentrations from changes in road traffic emissions. A surface roughness of 0.3m was used for this area and a surface roughness of 0.2m was used for the meteorological site. A minimum Monin-Obukhov length of 10m and latitude of 53 degrees were used in the assessment. Meteorological data from the Manchester Airport monitoring site were used for the year 2018.

Model verification

- 4.2.2 Verification was undertaken for the year 2018 comparing monitored and modelled NO₂ concentrations. The traffic data provided were assumed to be representative of 2018. The results of this comparison are shown in Table 9 and Table 10.
- 4.2.3 Model verification was undertaken where monitoring sites are located adjacent to the modelled road network. The objectives of the model verification are to evaluate model performance and to determine if model adjustment is required.
- 4.2.4 Some of the monitoring locations were not considered suitable for model verification, due to missing traffic or monitoring data or other spatial considerations. A total of seven monitoring sites were included in the model verification exercise. Additional nearby monitoring sites in MA06: Hulseheath to Manchester Airport were included within the verification model where urban density was deemed similar.

Table 9: Comparison of monitored and modelled NO₂ concentrations

| Site | Monitored concentration (µg/m ³) | Modelled concentration (µg/m ³) | Difference [(modelled - monitored) / monitored] |
|--------|--|---|---|
| CE301 | 42.8 | 38.4 | -10.3% |
| CE54 | 42.7 | 34.4 | -19.4% |
| CE298 | 26.4 | 18.1 | -31.4% |
| MA03.4 | 21.8 | 17.1 | -21.6% |

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| Site | Monitored concentration ($\mu\text{g}/\text{m}^3$) | Modelled concentration ($\mu\text{g}/\text{m}^3$) | Difference [(modelled - monitored) / monitored] |
|--------|--|---|---|
| MA03.5 | 18.2 | 16.9 | -7.1% |
| MA06.1 | 19.5 | 16.7 | -14.4% |
| MA06.3 | 22.6 | 22.5 | -0.4% |

4.2.5 As there was systematic under prediction, model adjustment was undertaken. A factor of 1.5 has been applied to modelled NO_x concentrations. Modelled concentrations of PM₁₀ and PM_{2.5} have not been adjusted.

Table 10: Comparison of monitored and adjusted modelled NO₂ concentrations

| Site | Monitored concentration ($\mu\text{g}/\text{m}^3$) | Modelled adjusted concentration ($\mu\text{g}/\text{m}^3$) | Difference [(modelled - monitored)/monitored] |
|--------|--|--|---|
| CE301 | 42.8 | 46.1 | 7.7% |
| CE54 | 42.7 | 40.7 | -4.7% |
| CE298 | 26.4 | 20.6 | -22.0% |
| MA03.4 | 21.8 | 19.8 | -9.2% |
| MA03.5 | 18.2 | 18.2 | 0.0% |
| MA06.1 | 19.5 | 18.3 | -6.2% |
| MA06.3 | 22.6 | 24.3 | 7.5% |

4.3 Assessment of construction traffic emissions

4.3.1 Construction traffic data used in this assessment detailed in BID AQ-002-0MA03¹. The assessment of construction traffic emissions has used traffic data based on an estimate of the average maximum daily flows in the peak year during the construction period (2025-2037). Vehicle emissions and background concentrations have been taken for the first construction year in 2025 as a worst case. There were seven construction traffic scenarios assessed in this area, four for human health receptors and three for ecological receptors, to capture peak construction traffic activity at different times in the construction period. It has been assumed that the changes in construction traffic will occur for the whole year. In some cases, this is a conservative approach, as the duration of the peak traffic flows may well be much shorter. These scenarios have been assessed against the relevant future baseline case without the Proposed Scheme.

4.3.2 Traffic data in the study area have been screened to identify roads that require further assessment and to confirm the likely effect of the change in emissions from vehicles using these roads during construction of the Proposed Scheme. The screening criteria are detailed in the Environmental Impact Assessment Scope and Methodology Report (SMR) (see Volume 5: Appendix CT-001-00001) and are largely based on the Design Manual for Roads and Bridges (DMRB) thresholds for changes in annual average daily traffic (AADT), changes in daily heavy duty vehicles (HDV) flows and/or changes in road alignment by 5m or more.

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4.3.3 Traffic data for construction vehicles using the site haul routes and moving between compounds have also been included in the assessment. Additional roads have also been included in the assessment where relevant to account for their emissions at nearby receptors.

Receptors assessed and background concentrations

4.3.4 Sensitive receptors have been selected from the OS AddressBase Premium database. The receptors consist of residential properties, schools, hospitals and/or care homes within 200m of the screened in roads and represent worst-case exposure locations. The location of all receptors is shown in accompanying map AQ-01-303.

4.3.5 Three designated ecological receptors have been identified within 200m of the screened in roads within the Pickmere to Agden and Hulseheath area during construction of the Proposed Scheme. These ecological receptors are The Mere, Mere SSSI, the Tabley Mere SSSI and the Dunham Park SSSI.

4.3.6 Details of the assessed receptors and the background concentrations used in the assessment are shown in Table 11 for human and Table 12 for ecological receptors.

Table 11: Modelled receptors and background concentrations (construction phase)

| Receptor | Description/Location | Ordnance survey coordinates | Background concentrations in 2025 ($\mu\text{g}/\text{m}^3$) | | | |
|----------|----------------------------------|-----------------------------|--|-----------------|------------------|-------------------|
| | | | NO _x | NO ₂ | PM ₁₀ | PM _{2.5} |
| 3-C-H001 | Holmes Chapel Road, Knutsford | 375772, 376815 | 9.4 | 7.4 | 9.9 | 6.2 |
| 3-C-H002 | Chester Road, Tabley | 371481, 376854 | 10.3 | 8.0 | 10.2 | 6.4 |
| 3-C-H003 | Gough's Lane, Knutsford | 375792, 376943 | 9.4 | 7.4 | 9.9 | 6.2 |
| 3-C-H004 | Chester Road, Tabley | 371518, 376969 | 10.3 | 8.0 | 10.2 | 6.4 |
| 3-C-H005 | Gough's Lane, Knutsford | 375847, 376980 | 9.4 | 7.4 | 9.9 | 6.2 |
| 3-C-H006 | Gough's Lane, Knutsford | 376332, 377440 | 11.3 | 8.7 | 9.5 | 6.2 |
| 3-C-H007 | Gough's Lane, Knutsford | 376385, 377501 | 11.3 | 8.7 | 9.5 | 6.2 |
| 3-C-H008 | Chelford Road, Knutsford | 376456, 377541 | 11.3 | 8.7 | 9.5 | 6.2 |
| 3-C-H009 | Pickmere Lane, Pickmere | 369907, 377647 | 9.1 | 7.1 | 9.6 | 6.1 |
| 3-C-H010 | Pickmere Lane, Pickmere | 370110, 377886 | 9.2 | 7.2 | 9.3 | 6.0 |
| 3-C-H011 | Hield Lane, Northwich | 367408, 377921 | 9.2 | 7.2 | 10.2 | 6.2 |
| 3-C-H012 | Swineyard Lane, High Legh | 367402, 377951 | 9.2 | 7.2 | 10.2 | 6.2 |
| 3-C-H013 | School Farm, School Lane, Tabley | 370455, 378316 | 9.3 | 7.3 | 9.8 | 6.1 |

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| Receptor | Description/Location | Ordnance survey coordinates | Background concentrations in 2025 ($\mu\text{g}/\text{m}^3$) | | | |
|----------|------------------------------------|-----------------------------|--|-----------------|------------------|-------------------|
| | | | NO _x | NO ₂ | PM ₁₀ | PM _{2.5} |
| 3-C-H014 | Chester Road, Tabley | 372165, 378386 | 11.5 | 8.9 | 10.6 | 6.6 |
| 3-C-H015 | Church Farm, School Lane, Pickmere | 370277, 378400 | 9.3 | 7.3 | 9.8 | 6.1 |
| 3-C-H016 | Budworth Road, Aston by Budworth | 367687, 378546 | 8.9 | 7.0 | 9.6 | 6.1 |
| 3-C-H017 | Northwich Road, Knutsford | 374595, 378587 | 11.7 | 9.0 | 10.6 | 6.8 |
| 3-C-H018 | Northwich Road, Knutsford | 374640, 378603 | 11.7 | 9.0 | 10.6 | 6.8 |
| 3-C-H019 | Mobberley Road, Knutsford | 375668, 378675 | 13.3 | 10.1 | 10.2 | 6.7 |
| 3-C-H020 | Frog Lane, Pickmere | 370045, 378700 | 9.3 | 7.3 | 9.8 | 6.1 |
| 3-C-H021 | Pickmere Lane, Tabley | 370901, 378740 | 9.3 | 7.3 | 9.8 | 6.1 |
| 3-C-H022 | Pickmere Lane, Tabley | 370891, 378747 | 9.3 | 7.3 | 9.8 | 6.1 |
| 3-C-H023 | Tabley Hill Lane, Tabley | 372951, 378790 | 11.5 | 8.9 | 10.6 | 6.6 |
| 3-C-H024 | Tabley Hill Lane, Tabley | 373266, 378870 | 15.1 | 11.4 | 11.9 | 7.2 |
| 3-C-H025 | Chester Road, Tabley | 372203, 378896 | 11.5 | 8.9 | 10.6 | 6.6 |
| 3-C-H026 | Budworth Road, Tabley | 370915, 379051 | 9.8 | 7.6 | 9.7 | 6.2 |
| 3-C-H027 | Pickmere Lane, Tabley | 371345, 379065 | 10.2 | 7.9 | 11.4 | 7.1 |
| 3-C-H028 | Budworth Road, Tabley | 371140, 379073 | 10.2 | 7.9 | 11.4 | 7.1 |
| 3-C-H029 | Pickmere Lane, Tabley | 371325, 379089 | 10.2 | 7.9 | 11.4 | 7.1 |
| 3-C-H030 | Budworth Road, Pickmere | 369560, 379115 | 9.2 | 7.2 | 9.9 | 6.2 |
| 3-C-H031 | Budworth Road, Northwich | 368665, 379234 | 9.0 | 7.1 | 9.8 | 6.1 |
| 3-C-H032 | Chester Road, Tabley | 372229, 379253 | 16.8 | 12.6 | 12.3 | 7.4 |
| 3-C-H033 | Chester Road, Tabley | 372276, 379268 | 16.8 | 12.6 | 12.3 | 7.4 |
| 3-C-H034 | Budworth Road, Aston by Budworth | 368712, 379268 | 9.0 | 7.1 | 9.8 | 6.1 |
| 3-C-H035 | Manchester Road, Knutsford | 374425, 379319 | 10.7 | 8.3 | 10.3 | 6.5 |
| 3-C-H036 | Old Hall Lane, Tabley | 370815, 379528 | 9.8 | 7.6 | 9.7 | 6.2 |
| 3-C-H037 | Old Hall Lane, Over Tabley | 371767, 379656 | 10.2 | 7.9 | 11.4 | 7.1 |
| 3-C-H038 | Chester Road, Tabley | 372263, 379724 | 16.8 | 12.6 | 12.3 | 7.4 |
| 3-C-H039 | Manchester Road, Knutsford | 374245, 379765 | 10.7 | 8.3 | 10.3 | 6.5 |
| 3-C-H040 | Old Hall Lane, Over Tabley | 371976, 379780 | 10.2 | 7.9 | 11.4 | 7.1 |

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| Receptor | Description/Location | Ordnance survey coordinates | Background concentrations in 2025 (µg/m ³) | | | |
|----------|--------------------------------------|-----------------------------|--|-----------------|------------------|-------------------|
| | | | NO _x | NO ₂ | PM ₁₀ | PM _{2.5} |
| 3-C-H041 | Old Hall Lane, Tabley | 371139, 380107 | 14.0 | 10.7 | 11.4 | 7.1 |
| 3-C-H042 | Old Hall Lane, Over Tabley | 370869, 380388 | 14.4 | 10.9 | 11.2 | 7.0 |
| 3-C-H043 | Chester Road, Knutsford | 372549, 380733 | 12.7 | 9.8 | 11.1 | 6.9 |
| 3-C-H044 | Manchester Road, Mere | 373651, 380925 | 11.1 | 8.6 | 10.0 | 6.3 |
| 3-C-H045 | Mereside Road, Mere | 373605, 381010 | 10.7 | 8.3 | 9.7 | 6.2 |
| 3-C-H046 | Winterbottom Lane, Mere | 370985, 381083 | 10.9 | 8.5 | 10.8 | 6.5 |
| 3-C-H047 | Warrington Road, Mere | 373371, 381129 | 10.7 | 8.3 | 9.7 | 6.2 |
| 3-C-H048 | Cann Lane, Aston by Budworth | 369180, 381150 | 14.4 | 11.0 | 12.3 | 7.3 |
| 3-C-H049 | Mereside Road, Mere | 373648, 381278 | 10.7 | 8.3 | 9.7 | 6.2 |
| 3-C-H050 | A556, Mere | 372095, 381391 | 11.6 | 8.9 | 10.8 | 6.6 |
| 3-C-H051 | Mere Day Nursery, Chester Road, Mere | 372747, 381417 | 11.6 | 8.9 | 10.8 | 6.6 |
| 3-C-H052 | Mereside Road, Mere | 373620, 381443 | 10.7 | 8.3 | 9.7 | 6.2 |
| 3-C-H053 | Ashley Road, Mere | 373662, 381485 | 10.7 | 8.3 | 9.7 | 6.2 |
| 3-C-H054 | Chester Road, Mere | 372767, 381524 | 11.6 | 8.9 | 10.8 | 6.6 |
| 3-C-H055 | Chester Road, Mere | 372773, 381550 | 11.6 | 8.9 | 10.8 | 6.6 |
| 3-C-H056 | Chester Road, Mere | 372706, 381586 | 11.6 | 8.9 | 10.8 | 6.6 |
| 3-C-H057 | Chester Road, Mere | 372714, 381611 | 11.6 | 8.9 | 10.8 | 6.6 |
| 3-C-H058 | Chester Road, Mere | 372728, 381720 | 11.6 | 8.9 | 10.8 | 6.6 |
| 3-C-H059 | Northwich Road, Lower Stretton | 362211, 381853 | 10.1 | 7.8 | 9.9 | 6.3 |
| 3-C-H060 | Winterbottom Lane, Mere | 371209, 381921 | 11.7 | 9.0 | 10.9 | 6.7 |
| 3-C-H061 | Tatton Dale, Knutsford | 374180, 382242 | 10.6 | 8.2 | 9.8 | 6.2 |
| 3-C-H062 | Moss Lane, High Legh | 367695, 382555 | 15.0 | 11.4 | 11.9 | 7.2 |
| 3-C-H063 | Hoo Green Lane, Knutsford | 371825, 382712 | 10.6 | 8.2 | 10.5 | 6.4 |
| 3-C-H064 | Mere, Knutsford | 371911, 382718 | 10.6 | 8.2 | 10.5 | 6.4 |
| 3-C-H065 | Chester Road, Mere | 373037, 382747 | 11.1 | 8.6 | 9.6 | 6.2 |
| 3-C-H066 | Chester Road, Bucklow Hill | 373037, 382747 | 11.1 | 8.6 | 9.6 | 6.2 |
| 3-C-H067 | Mere, Knutsford | 371783, 382780 | 10.6 | 8.2 | 10.5 | 6.4 |
| 3-C-H068 | Warrington Road, Mere | 371377, 383034 | 10.7 | 8.3 | 10.0 | 6.3 |

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|----------|-----------------------------------|-----------------------------|--|-----------------|------------------|-------------------|
| | | | NO _x | NO ₂ | PM ₁₀ | PM _{2.5} |
| 3-C-H069 | Arley Road, Appleton Thorn | 364405, 383058 | 16.0 | 12.0 | 11.7 | 7.2 |
| 3-C-H070 | Chester Road, Bucklow Hill | 373125, 383071 | 11.8 | 9.1 | 10.1 | 6.4 |
| 3-C-H071 | Wrenshot Lane, High Legh | 371292, 383123 | 10.7 | 8.3 | 10.0 | 6.3 |
| 3-C-H072 | Wrenshot Lane, High Legh | 371480, 383430 | 10.7 | 8.3 | 10.0 | 6.3 |
| 3-C-H073 | Chapel Lane, Bucklow Hill | 372795, 383436 | 12.6 | 9.7 | 11.2 | 6.8 |
| 3-C-H074 | Swineyard Lane, High Legh | 366747, 383691 | 18.8 | 14.0 | 12.7 | 7.5 |
| 3-C-H075 | Woodlands Crescent, High Legh | 369942, 383727 | 10.9 | 8.5 | 10.5 | 6.5 |
| 3-C-H076 | Withers Lane, High Legh | 366898, 383796 | 18.8 | 14.0 | 12.7 | 7.5 |
| 3-C-H077 | Barleycastle Lane, Appleton Thorn | 365736, 383802 | 16.4 | 12.3 | 12.0 | 7.3 |
| 3-C-H078 | Peacock Lane, Mere | 372073, 384015 | 11.5 | 8.9 | 10.1 | 6.4 |
| 3-C-H079 | Swinyard Lane, High Legh | 368590, 384063 | 15.2 | 11.5 | 12.1 | 7.3 |
| 3-C-H080 | Crabtree Lane, High Legh | 369065, 384154 | 13.7 | 10.4 | 10.8 | 6.6 |
| 3-C-H081 | Withers Lane, High Legh | 367075, 384160 | 17.3 | 13.0 | 12.8 | 7.6 |
| 3-C-H082 | Swineyard Lane, High Legh | 368709, 384209 | 15.2 | 11.5 | 12.1 | 7.3 |
| 3-C-H083 | Swineyard Lane, High Legh | 368746, 384214 | 15.2 | 11.5 | 12.1 | 7.3 |
| 3-C-H084 | Warrington Road, High Legh | 368676, 384263 | 15.2 | 11.5 | 12.1 | 7.3 |
| 3-C-H085 | Back Lane, Moston | 371993, 384284 | 11.3 | 8.7 | 9.9 | 6.3 |
| 3-C-H086 | Back Lane, Moston | 371994, 384294 | 11.3 | 8.7 | 9.9 | 6.3 |
| 3-C-H087 | Peacock Lane, Knutsford | 371813, 384296 | 11.3 | 8.7 | 9.9 | 6.3 |
| 3-C-H088 | Peacock Lane, High Legh | 371541, 384371 | 11.3 | 8.7 | 9.9 | 6.3 |
| 3-C-H089 | Peacock Lane, Knutsford | 371303, 384423 | 11.3 | 8.7 | 9.9 | 6.3 |
| 3-C-H090 | Heath Lane, High Legh | 367943, 384452 | 17.3 | 13.0 | 12.8 | 7.6 |
| 3-C-H091 | Withers Lane, High Legh | 366957, 384500 | 21.6 | 15.9 | 12.3 | 7.5 |
| 3-C-H092 | Peacock Lane, High Legh | 370617, 384665 | 11.6 | 8.9 | 9.9 | 6.3 |
| 3-C-H093 | Primrose Hill, Cliff Lane | 367457, 384718 | 17.3 | 13.0 | 12.8 | 7.6 |
| 3-C-H094 | Agden Lane, Agden | 371826, 384875 | 11.3 | 8.7 | 9.9 | 6.3 |
| 3-C-H095 | Agden Lane, Agden | 371811, 384878 | 11.3 | 8.7 | 9.9 | 6.3 |
| 3-C-H096 | Cliff Lane, Lymm | 366922, 384924 | 21.6 | 15.9 | 12.3 | 7.5 |

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| Receptor | Description/Location | Ordnance survey coordinates | Background concentrations in 2025 ($\mu\text{g}/\text{m}^3$) | | | |
|----------|--|-----------------------------|--|-----------------|------------------|-------------------|
| | | | NO _x | NO ₂ | PM ₁₀ | PM _{2.5} |
| 3-C-H097 | Peacock Lane, High Legh | 370282, 384967 | 11.6 | 8.9 | 9.9 | 6.3 |
| 3-C-H098 | Old Cherry Lane, Lymm | 366410, 384999 | 21.6 | 15.9 | 12.3 | 7.5 |
| 3-C-H099 | Cliff Lane, Lymm | 366015, 385005 | 19.3 | 14.3 | 12.4 | 7.5 |
| 3-C-H100 | Agden Lane, Agden | 371652, 385034 | 15.1 | 11.4 | 11.3 | 7.0 |
| 3-C-H101 | Froghall Lane, High Legh | 371066, 385157 | 15.1 | 11.4 | 11.3 | 7.0 |
| 3-C-H102 | West Lane, High Legh | 370348, 385245 | 12.1 | 9.3 | 11.1 | 7.0 |
| 3-C-H103 | Agden Lane, Agden | 371314, 385293 | 15.1 | 11.4 | 11.3 | 7.0 |
| 3-C-H104 | Agden Lane, Agden | 371543, 385487 | 15.1 | 11.4 | 11.3 | 7.0 |
| 3-C-H105 | Agden Park Lane, Broomedge | 370849, 385893 | 12.1 | 9.3 | 11.1 | 7.0 |
| 3-C-H106 | Agden Brow, Lymm | 371040, 386001 | 12.4 | 9.5 | 10.0 | 6.4 |
| 3-C-H107 | Lymm Road, Agden Brow | 371300, 386252 | 12.4 | 9.5 | 10.0 | 6.4 |
| 3-C-H108 | Lymm Road, Little Bollington | 373116, 386318 | 12.7 | 9.8 | 10.0 | 6.4 |
| 3-C-H109 | Lymm Road, Little Bollington | 372959, 386378 | 12.1 | 9.3 | 9.9 | 6.4 |
| 3-C-H110 | Lymm Road, Little Bollington | 372779, 386486 | 12.1 | 9.3 | 9.9 | 6.4 |
| 3-C-H111 | Lymm Road, Little Bollington | 372816, 386496 | 12.1 | 9.3 | 9.9 | 6.4 |
| 3-C-H112 | Little Bollington Church of England Primary School, Lymm Road, Little Bollington | 372651, 386561 | 12.1 | 9.3 | 9.9 | 6.4 |
| 3-C-H113 | Lymm Road, Little Bollington | 372533, 386617 | 12.1 | 9.3 | 9.9 | 6.4 |

Table 12: Modelled ecological receptor backgrounds, APIS data and critical loads (construction phase)

| Receptor | Sensitive habitat | 2025 NO _x background concentration ($\mu\text{g}/\text{m}^3$) | APIS data ³ of average total N deposition (kg N/ha/yr) | Critical load (kg N/ha/yr) |
|--------------------------------|--------------------------------|--|---|----------------------------|
| The Mere, Mere SSSI Transect 1 | Poor fen | 10.7 | 23.8 | 10 |
| Tabley Mere SSSI Transect 1 | Broadleaved deciduous woodland | 9.4 | 43.0 | 10 |
| Tabley Mere SSSI Transect 1 | Poor fen | 9.4 | 25.5 | 10 |
| Tabley Mere SSSI Transect 2 | Broadleaved deciduous woodland | 9.4 | 43.0 | 10 |

³ Air Pollution Information System. Available online at : <http://www.apis.ac.uk/>.

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| Receptor | Sensitive habitat | 2025 NOx background concentration (µg/m ³) | APIS data ³ of average total N deposition (kg N/ha/yr) | Critical load (kg N/ha/yr) |
|-----------------------------|--------------------------------|--|---|----------------------------|
| Tabley Mere SSSI Transect 2 | Poor fen | 9.4 | 25.5 | 10 |
| Dunham Park SSSI Transect 1 | Broadleaved deciduous woodland | 11.6 | 42.7 | 15 |
| Dunham Park SSSI Transect 2 | Broadleaved deciduous woodland | 11.1 | 42.7 | 15 |

Assessment results

4.3.7 Table 13 presents the predicted NO₂ impacts across all assessed scenarios for each assessed receptor. All impacts are predicted to be negligible for PM₁₀ and PM_{2.5}. Table 14, Table 15 and Table 16 provide the summary of the modelled pollutant concentrations for the assessed receptors for the worst case construction traffic scenario. The magnitude of change and impact descriptor are also derived following the IAQM/Environmental Protection UK (EPUK) methodology⁴. Table 17 and Table 18 provide the summary of the assessment for the ecological receptors for the worst case construction traffic scenario.

Table 13: Comparison of impact descriptors across construction scenarios

| Receptor | Impact descriptors for annual mean NO ₂ concentrations | | | |
|----------|---|------------|------------|------------|
| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 |
| 3-C-H001 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H002 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H003 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H004 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H005 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H006 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H007 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H008 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H009 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H010 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H011 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H012 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H013 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H014 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H015 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H016 | Negligible | Negligible | Negligible | Negligible |

⁴ Institute of Air Quality Management (2017), *Land-Use Planning & Development Control: Planning for Air Quality*. Available online at: <http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>.

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| Receptor | Impact descriptors for annual mean NO ₂ concentrations | | | |
|----------|---|------------|------------|------------|
| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 |
| 3-C-H017 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H018 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H019 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H020 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H021 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H022 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H023 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H024 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H025 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H026 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H027 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H028 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H029 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H030 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H031 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H032 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H033 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H034 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H035 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H036 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H037 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H038 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H039 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H040 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H041 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H042 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H043 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H044 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H045 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H046 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H047 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H048 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H049 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H050 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H051 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H052 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H053 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H054 | Negligible | Negligible | Negligible | Negligible |

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|----------|---|------------|----------------|------------|
| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 |
| 3-C-H055 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H056 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H057 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H058 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H059 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H060 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H061 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H062 | Negligible | Negligible | Slight adverse | Negligible |
| 3-C-H063 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H064 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H065 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H066 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H067 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H068 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H069 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H070 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H071 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H072 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H073 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H074 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H075 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H076 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H077 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H078 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H079 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H080 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H081 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H082 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H083 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H084 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H085 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H086 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H087 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H088 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H089 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H090 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H091 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H092 | Negligible | Negligible | Negligible | Negligible |

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|----------|---|-------------------|-------------------|-------------------|
| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 |
| 3-C-H093 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H094 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H095 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H096 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H097 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H098 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H099 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H100 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H101 | Slight beneficial | Slight beneficial | Slight beneficial | Slight beneficial |
| 3-C-H102 | Slight beneficial | Slight beneficial | Slight beneficial | Slight beneficial |
| 3-C-H103 | Slight beneficial | Slight beneficial | Slight beneficial | Slight beneficial |
| 3-C-H104 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H105 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H106 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H107 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H108 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H109 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H110 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H111 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H112 | Negligible | Negligible | Negligible | Negligible |
| 3-C-H113 | Negligible | Negligible | Negligible | Negligible |

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Table 14: Predicted annual mean NO₂ concentrations and impacts (construction phase)

| Receptor | Description/Location | NO ₂ concentrations (µg/m ³) | | Change in NO ₂ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|------------------------------------|---|-------------------------------|---|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H001 | Holmes Chapel Road, Knutsford | 14.5 | 14.9 | 0.4 | Negligible | Not significant |
| 3-C-H002 | Chester Road, Tabley | 16.1 | 16.2 | 0.1 | Negligible | Not significant |
| 3-C-H003 | Gough's Lane, Knutsford | 15.3 | 15.9 | 0.6 | Negligible | Not significant |
| 3-C-H004 | Chester Road, Tabley | 19.6 | 19.7 | 0.1 | Negligible | Not significant |
| 3-C-H005 | Gough's Lane, Knutsford | 13.4 | 14.1 | 0.7 | Negligible | Not significant |
| 3-C-H006 | Gough's Lane, Knutsford | 11.3 | 11.6 | 0.3 | Negligible | Not significant |
| 3-C-H007 | Gough's Lane, Knutsford | 13.6 | 14.1 | 0.5 | Negligible | Not significant |
| 3-C-H008 | Chelford Road, Knutsford | 12.8 | 12.9 | 0.1 | Negligible | Not significant |
| 3-C-H009 | Pickmere Lane, Pickmere | 10.2 | 11.1 | 0.9 | Negligible | Not significant |
| 3-C-H010 | Pickmere Lane, Pickmere | 10.3 | 11.2 | 0.9 | Negligible | Not significant |
| 3-C-H011 | Hield Lane, Northwich | 10.0 | 10.5 | 0.5 | Negligible | Not significant |
| 3-C-H012 | Swineyard Lane, High Legh | 9.8 | 10.2 | 0.4 | Negligible | Not significant |
| 3-C-H013 | School Farm, School Lane, Tabley | 8.4 | 8.9 | 0.5 | Negligible | Not significant |
| 3-C-H014 | Chester Road, Tabley | 27.7 | 27.6 | -0.1 | Negligible | Not significant |
| 3-C-H015 | Church Farm, School Lane, Pickmere | 8.0 | 8.3 | 0.3 | Negligible | Not significant |
| 3-C-H016 | Budworth Road, Aston by Budworth | 9.9 | 10.4 | 0.5 | Negligible | Not significant |
| 3-C-H017 | Northwich Road, Knutsford | 14.0 | 14.0 | < 0.1 | Negligible | Not significant |
| 3-C-H018 | Northwich Road, Knutsford | 14.9 | 15.0 | 0.1 | Negligible | Not significant |
| 3-C-H019 | Mobberley Road, Knutsford | 17.7 | 17.8 | 0.1 | Negligible | Not significant |
| 3-C-H020 | Frog Lane, Pickmere | 7.9 | 8.0 | 0.1 | Negligible | Not significant |
| 3-C-H021 | Pickmere Lane, Tabley | 9.9 | 10.9 | 1.0 | Negligible | Not significant |
| 3-C-H022 | Pickmere Lane, Tabley | 9.2 | 9.9 | 0.7 | Negligible | Not significant |

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| Receptor | Description/Location | NO ₂ concentrations (µg/m ³) | | Change in NO ₂ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|----------------------------------|---|-------------------------------|---|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H023 | Tabley Hill Lane, Tabley | 13.2 | 13.3 | 0.1 | Negligible | Not significant |
| 3-C-H024 | Tabley Hill Lane, Tabley | 14.9 | 14.9 | < 0.1 | Negligible | Not significant |
| 3-C-H025 | Chester Road, Tabley | 21.1 | 21.4 | 0.3 | Negligible | Not significant |
| 3-C-H026 | Budworth Road, Tabley | 8.7 | 8.9 | 0.2 | Negligible | Not significant |
| 3-C-H027 | Pickmere Lane, Tabley | 10.8 | 11.5 | 0.7 | Negligible | Not significant |
| 3-C-H028 | Budworth Road, Tabley | 9.5 | 9.8 | 0.3 | Negligible | Not significant |
| 3-C-H029 | Pickmere Lane, Tabley | 10.8 | 11.6 | 0.8 | Negligible | Not significant |
| 3-C-H030 | Budworth Road, Pickmere | 7.8 | 7.8 | < 0.1 | Negligible | Not significant |
| 3-C-H031 | Budworth Road, Northwich | 8.0 | 8.2 | 0.2 | Negligible | Not significant |
| 3-C-H032 | Chester Road, Tabley | 22.5 | 23.0 | 0.5 | Negligible | Not significant |
| 3-C-H033 | Chester Road, Tabley | 20.3 | 20.6 | 0.3 | Negligible | Not significant |
| 3-C-H034 | Budworth Road, Aston by Budworth | 7.9 | 8.0 | 0.1 | Negligible | Not significant |
| 3-C-H035 | Manchester Road, Knutsford | 13.6 | 13.5 | -0.1 | Negligible | Not significant |
| 3-C-H036 | Old Hall Lane, Tabley | 8.3 | 8.4 | 0.1 | Negligible | Not significant |
| 3-C-H037 | Old Hall Lane, Over Tabley | 13.0 | 13.3 | 0.3 | Negligible | Not significant |
| 3-C-H038 | Chester Road, Tabley | 23.4 | 23.8 | 0.4 | Negligible | Not significant |
| 3-C-H039 | Manchester Road, Knutsford | 13.1 | 13.0 | -0.1 | Negligible | Not significant |
| 3-C-H040 | Old Hall Lane, Over Tabley | 16.6 | 17.1 | 0.5 | Negligible | Not significant |
| 3-C-H041 | Old Hall Lane, Tabley | 11.7 | 11.7 | < 0.1 | Negligible | Not significant |
| 3-C-H042 | Old Hall Lane, Over Tabley | 13.0 | 13.2 | 0.2 | Negligible | Not significant |
| 3-C-H043 | Chester Road, Knutsford | 11.6 | 12.2 | 0.6 | Negligible | Not significant |
| 3-C-H044 | Manchester Road, Mere | 14.9 | 14.9 | < 0.1 | Negligible | Not significant |
| 3-C-H045 | Mereside Road, Mere | 13.4 | 13.4 | < 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | NO ₂ concentrations (µg/m ³) | | Change in NO ₂ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|--------------------------------------|---|-------------------------------|---|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H046 | Winterbottom Lane, Mere | 9.8 | 9.9 | 0.1 | Negligible | Not significant |
| 3-C-H047 | Warrington Road, Mere | 12.8 | 13.2 | 0.4 | Negligible | Not significant |
| 3-C-H048 | Cann Lane, Aston by Budworth | 13.0 | 13.2 | 0.2 | Negligible | Not significant |
| 3-C-H049 | Mereside Road, Mere | 13.0 | 13.2 | 0.2 | Negligible | Not significant |
| 3-C-H050 | A556, Mere | 11.1 | 11.2 | 0.1 | Negligible | Not significant |
| 3-C-H051 | Mere Day Nursery, Chester Road, Mere | 10.5 | 10.8 | 0.3 | Negligible | Not significant |
| 3-C-H052 | Mereside Road, Mere | 11.7 | 11.9 | 0.2 | Negligible | Not significant |
| 3-C-H053 | Ashley Road, Mere | 11.2 | 11.8 | 0.6 | Negligible | Not significant |
| 3-C-H054 | Chester Road, Mere | 11.6 | 12.1 | 0.5 | Negligible | Not significant |
| 3-C-H055 | Chester Road, Mere | 12.8 | 13.4 | 0.6 | Negligible | Not significant |
| 3-C-H056 | Chester Road, Mere | 11.4 | 11.9 | 0.5 | Negligible | Not significant |
| 3-C-H057 | Chester Road, Mere | 12.7 | 13.3 | 0.6 | Negligible | Not significant |
| 3-C-H058 | Chester Road, Mere | 11.9 | 12.4 | 0.5 | Negligible | Not significant |
| 3-C-H059 | Northwich Road, Lower Stretton | 15.9 | 17.2 | 1.3 | Negligible | Not significant |
| 3-C-H060 | Winterbottom Lane, Mere | 9.7 | 9.7 | < 0.1 | Negligible | Not significant |
| 3-C-H061 | Tatton Dale, Knutsford | 9.9 | 10.3 | 0.4 | Negligible | Not significant |
| 3-C-H062 | Moss Lane, High Legh | 34.3 | 35.1 | 0.8 | Slight adverse | Not significant |
| 3-C-H063 | Hoo Green Lane, Knutsford | 11.0 | 11.3 | 0.3 | Negligible | Not significant |
| 3-C-H064 | Mere, Knutsford | 13.6 | 14.1 | 0.5 | Negligible | Not significant |
| 3-C-H065 | Chester Road, Mere | 9.0 | 9.2 | 0.2 | Negligible | Not significant |
| 3-C-H066 | Chester Road, Bucklow Hill | 9.0 | 9.2 | 0.2 | Negligible | Not significant |
| 3-C-H067 | Mere, Knutsford | 14.6 | 15.4 | 0.8 | Negligible | Not significant |

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| Receptor | Description/Location | NO ₂ concentrations (µg/m ³) | | Change in NO ₂ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|-----------------------------------|---|-------------------------------|---|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H068 | Warrington Road, Mere | 12.3 | 13.5 | 1.2 | Negligible | Not significant |
| 3-C-H069 | Arley Road, Appleton Thorn | 14.3 | 14.3 | < 0.1 | Negligible | Not significant |
| 3-C-H070 | Chester Road, Bucklow Hill | 9.9 | 10.0 | 0.1 | Negligible | Not significant |
| 3-C-H071 | Wrenshot Lane, High Legh | 16.5 | 17.6 | 1.1 | Negligible | Not significant |
| 3-C-H072 | Wrenshot Lane, High Legh | 9.1 | 9.4 | 0.3 | Negligible | Not significant |
| 3-C-H073 | Chapel Lane, Bucklow Hill | 12.3 | 12.4 | 0.1 | Negligible | Not significant |
| 3-C-H074 | Swineyard Lane, High Legh | 19.8 | 20.1 | 0.3 | Negligible | Not significant |
| 3-C-H075 | Woodlands Crescent, High Legh | 15.1 | 16.0 | 0.9 | Negligible | Not significant |
| 3-C-H076 | Withers Lane, High Legh | 23.3 | 23.6 | 0.3 | Negligible | Not significant |
| 3-C-H077 | Barleycastle Lane, Appleton Thorn | 25.0 | 25.0 | < 0.1 | Negligible | Not significant |
| 3-C-H078 | Peacock Lane, Mere | 9.9 | 10.2 | 0.3 | Negligible | Not significant |
| 3-C-H079 | Swinyard Lane, High Legh | 13.3 | 13.6 | 0.3 | Negligible | Not significant |
| 3-C-H080 | Crabtree Lane, High Legh | 16.8 | 18.0 | 1.2 | Negligible | Not significant |
| 3-C-H081 | Withers Lane, High Legh | 17.7 | 17.7 | < 0.1 | Negligible | Not significant |
| 3-C-H082 | Swineyard Lane, High Legh | 13.9 | 14.3 | 0.4 | Negligible | Not significant |
| 3-C-H083 | Swineyard Lane, High Legh | 14.4 | 14.9 | 0.5 | Negligible | Not significant |
| 3-C-H084 | Warrington Road, High Legh | 15.1 | 15.7 | 0.6 | Negligible | Not significant |
| 3-C-H085 | Back Lane, Moston | 9.6 | 9.8 | 0.2 | Negligible | Not significant |
| 3-C-H086 | Back Lane, Moston | 9.7 | 9.8 | 0.1 | Negligible | Not significant |
| 3-C-H087 | Peacock Lane, Knutsford | 9.7 | 9.8 | 0.1 | Negligible | Not significant |
| 3-C-H088 | Peacock Lane, High Legh | 9.5 | 9.7 | 0.2 | Negligible | Not significant |
| 3-C-H089 | Peacock Lane, Knutsford | 9.5 | 9.6 | 0.1 | Negligible | Not significant |
| 3-C-H090 | Heath Lane, High Legh | 19.2 | 20.2 | 1.0 | Negligible | Not significant |

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| Receptor | Description/Location | NO ₂ concentrations (µg/m ³) | | Change in NO ₂ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|------------------------------|---|-------------------------------|---|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H091 | Withers Lane, High Legh | 21.4 | 21.4 | < 0.1 | Negligible | Not significant |
| 3-C-H092 | Peacock Lane, High Legh | 10.0 | 10.1 | 0.1 | Negligible | Not significant |
| 3-C-H093 | Primrose Hill, Cliff Lane | 17.5 | 18.1 | 0.6 | Negligible | Not significant |
| 3-C-H094 | Agden Lane, Agden | 10.3 | 10.6 | 0.3 | Negligible | Not significant |
| 3-C-H095 | Agden Lane, Agden | 10.2 | 10.4 | 0.2 | Negligible | Not significant |
| 3-C-H096 | Cliff Lane, Lymm | 20.6 | 21.3 | 0.7 | Negligible | Not significant |
| 3-C-H097 | Peacock Lane, High Legh | 13.1 | 13.4 | 0.3 | Negligible | Not significant |
| 3-C-H098 | Old Cherry Lane, Lymm | 22.5 | 22.9 | 0.4 | Negligible | Not significant |
| 3-C-H099 | Cliff Lane, Lymm | 22.9 | 23.6 | 0.7 | Negligible | Not significant |
| 3-C-H100 | Agden Lane, Agden | 14.1 | 14.7 | 0.6 | Negligible | Not significant |
| 3-C-H101 | Froghall Lane, High Legh | 22.5 | 20.3 | -2.2 | Slight beneficial | Not significant |
| 3-C-H102 | West Lane, High Legh | 25.3 | 22.2 | -3.1 | Slight beneficial | Not significant |
| 3-C-H103 | Agden Lane, Agden | 26.9 | 24.6 | -2.3 | Slight beneficial | Not significant |
| 3-C-H104 | Agden Lane, Agden | 14.7 | 15.8 | 1.1 | Negligible | Not significant |
| 3-C-H105 | Agden Park Lane, Broomedge | 14.0 | 14.4 | 0.4 | Negligible | Not significant |
| 3-C-H106 | Agden Brow, Lymm | 16.1 | 16.6 | 0.5 | Negligible | Not significant |
| 3-C-H107 | Lymm Road, Agden Brow | 14.8 | 15.6 | 0.8 | Negligible | Not significant |
| 3-C-H108 | Lymm Road, Little Bollington | 14.4 | 14.8 | 0.4 | Negligible | Not significant |
| 3-C-H109 | Lymm Road, Little Bollington | 15.3 | 15.9 | 0.6 | Negligible | Not significant |
| 3-C-H110 | Lymm Road, Little Bollington | 12.8 | 13.3 | 0.5 | Negligible | Not significant |
| 3-C-H111 | Lymm Road, Little Bollington | 14.7 | 15.5 | 0.8 | Negligible | Not significant |

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| Receptor | Description/Location | NO ₂ concentrations (µg/m ³) | | Change in NO ₂ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|--|---|-------------------------------|---|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H112 | Little Bollington Church of England Primary School, Lymm Road, Little Bollington | 12.3 | 12.6 | 0.3 | Negligible | Not significant |
| 3-C-H113 | Lymm Road, Little Bollington | 15.5 | 16.2 | 0.7 | Negligible | Not significant |

Table 15: Predicted annual mean PM₁₀ concentrations and impacts (construction phase)

| Receptor | Description/Location | PM ₁₀ concentrations (µg/m ³) | | Change in PM ₁₀ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|------------------------------------|--|-------------------------------|--|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H001 | Holmes Chapel Road, Knutsford | 11.1 | 11.2 | 0.1 | Negligible | Not significant |
| 3-C-H002 | Chester Road, Tabley | 11.8 | 11.9 | 0.1 | Negligible | Not significant |
| 3-C-H003 | Gough's Lane, Knutsford | 11.4 | 11.5 | 0.1 | Negligible | Not significant |
| 3-C-H004 | Chester Road, Tabley | 12.4 | 12.6 | 0.2 | Negligible | Not significant |
| 3-C-H005 | Gough's Lane, Knutsford | 11.3 | 11.4 | 0.1 | Negligible | Not significant |
| 3-C-H006 | Gough's Lane, Knutsford | 10.1 | 10.1 | < 0.1 | Negligible | Not significant |
| 3-C-H007 | Gough's Lane, Knutsford | 10.6 | 10.7 | 0.1 | Negligible | Not significant |
| 3-C-H008 | Chelford Road, Knutsford | 10.2 | 10.3 | 0.1 | Negligible | Not significant |
| 3-C-H009 | Pickmere Lane, Pickmere | 10.1 | 10.3 | 0.2 | Negligible | Not significant |
| 3-C-H010 | Pickmere Lane, Pickmere | 9.8 | 10.0 | 0.2 | Negligible | Not significant |
| 3-C-H011 | Hield Lane, Northwich | 10.6 | 10.7 | 0.1 | Negligible | Not significant |
| 3-C-H012 | Swineyard Lane, High Legh | 10.6 | 10.7 | 0.1 | Negligible | Not significant |
| 3-C-H013 | School Farm, School Lane, Tabley | 10.0 | 10.0 | < 0.1 | Negligible | Not significant |
| 3-C-H014 | Chester Road, Tabley | 13.4 | 13.4 | < 0.1 | Negligible | Not significant |
| 3-C-H015 | Church Farm, School Lane, Pickmere | 9.9 | 9.9 | < 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | PM ₁₀ concentrations (µg/m ³) | | Change in PM ₁₀ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|----------------------------------|--|-------------------------------|--|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H016 | Budworth Road, Aston by Budworth | 10.1 | 10.2 | 0.1 | Negligible | Not significant |
| 3-C-H017 | Northwich Road, Knutsford | 11.7 | 11.7 | < 0.1 | Negligible | Not significant |
| 3-C-H018 | Northwich Road, Knutsford | 11.9 | 12.0 | 0.1 | Negligible | Not significant |
| 3-C-H019 | Mobberley Road, Knutsford | 12.1 | 12.1 | < 0.1 | Negligible | Not significant |
| 3-C-H020 | Frog Lane, Pickmere | 9.9 | 9.9 | < 0.1 | Negligible | Not significant |
| 3-C-H021 | Pickmere Lane, Tabley | 10.2 | 10.4 | 0.2 | Negligible | Not significant |
| 3-C-H022 | Pickmere Lane, Tabley | 10.1 | 10.2 | 0.1 | Negligible | Not significant |
| 3-C-H023 | Tabley Hill Lane, Tabley | 11.2 | 11.3 | 0.1 | Negligible | Not significant |
| 3-C-H024 | Tabley Hill Lane, Tabley | 12.4 | 12.4 | < 0.1 | Negligible | Not significant |
| 3-C-H025 | Chester Road, Tabley | 13.1 | 13.4 | 0.3 | Negligible | Not significant |
| 3-C-H026 | Budworth Road, Tabley | 9.9 | 9.9 | < 0.1 | Negligible | Not significant |
| 3-C-H027 | Pickmere Lane, Tabley | 11.9 | 12.0 | 0.1 | Negligible | Not significant |
| 3-C-H028 | Budworth Road, Tabley | 11.6 | 11.7 | 0.1 | Negligible | Not significant |
| 3-C-H029 | Pickmere Lane, Tabley | 11.9 | 12.0 | 0.1 | Negligible | Not significant |
| 3-C-H030 | Budworth Road, Pickmere | 10.0 | 10.0 | < 0.1 | Negligible | Not significant |
| 3-C-H031 | Budworth Road, Northwich | 9.9 | 10.0 | 0.1 | Negligible | Not significant |
| 3-C-H032 | Chester Road, Tabley | 14.3 | 14.5 | 0.2 | Negligible | Not significant |
| 3-C-H033 | Chester Road, Tabley | 13.8 | 13.9 | 0.1 | Negligible | Not significant |
| 3-C-H034 | Budworth Road, Aston by Budworth | 9.9 | 10.0 | 0.1 | Negligible | Not significant |
| 3-C-H035 | Manchester Road, Knutsford | 11.5 | 11.4 | -0.1 | Negligible | Not significant |
| 3-C-H036 | Old Hall Lane, Tabley | 9.8 | 9.8 | < 0.1 | Negligible | Not significant |
| 3-C-H037 | Old Hall Lane, Over Tabley | 12.2 | 12.2 | < 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | PM ₁₀ concentrations (µg/m ³) | | Change in PM ₁₀ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|--------------------------------------|--|-------------------------------|--|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H038 | Chester Road, Tabley | 13.9 | 14.0 | 0.1 | Negligible | Not significant |
| 3-C-H039 | Manchester Road, Knutsford | 11.1 | 11.1 | < 0.1 | Negligible | Not significant |
| 3-C-H040 | Old Hall Lane, Over Tabley | 12.7 | 12.9 | 0.2 | Negligible | Not significant |
| 3-C-H041 | Old Hall Lane, Tabley | 11.6 | 11.6 | < 0.1 | Negligible | Not significant |
| 3-C-H042 | Old Hall Lane, Over Tabley | 11.5 | 11.5 | < 0.1 | Negligible | Not significant |
| 3-C-H043 | Chester Road, Knutsford | 11.5 | 11.6 | 0.1 | Negligible | Not significant |
| 3-C-H044 | Manchester Road, Mere | 11.0 | 11.0 | < 0.1 | Negligible | Not significant |
| 3-C-H045 | Mereside Road, Mere | 10.5 | 10.5 | < 0.1 | Negligible | Not significant |
| 3-C-H046 | Winterbottom Lane, Mere | 11.0 | 11.0 | < 0.1 | Negligible | Not significant |
| 3-C-H047 | Warrington Road, Mere | 10.4 | 10.5 | 0.1 | Negligible | Not significant |
| 3-C-H048 | Cann Lane, Aston by Budworth | 12.7 | 12.7 | < 0.1 | Negligible | Not significant |
| 3-C-H049 | Mereside Road, Mere | 10.5 | 10.6 | 0.1 | Negligible | Not significant |
| 3-C-H050 | A556, Mere | 11.1 | 11.1 | < 0.1 | Negligible | Not significant |
| 3-C-H051 | Mere Day Nursery, Chester Road, Mere | 11.0 | 11.1 | 0.1 | Negligible | Not significant |
| 3-C-H052 | Mereside Road, Mere | 10.2 | 10.3 | 0.1 | Negligible | Not significant |
| 3-C-H053 | Ashley Road, Mere | 10.2 | 10.3 | 0.1 | Negligible | Not significant |
| 3-C-H054 | Chester Road, Mere | 11.2 | 11.3 | 0.1 | Negligible | Not significant |
| 3-C-H055 | Chester Road, Mere | 11.4 | 11.5 | 0.1 | Negligible | Not significant |
| 3-C-H056 | Chester Road, Mere | 11.1 | 11.2 | 0.1 | Negligible | Not significant |
| 3-C-H057 | Chester Road, Mere | 11.3 | 11.4 | 0.1 | Negligible | Not significant |
| 3-C-H058 | Chester Road, Mere | 11.3 | 11.4 | 0.1 | Negligible | Not significant |
| 3-C-H059 | Northwich Road, Lower Stretton | 12.1 | 12.4 | 0.3 | Negligible | Not significant |

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| Receptor | Description/Location | PM ₁₀ concentrations (µg/m ³) | | Change in PM ₁₀ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|-----------------------------------|--|-------------------------------|--|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H060 | Winterbottom Lane, Mere | 11.0 | 11.0 | < 0.1 | Negligible | Not significant |
| 3-C-H061 | Tatton Dale, Knutsford | 10.1 | 10.2 | 0.1 | Negligible | Not significant |
| 3-C-H062 | Moss Lane, High Legh | 15.8 | 16.0 | 0.2 | Negligible | Not significant |
| 3-C-H063 | Hoo Green Lane, Knutsford | 10.9 | 11.0 | 0.1 | Negligible | Not significant |
| 3-C-H064 | Mere, Knutsford | 11.4 | 11.6 | 0.2 | Negligible | Not significant |
| 3-C-H065 | Chester Road, Mere | 9.7 | 9.8 | 0.1 | Negligible | Not significant |
| 3-C-H066 | Chester Road, Bucklow Hill | 9.7 | 9.8 | 0.1 | Negligible | Not significant |
| 3-C-H067 | Mere, Knutsford | 11.6 | 11.8 | 0.2 | Negligible | Not significant |
| 3-C-H068 | Warrington Road, Mere | 10.7 | 11.0 | 0.3 | Negligible | Not significant |
| 3-C-H069 | Arley Road, Appleton Thorn | 12.0 | 12.0 | < 0.1 | Negligible | Not significant |
| 3-C-H070 | Chester Road, Bucklow Hill | 10.2 | 10.2 | < 0.1 | Negligible | Not significant |
| 3-C-H071 | Wrenshot Lane, High Legh | 11.5 | 11.8 | 0.3 | Negligible | Not significant |
| 3-C-H072 | Wrenshot Lane, High Legh | 10.2 | 10.2 | < 0.1 | Negligible | Not significant |
| 3-C-H073 | Chapel Lane, Bucklow Hill | 11.5 | 11.6 | 0.1 | Negligible | Not significant |
| 3-C-H074 | Swineyard Lane, High Legh | 13.6 | 13.6 | < 0.1 | Negligible | Not significant |
| 3-C-H075 | Woodlands Crescent, High Legh | 11.6 | 11.9 | 0.3 | Negligible | Not significant |
| 3-C-H076 | Withers Lane, High Legh | 14.2 | 14.3 | 0.1 | Negligible | Not significant |
| 3-C-H077 | Barleycastle Lane, Appleton Thorn | 13.9 | 13.9 | < 0.1 | Negligible | Not significant |
| 3-C-H078 | Peacock Lane, Mere | 10.3 | 10.4 | 0.1 | Negligible | Not significant |
| 3-C-H079 | Swinyard Lane, High Legh | 12.4 | 12.5 | 0.1 | Negligible | Not significant |
| 3-C-H080 | Crabtree Lane, High Legh | 11.9 | 12.2 | 0.3 | Negligible | Not significant |
| 3-C-H081 | Withers Lane, High Legh | 13.6 | 13.6 | < 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | PM ₁₀ concentrations (µg/m ³) | | Change in PM ₁₀ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|----------------------------|--|-------------------------------|--|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H082 | Swineyard Lane, High Legh | 12.5 | 12.6 | 0.1 | Negligible | Not significant |
| 3-C-H083 | Swineyard Lane, High Legh | 12.6 | 12.7 | 0.1 | Negligible | Not significant |
| 3-C-H084 | Warrington Road, High Legh | 12.8 | 12.9 | 0.1 | Negligible | Not significant |
| 3-C-H085 | Back Lane, Moston | 10.0 | 10.1 | 0.1 | Negligible | Not significant |
| 3-C-H086 | Back Lane, Moston | 10.0 | 10.1 | 0.1 | Negligible | Not significant |
| 3-C-H087 | Peacock Lane, Knutsford | 10.0 | 10.1 | 0.1 | Negligible | Not significant |
| 3-C-H088 | Peacock Lane, High Legh | 10.0 | 10.1 | 0.1 | Negligible | Not significant |
| 3-C-H089 | Peacock Lane, Knutsford | 10.0 | 10.0 | < 0.1 | Negligible | Not significant |
| 3-C-H090 | Heath Lane, High Legh | 13.9 | 14.1 | 0.2 | Negligible | Not significant |
| 3-C-H091 | Withers Lane, High Legh | 13.3 | 13.2 | -0.1 | Negligible | Not significant |
| 3-C-H092 | Peacock Lane, High Legh | 10.1 | 10.1 | < 0.1 | Negligible | Not significant |
| 3-C-H093 | Primrose Hill, Cliff Lane | 13.6 | 13.8 | 0.2 | Negligible | Not significant |
| 3-C-H094 | Agden Lane, Agden | 10.1 | 10.2 | 0.1 | Negligible | Not significant |
| 3-C-H095 | Agden Lane, Agden | 10.1 | 10.2 | 0.1 | Negligible | Not significant |
| 3-C-H096 | Cliff Lane, Lymm | 13.2 | 13.3 | 0.1 | Negligible | Not significant |
| 3-C-H097 | Peacock Lane, High Legh | 10.6 | 10.6 | < 0.1 | Negligible | Not significant |
| 3-C-H098 | Old Cherry Lane, Lymm | 13.4 | 13.5 | 0.1 | Negligible | Not significant |
| 3-C-H099 | Cliff Lane, Lymm | 14.0 | 14.1 | 0.1 | Negligible | Not significant |
| 3-C-H100 | Agden Lane, Agden | 11.7 | 11.8 | 0.1 | Negligible | Not significant |
| 3-C-H101 | Froghall Lane, High Legh | 13.1 | 13.0 | -0.1 | Negligible | Not significant |
| 3-C-H102 | West Lane, High Legh | 13.7 | 13.6 | -0.1 | Negligible | Not significant |
| 3-C-H103 | Agden Lane, Agden | 13.9 | 13.8 | -0.1 | Negligible | Not significant |

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| Receptor | Description/Location | PM ₁₀ concentrations (µg/m ³) | | Change in PM ₁₀ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|--|--|-------------------------------|--|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H104 | Agden Lane, Agden | 11.8 | 12.1 | 0.3 | Negligible | Not significant |
| 3-C-H105 | Agden Park Lane, Broomedge | 11.8 | 11.9 | 0.1 | Negligible | Not significant |
| 3-C-H106 | Agden Brow, Lymm | 11.1 | 11.2 | 0.1 | Negligible | Not significant |
| 3-C-H107 | Lymm Road, Agden Brow | 10.8 | 11.0 | 0.2 | Negligible | Not significant |
| 3-C-H108 | Lymm Road, Little Bollington | 10.7 | 10.8 | 0.1 | Negligible | Not significant |
| 3-C-H109 | Lymm Road, Little Bollington | 10.8 | 11.0 | 0.2 | Negligible | Not significant |
| 3-C-H110 | Lymm Road, Little Bollington | 10.4 | 10.5 | 0.1 | Negligible | Not significant |
| 3-C-H111 | Lymm Road, Little Bollington | 10.8 | 10.9 | 0.1 | Negligible | Not significant |
| 3-C-H112 | Little Bollington Church of England Primary School, Lymm Road, Little Bollington | 10.3 | 10.4 | 0.1 | Negligible | Not significant |
| 3-C-H113 | Lymm Road, Little Bollington | 10.9 | 11.1 | 0.2 | Negligible | Not significant |

Table 16: Predicted annual mean PM_{2.5} concentrations and impacts (construction phase)

| Receptor | Description/Location | PM _{2.5} concentrations (µg/m ³) | | Change in PM _{2.5} concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|-------------------------------|---|-------------------------------|---|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H001 | Holmes Chapel Road, Knutsford | 6.9 | 6.9 | < 0.1 | Negligible | Not significant |
| 3-C-H002 | Chester Road, Tabley | 7.3 | 7.3 | < 0.1 | Negligible | Not significant |
| 3-C-H003 | Gough's Lane, Knutsford | 7.0 | 7.1 | 0.1 | Negligible | Not significant |
| 3-C-H004 | Chester Road, Tabley | 7.7 | 7.8 | 0.1 | Negligible | Not significant |
| 3-C-H005 | Gough's Lane, Knutsford | 6.9 | 7.0 | 0.1 | Negligible | Not significant |
| 3-C-H006 | Gough's Lane, Knutsford | 6.5 | 6.6 | 0.1 | Negligible | Not significant |
| 3-C-H007 | Gough's Lane, Knutsford | 6.8 | 6.9 | 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | PM _{2.5} concentrations (µg/m ³) | | Change in PM _{2.5} concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|------------------------------------|---|-------------------------------|---|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H008 | Chelford Road, Knutsford | 6.6 | 6.6 | < 0.1 | Negligible | Not significant |
| 3-C-H009 | Pickmere Lane, Pickmere | 6.4 | 6.5 | 0.1 | Negligible | Not significant |
| 3-C-H010 | Pickmere Lane, Pickmere | 6.3 | 6.4 | 0.1 | Negligible | Not significant |
| 3-C-H011 | Hield Lane, Northwich | 6.5 | 6.6 | 0.1 | Negligible | Not significant |
| 3-C-H012 | Swineyard Lane, High Legh | 6.5 | 6.5 | < 0.1 | Negligible | Not significant |
| 3-C-H013 | School Farm, School Lane, Tabley | 6.2 | 6.3 | 0.1 | Negligible | Not significant |
| 3-C-H014 | Chester Road, Tabley | 8.3 | 8.3 | < 0.1 | Negligible | Not significant |
| 3-C-H015 | Church Farm, School Lane, Pickmere | 6.2 | 6.2 | < 0.1 | Negligible | Not significant |
| 3-C-H016 | Budworth Road, Aston by Budworth | 6.4 | 6.4 | < 0.1 | Negligible | Not significant |
| 3-C-H017 | Northwich Road, Knutsford | 7.4 | 7.4 | < 0.1 | Negligible | Not significant |
| 3-C-H018 | Northwich Road, Knutsford | 7.5 | 7.5 | < 0.1 | Negligible | Not significant |
| 3-C-H019 | Mobberley Road, Knutsford | 7.7 | 7.7 | < 0.1 | Negligible | Not significant |
| 3-C-H020 | Frog Lane, Pickmere | 6.2 | 6.2 | < 0.1 | Negligible | Not significant |
| 3-C-H021 | Pickmere Lane, Tabley | 6.4 | 6.5 | 0.1 | Negligible | Not significant |
| 3-C-H022 | Pickmere Lane, Tabley | 6.3 | 6.4 | 0.1 | Negligible | Not significant |
| 3-C-H023 | Tabley Hill Lane, Tabley | 7.0 | 7.1 | 0.1 | Negligible | Not significant |
| 3-C-H024 | Tabley Hill Lane, Tabley | 7.6 | 7.6 | < 0.1 | Negligible | Not significant |
| 3-C-H025 | Chester Road, Tabley | 8.1 | 8.2 | 0.1 | Negligible | Not significant |
| 3-C-H026 | Budworth Road, Tabley | 6.3 | 6.3 | < 0.1 | Negligible | Not significant |
| 3-C-H027 | Pickmere Lane, Tabley | 7.3 | 7.4 | 0.1 | Negligible | Not significant |
| 3-C-H028 | Budworth Road, Tabley | 7.2 | 7.3 | 0.1 | Negligible | Not significant |
| 3-C-H029 | Pickmere Lane, Tabley | 7.3 | 7.4 | 0.1 | Negligible | Not significant |
| 3-C-H030 | Budworth Road, Pickmere | 6.2 | 6.2 | < 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | PM _{2.5} concentrations (µg/m ³) | | Change in PM _{2.5} concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|--------------------------------------|---|-------------------------------|---|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H031 | Budworth Road, Northwich | 6.2 | 6.2 | < 0.1 | Negligible | Not significant |
| 3-C-H032 | Chester Road, Tabley | 8.5 | 8.7 | 0.2 | Negligible | Not significant |
| 3-C-H033 | Chester Road, Tabley | 8.3 | 8.3 | < 0.1 | Negligible | Not significant |
| 3-C-H034 | Budworth Road, Aston by Budworth | 6.2 | 6.2 | < 0.1 | Negligible | Not significant |
| 3-C-H035 | Manchester Road, Knutsford | 7.2 | 7.1 | -0.1 | Negligible | Not significant |
| 3-C-H036 | Old Hall Lane, Tabley | 6.2 | 6.2 | < 0.1 | Negligible | Not significant |
| 3-C-H037 | Old Hall Lane, Over Tabley | 7.6 | 7.6 | < 0.1 | Negligible | Not significant |
| 3-C-H038 | Chester Road, Tabley | 8.4 | 8.5 | 0.1 | Negligible | Not significant |
| 3-C-H039 | Manchester Road, Knutsford | 7.0 | 7.0 | < 0.1 | Negligible | Not significant |
| 3-C-H040 | Old Hall Lane, Over Tabley | 7.9 | 8.0 | 0.1 | Negligible | Not significant |
| 3-C-H041 | Old Hall Lane, Tabley | 7.1 | 7.2 | 0.1 | Negligible | Not significant |
| 3-C-H042 | Old Hall Lane, Over Tabley | 7.2 | 7.2 | < 0.1 | Negligible | Not significant |
| 3-C-H043 | Chester Road, Knutsford | 7.1 | 7.2 | 0.1 | Negligible | Not significant |
| 3-C-H044 | Manchester Road, Mere | 7.0 | 6.9 | -0.1 | Negligible | Not significant |
| 3-C-H045 | Mereside Road, Mere | 6.7 | 6.7 | < 0.1 | Negligible | Not significant |
| 3-C-H046 | Winterbottom Lane, Mere | 6.7 | 6.7 | < 0.1 | Negligible | Not significant |
| 3-C-H047 | Warrington Road, Mere | 6.6 | 6.7 | 0.1 | Negligible | Not significant |
| 3-C-H048 | Cann Lane, Aston by Budworth | 7.5 | 7.5 | < 0.1 | Negligible | Not significant |
| 3-C-H049 | Mereside Road, Mere | 6.7 | 6.7 | < 0.1 | Negligible | Not significant |
| 3-C-H050 | A556, Mere | 6.8 | 6.8 | < 0.1 | Negligible | Not significant |
| 3-C-H051 | Mere Day Nursery, Chester Road, Mere | 6.8 | 6.8 | < 0.1 | Negligible | Not significant |
| 3-C-H052 | Mereside Road, Mere | 6.5 | 6.6 | 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | PM _{2.5} concentrations (µg/m ³) | | Change in PM _{2.5} concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|--------------------------------|---|-------------------------------|---|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H053 | Ashley Road, Mere | 6.5 | 6.6 | 0.1 | Negligible | Not significant |
| 3-C-H054 | Chester Road, Mere | 6.9 | 6.9 | < 0.1 | Negligible | Not significant |
| 3-C-H055 | Chester Road, Mere | 7.0 | 7.0 | < 0.1 | Negligible | Not significant |
| 3-C-H056 | Chester Road, Mere | 6.8 | 6.9 | 0.1 | Negligible | Not significant |
| 3-C-H057 | Chester Road, Mere | 6.9 | 7.0 | 0.1 | Negligible | Not significant |
| 3-C-H058 | Chester Road, Mere | 6.9 | 7.0 | 0.1 | Negligible | Not significant |
| 3-C-H059 | Northwich Road, Lower Stretton | 7.5 | 7.7 | 0.2 | Negligible | Not significant |
| 3-C-H060 | Winterbottom Lane, Mere | 6.7 | 6.7 | < 0.1 | Negligible | Not significant |
| 3-C-H061 | Tatton Dale, Knutsford | 6.3 | 6.4 | 0.1 | Negligible | Not significant |
| 3-C-H062 | Moss Lane, High Legh | 9.7 | 9.8 | 0.1 | Negligible | Not significant |
| 3-C-H063 | Hoo Green Lane, Knutsford | 6.7 | 6.7 | < 0.1 | Negligible | Not significant |
| 3-C-H064 | Mere, Knutsford | 7.0 | 7.0 | < 0.1 | Negligible | Not significant |
| 3-C-H065 | Chester Road, Mere | 6.2 | 6.3 | 0.1 | Negligible | Not significant |
| 3-C-H066 | Chester Road, Bucklow Hill | 6.2 | 6.3 | 0.1 | Negligible | Not significant |
| 3-C-H067 | Mere, Knutsford | 7.1 | 7.2 | 0.1 | Negligible | Not significant |
| 3-C-H068 | Warrington Road, Mere | 6.7 | 6.8 | 0.1 | Negligible | Not significant |
| 3-C-H069 | Arley Road, Appleton Thorn | 7.4 | 7.4 | < 0.1 | Negligible | Not significant |
| 3-C-H070 | Chester Road, Bucklow Hill | 6.5 | 6.5 | < 0.1 | Negligible | Not significant |
| 3-C-H071 | Wrenshot Lane, High Legh | 7.1 | 7.3 | 0.2 | Negligible | Not significant |
| 3-C-H072 | Wrenshot Lane, High Legh | 6.4 | 6.4 | < 0.1 | Negligible | Not significant |
| 3-C-H073 | Chapel Lane, Bucklow Hill | 7.0 | 7.1 | 0.1 | Negligible | Not significant |
| 3-C-H074 | Swineyard Lane, High Legh | 8.1 | 8.1 | < 0.1 | Negligible | Not significant |
| 3-C-H075 | Woodlands Crescent, High Legh | 7.2 | 7.3 | 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | PM _{2.5} concentrations (µg/m ³) | | Change in PM _{2.5} concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|-----------------------------------|---|-------------------------------|---|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H076 | Withers Lane, High Legh | 8.5 | 8.5 | < 0.1 | Negligible | Not significant |
| 3-C-H077 | Barleycastle Lane, Appleton Thorn | 8.5 | 8.5 | < 0.1 | Negligible | Not significant |
| 3-C-H078 | Peacock Lane, Mere | 6.5 | 6.5 | < 0.1 | Negligible | Not significant |
| 3-C-H079 | Swinyard Lane, High Legh | 7.5 | 7.5 | < 0.1 | Negligible | Not significant |
| 3-C-H080 | Crabtree Lane, High Legh | 7.3 | 7.4 | 0.1 | Negligible | Not significant |
| 3-C-H081 | Withers Lane, High Legh | 8.1 | 8.1 | < 0.1 | Negligible | Not significant |
| 3-C-H082 | Swineyard Lane, High Legh | 7.5 | 7.6 | 0.1 | Negligible | Not significant |
| 3-C-H083 | Swineyard Lane, High Legh | 7.6 | 7.6 | < 0.1 | Negligible | Not significant |
| 3-C-H084 | Warrington Road, High Legh | 7.7 | 7.7 | < 0.1 | Negligible | Not significant |
| 3-C-H085 | Back Lane, Moston | 6.4 | 6.4 | < 0.1 | Negligible | Not significant |
| 3-C-H086 | Back Lane, Moston | 6.4 | 6.4 | < 0.1 | Negligible | Not significant |
| 3-C-H087 | Peacock Lane, Knutsford | 6.4 | 6.4 | < 0.1 | Negligible | Not significant |
| 3-C-H088 | Peacock Lane, High Legh | 6.4 | 6.4 | < 0.1 | Negligible | Not significant |
| 3-C-H089 | Peacock Lane, Knutsford | 6.4 | 6.4 | < 0.1 | Negligible | Not significant |
| 3-C-H090 | Heath Lane, High Legh | 8.2 | 8.3 | 0.1 | Negligible | Not significant |
| 3-C-H091 | Withers Lane, High Legh | 8.1 | 8.0 | -0.1 | Negligible | Not significant |
| 3-C-H092 | Peacock Lane, High Legh | 6.4 | 6.5 | 0.1 | Negligible | Not significant |
| 3-C-H093 | Primrose Hill, Cliff Lane | 8.1 | 8.1 | < 0.1 | Negligible | Not significant |
| 3-C-H094 | Agden Lane, Agden | 6.4 | 6.5 | 0.1 | Negligible | Not significant |
| 3-C-H095 | Agden Lane, Agden | 6.4 | 6.5 | 0.1 | Negligible | Not significant |
| 3-C-H096 | Cliff Lane, Lymm | 8.0 | 8.1 | 0.1 | Negligible | Not significant |
| 3-C-H097 | Peacock Lane, High Legh | 6.7 | 6.8 | 0.1 | Negligible | Not significant |
| 3-C-H098 | Old Cherry Lane, Lymm | 8.1 | 8.2 | 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | PM _{2.5} concentrations (µg/m ³) | | Change in PM _{2.5} concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|--|---|-------------------------------|---|-------------------|-----------------|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| 3-C-H099 | Cliff Lane, Lymm | 8.4 | 8.5 | 0.1 | Negligible | Not significant |
| 3-C-H100 | Agden Lane, Agden | 7.2 | 7.3 | 0.1 | Negligible | Not significant |
| 3-C-H101 | Froghall Lane, High Legh | 8.1 | 8.0 | -0.1 | Negligible | Not significant |
| 3-C-H102 | West Lane, High Legh | 8.6 | 8.5 | -0.1 | Negligible | Not significant |
| 3-C-H103 | Agden Lane, Agden | 8.6 | 8.5 | -0.1 | Negligible | Not significant |
| 3-C-H104 | Agden Lane, Agden | 7.3 | 7.5 | 0.2 | Negligible | Not significant |
| 3-C-H105 | Agden Park Lane, Broomedge | 7.4 | 7.5 | 0.1 | Negligible | Not significant |
| 3-C-H106 | Agden Brow, Lymm | 7.0 | 7.1 | 0.1 | Negligible | Not significant |
| 3-C-H107 | Lymm Road, Agden Brow | 6.9 | 7.0 | 0.1 | Negligible | Not significant |
| 3-C-H108 | Lymm Road, Little Bollington | 6.9 | 6.9 | < 0.1 | Negligible | Not significant |
| 3-C-H109 | Lymm Road, Little Bollington | 6.9 | 7.0 | 0.1 | Negligible | Not significant |
| 3-C-H110 | Lymm Road, Little Bollington | 6.7 | 6.8 | 0.1 | Negligible | Not significant |
| 3-C-H111 | Lymm Road, Little Bollington | 6.9 | 7.0 | 0.1 | Negligible | Not significant |
| 3-C-H112 | Little Bollington Church of England Primary School, Lymm Road, Little Bollington | 6.6 | 6.7 | 0.1 | Negligible | Not significant |
| 3-C-H113 | Lymm Road, Little Bollington | 7.0 | 7.1 | 0.1 | Negligible | Not significant |

Table 17: Predicted annual mean of NOx concentrations at ecological sites (construction phase)

| Ecological site | Distance to road (m) | NOx concentrations (µg/m ³) | | Change in NOx concentrations (µg/m ³) | Comparison against air quality standard (30µg/m ³) |
|---------------------------------|----------------------|---|-------------------------------|---|--|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | |
| The Mere, Mere SSSI, Transect 1 | 193m | 12.7 | 12.8 | 0.1 | Within standard |
| | 200m | 12.6 | 12.7 | 0.1 | Within standard |

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| Ecological site | Distance to road (m) | NOx concentrations ($\mu\text{g}/\text{m}^3$) | | Change in NOx concentrations ($\mu\text{g}/\text{m}^3$) | Comparison against air quality standard ($30\mu\text{g}/\text{m}^3$) |
|------------------------------|----------------------|---|-------------------------------|---|--|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | |
| Tabley Mere SSSI, Transect 1 | 108m | 12.2 | 12.2 | < 0.1 | Within standard |
| | 150m | 11.5 | 11.5 | < 0.1 | Within standard |
| | 200m | 11.0 | 11.0 | < 0.1 | Within standard |
| Tabley Mere SSSI, Transect 2 | 146m | 11.5 | 11.6 | 0.1 | Within standard |
| | 150m | 11.5 | 11.5 | < 0.1 | Within standard |
| | 200m | 11.0 | 11.0 | < 0.1 | Within standard |
| Dunham Park SSSI Transect 1 | 8m | 15.7 | 16.1 | 0.4 | Within standard |
| | 10m | 15.2 | 15.5 | 0.3 | Within standard |
| | 20m | 13.9 | 14.1 | 0.2 | Within standard |
| | 30m | 13.3 | 13.4 | 0.1 | Within standard |
| | 40m | 12.9 | 13.0 | 0.1 | Within standard |
| | 50m | 12.7 | 12.8 | 0.1 | Within standard |
| | 75m | 12.3 | 12.4 | 0.1 | Within standard |
| | 100m | 12.2 | 12.2 | < 0.1 | Within standard |
| | 150m | 12.0 | 12.0 | < 0.1 | Within standard |
| 200m | 11.9 | 11.9 | < 0.1 | Within standard | |
| Dunham Park SSSI Transect 2 | 1m | 15.0 | 15.9 | 0.9 | Within standard |
| | 10m | 12.8 | 13.1 | 0.3 | Within standard |
| | 20m | 12.2 | 12.4 | 0.2 | Within standard |
| | 30m | 11.9 | 12.1 | 0.2 | Within standard |
| | 40m | 11.8 | 11.9 | 0.1 | Within standard |
| | 50m | 11.7 | 11.8 | 0.1 | Within standard |
| | 75m | 11.5 | 11.6 | 0.1 | Within standard |

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| Ecological site | Distance to road (m) | NOx concentrations ($\mu\text{g}/\text{m}^3$) | | Change in NOx concentrations ($\mu\text{g}/\text{m}^3$) | Comparison against air quality standard ($30\mu\text{g}/\text{m}^3$) |
|-----------------|----------------------|---|-------------------------------|---|--|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | |
| | 100m | 11.5 | 11.5 | < 0.1 | Within standard |
| | 150m | 11.4 | 11.4 | < 0.1 | Within standard |
| | 200m | 11.3 | 11.3 | < 0.1 | Within standard |

Note: Data for the Ecology Assessment is presented within the boundary of the relevant designations, therefore data from The Mere, Mere SSSI Transect 1 is presented from 193m, Tabley Mere SSSI Transect 1 is presented from 108m, Tabley Mere SSSI Transect 2 is presented from 146m, Dunham Park SSSI Transect 1 is presented from 8m and Dunham Park SSSI Transect 2 is presented from 1m.

Table 18: Assessment of N deposition at ecological sites (construction phase)

| Ecological site | Distance to road (m) | Dry deposition (kg N/ha/yr) | | Change in N deposition (kg N/ha/yr) | Critical load (kg N/ha/yr) | Change in relation to lower critical load |
|---------------------------------|----------------------|----------------------------------|-------------------------------|-------------------------------------|----------------------------|---|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| The Mere, Mere SSSI, Transect 1 | 193m | 24.0 | 24.0 | <0.1 | 10 | <0.1% |
| | 200m | 24.0 | 24.0 | <0.1 | 10 | <0.1% |
| Tabley Mere SSSI, Transect 1 | 108m | 43.4 | 43.4 | <0.1 | 10 | <0.1% |
| | 150m | 25.6 | 25.6 | <0.1 | 10 | <0.1% |
| | 200m | 25.6 | 25.6 | <0.1 | 10 | <0.1% |
| Tabley Mere SSSI, Transect 2 | 146m | 43.3 | 43.3 | <0.1 | 10 | <0.1% |
| | 150m | 25.6 | 25.6 | <0.1 | 10 | <0.1% |
| | 200m | 25.6 | 25.6 | <0.1 | 10 | <0.1% |
| Dunham Park SSSI Transect 1 | 8m | 43.3 | 43.4 | 0.1 | 15 | 0.4% |
| | 10m | 43.3 | 43.3 | <0.1 | 15 | 0.3% |
| | 20m | 43.1 | 43.1 | <0.1 | 15 | 0.2% |
| | 30m | 43.0 | 43.0 | <0.1 | 15 | 0.2% |
| | 40m | 42.9 | 42.9 | <0.1 | 15 | 0.1% |

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| Ecological site | Distance to road (m) | Dry deposition (kg N/ha/yr) | | Change in N deposition (kg N/ha/yr) | Critical load (kg N/ha/yr) | Change in relation to lower critical load |
|--------------------------------|----------------------|----------------------------------|-------------------------------|-------------------------------------|----------------------------|---|
| | | 2025 without the Proposed Scheme | 2025 with the Proposed Scheme | | | |
| | 50m | 42.9 | 42.9 | <0.1 | 15 | 0.1% |
| | 75m | 42.8 | 42.8 | <0.1 | 15 | <0.1% |
| | 100m | 42.8 | 42.8 | <0.1 | 15 | <0.1% |
| | 150m | 42.8 | 42.8 | <0.1 | 15 | <0.1% |
| | 200m | 42.7 | 42.8 | <0.1 | 15 | <0.1% |
| Dunham Park SSSI Transect 2 | 1m | 43.3 | 43.5 | 0.2 | 15 | 0.9% |
| | 10m | 43.0 | 43.0 | <0.1 | 15 | 0.3% |
| | 20m | 42.9 | 42.9 | <0.1 | 15 | 0.2% |
| | 30m | 42.8 | 42.9 | 0.1 | 15 | 0.1% |
| | 40m | 42.8 | 42.8 | <0.1 | 15 | 0.1% |
| | 50m | 42.8 | 42.8 | <0.1 | 15 | <0.1% |
| | 75m | 42.8 | 42.8 | <0.1 | 15 | <0.1% |
| | 100m | 42.8 | 42.8 | <0.1 | 15 | <0.1% |
| | 150m | 42.7 | 42.8 | <0.1 | 15 | <0.1% |
| | 200m | 42.7 | 42.7 | <0.1 | 15 | <0.1% |

Note: Data for the Ecology Assessment is presented within the boundary of the relevant designations, therefore data from The Mere, Mere SSSI Transect 1 is presented from 193m, Tabley Mere SSSI Transect 1 is presented from 108m, Tabley Mere SSSI Transect 2 is presented from 146m, Dunham Park SSSI Transect 1 is presented from 8m and Dunham Park SSSI Transect 2 is presented from 1m.

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- 4.3.8 The annual mean concentrations of NO₂, PM₁₀ and PM_{2.5} are predicted to be within the air quality standards with and without construction of the Proposed Scheme. Since the annual mean NO₂ concentrations are predicted to be below 60µg/m³, the hourly mean standard is also expected to be met. Similarly, since the annual mean PM₁₀ concentrations are predicted to be below 35µg/m³, the daily mean standard is also expected to be met.
- 4.3.9 One slight adverse impact is predicted for annual mean NO₂ concentrations, on Moss Lane, High Legh. Three slight beneficial impacts were predicted at Agden Lane, Agden and Froghall Lane and West Lane in High Legh. Negligible impacts are predicted at all remaining human receptors for annual mean NO₂ concentrations. Negligible impacts are predicted at all receptors in the area for PM₁₀ and PM_{2.5} concentrations.
- 4.3.10 NO_x concentrations at The Mere, Mere SSSI, Tabley Mere SSSI and Dunham Park SSSI are predicted to be within the air quality standard, both without and with the Proposed Scheme. The change in N deposition due to the Proposed Scheme is also predicted to be less than 1% of the lower critical load for all sites.

Assessment of significance

- 4.3.11 No significant effects are anticipated at any receptor in relation to annual mean NO₂, PM₁₀ and PM_{2.5} concentrations.
- 4.3.12 Since the change in N deposition is predicted to be less than 1% of the lower critical load, no significant effects are predicted at The Mere, Mere SSSI, Tabley Mere SSSI and Dunham Park SSSI.

4.4 Assessment of operational traffic emissions

Operational traffic model

- 4.4.1 Operational traffic data used in this assessment are detailed in BID AQ-002-0MA03¹. For the assessment of traffic on the highway network, data for the year 2038 were used as the operational year of the Proposed Scheme.

Screening of traffic data

- 4.4.2 The screening process identified a total of 50 roads in the Pickmere to Agden and Hulseheath area exceeding the DMRB thresholds for changes in AADT or daily HDV flows and/or changes in road alignment by 5m or more. These roads include:
- the M6 junction 19 to junction 20;
 - the M56 junction 8 to junction 10;
 - the A556 Chester Road; and
 - the A50 Warrington Road.

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4.4.3 Further roads have been included in the assessment to account for their emissions at nearby receptors.

Receptors assessed and background concentrations

4.4.4 Sensitive receptors have been selected from the OS AddressBase Premium database. The receptors consist of residential properties, schools and care homes within 200m of the screened in roads and represent worst-case exposure locations (Table 19). The location of all receptors is shown on accompanying map AQ-01-303.

4.4.5 One designated ecological site has been identified within 200m of the screened in roads, The Mere, Mere SSSI, located east of the Proposed Scheme in Mere.

4.4.6 Details of the assessed receptors and the background concentrations used in the assessment are shown in Table 19 for human and Table 20 for ecological receptors.

Table 19: Modelled human receptors and background concentrations (operational phase)

| Receptor | Description/Location | Ordnance survey coordinates | Background concentrations in 2038 ($\mu\text{g}/\text{m}^3$) | | | |
|----------|------------------------------------|-----------------------------|--|-----------------|------------------|-------------------|
| | | | NO _x | NO ₂ | PM ₁₀ | PM _{2.5} |
| 3-O-H001 | Pickmere Lane, Pickmere | 369907 377647 | 8.2 | 6.5 | 9.5 | 6.0 |
| 3-O-H002 | Pickmere Lane, Pickmere | 370110 377886 | 8.3 | 6.5 | 9.2 | 5.9 |
| 3-O-H003 | School Farm, School Lane, Tabley | 370455 378316 | 8.3 | 6.5 | 9.7 | 6.0 |
| 3-O-H004 | Church Farm, School Lane, Pickmere | 370277 378400 | 8.3 | 6.5 | 9.7 | 6.0 |
| 3-O-H005 | Frog Lane, Pickmere | 370045 378700 | 8.3 | 6.5 | 9.7 | 6.0 |
| 3-O-H006 | Pickmere Lane, Tabley | 370901 378740 | 8.3 | 6.5 | 9.7 | 6.0 |
| 3-O-H007 | Budworth Road, Tabley | 370915 379051 | 8.6 | 6.7 | 9.6 | 6.1 |
| 3-O-H008 | Pickmere Lane, Tabley | 371345 379065 | 8.9 | 7.0 | 11.3 | 7.0 |
| 3-O-H009 | Budworth Road, Tabley | 371140 379073 | 8.9 | 7.0 | 11.3 | 7.0 |
| 3-O-H010 | Budworth Road, Pickmere | 369560 379115 | 8.2 | 6.5 | 9.8 | 6.1 |
| 3-O-H011 | Chester Road, Tabley | 372229 379253 | 13.6 | 10.4 | 12.2 | 7.3 |
| 3-O-H012 | Chester Road, Tabley | 372276 379268 | 13.6 | 10.4 | 12.2 | 7.3 |
| 3-O-H013 | Budworth Road, Aston by Budworth | 368712 379268 | 8.1 | 6.4 | 9.7 | 6.1 |
| 3-O-H014 | Old Hall Lane, Over Tabley | 371767 379656 | 8.9 | 7.0 | 11.3 | 7.0 |
| 3-O-H015 | Old Hall Lane, Over Tabley | 371976 379779 | 8.9 | 7.0 | 11.3 | 7.0 |

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| Receptor | Description/Location | Ordnance survey coordinates | Background concentrations in 2038 (µg/m ³) | | | |
|----------|-----------------------------------|-----------------------------|--|-----------------|------------------|-------------------|
| | | | NO _x | NO ₂ | PM ₁₀ | PM _{2.5} |
| 3-O-H016 | Old Hall Lane, Over Tabley | 370869 380388 | 11.6 | 9.0 | 11.1 | 6.9 |
| 3-O-H017 | Mereside Road, Mere | 373605 381010 | 9.4 | 7.3 | 9.6 | 6.2 |
| 3-O-H018 | Warrington Road, Mere | 373371 381129 | 9.4 | 7.3 | 9.6 | 6.2 |
| 3-O-H019 | Cann Lane, Aston by Budworth | 369180 381150 | 11.7 | 9.0 | 12.3 | 7.3 |
| 3-O-H020 | Mereside Road, Mere | 373647 381278 | 9.4 | 7.3 | 9.6 | 6.2 |
| 3-O-H021 | Mereside Road, Mere | 373620 381443 | 9.4 | 7.3 | 9.6 | 6.2 |
| 3-O-H022 | Ashley Road, Mere | 373662 381485 | 9.4 | 7.3 | 9.6 | 6.2 |
| 3-O-H023 | Chester Road, Mere | 372773 381550 | 9.9 | 7.7 | 10.7 | 6.6 |
| 3-O-H024 | Chester Road, Mere | 372712 381620 | 9.9 | 7.7 | 10.7 | 6.6 |
| 3-O-H025 | Chester Road, Mere | 372728 381720 | 9.9 | 7.7 | 10.7 | 6.6 |
| 3-O-H026 | Tatton Dale, Knutsford | 374180 382242 | 9.3 | 7.3 | 9.7 | 6.1 |
| 3-O-H027 | Moss Lane, High Legh | 367695 382555 | 12.1 | 9.3 | 11.8 | 7.2 |
| 3-O-H028 | Hoo Green Lane, Knutsford | 371825 382712 | 9.2 | 7.2 | 10.5 | 6.4 |
| 3-O-H029 | Mere, Knutsford | 371911 382718 | 9.2 | 7.2 | 10.5 | 6.4 |
| 3-O-H030 | Mere, Knutsford | 371783 382780 | 9.2 | 7.2 | 10.5 | 6.4 |
| 3-O-H031 | Warrington Road, Mere | 371377 383034 | 9.3 | 7.3 | 10.0 | 6.2 |
| 3-O-H032 | Arley Road, Appleton Thorn | 364405 383058 | 12.8 | 9.8 | 11.6 | 7.2 |
| 3-O-H033 | Barleycastle Lane, Appleton Thorn | 365736 383802 | 13.0 | 10.0 | 11.9 | 7.2 |
| 3-O-H034 | Peacock Lane, Mere | 372076 384015 | 10.0 | 7.7 | 10.0 | 6.3 |
| 3-O-H035 | Withers Lane, High Legh | 367075 384159 | 13.9 | 10.6 | 12.8 | 7.5 |
| 3-O-H036 | Back Lane, Moston | 371994 384294 | 9.8 | 7.6 | 9.8 | 6.2 |
| 3-O-H037 | Peacock Lane, Knutsford | 371813 384296 | 9.8 | 7.6 | 9.8 | 6.2 |
| 3-O-H038 | Peacock Lane, High Legh | 371541 384370 | 9.8 | 7.6 | 9.8 | 6.2 |
| 3-O-H039 | Peacock Lane, Knutsford | 371303 384423 | 9.8 | 7.6 | 9.8 | 6.2 |
| 3-O-H040 | Withers Lane, High Legh | 366957 384500 | 16.8 | 12.6 | 12.3 | 7.4 |
| 3-O-H041 | Agden Lane, Agden | 371826 384875 | 9.8 | 7.6 | 9.8 | 6.2 |
| 3-O-H042 | Old Cherry Lane, Lymm | 366410 384999 | 16.8 | 12.6 | 12.3 | 7.4 |
| 3-O-H043 | Cliff Lane, Lymm | 366015 385005 | 15.0 | 11.4 | 12.4 | 7.4 |

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| Receptor | Description/Location | Ordnance survey coordinates | Background concentrations in 2038 ($\mu\text{g}/\text{m}^3$) | | | |
|----------|--|-----------------------------|--|-----------------|------------------|-------------------|
| | | | NO _x | NO ₂ | PM ₁₀ | PM _{2.5} |
| 3-O-H044 | Agden Lane, Agden | 371652 385034 | 10.3 | 8.0 | 11.2 | 6.9 |
| 3-O-H045 | Froghall Lane, High Legh | 371066 385157 | 10.3 | 8.0 | 11.2 | 6.9 |
| 3-O-H046 | West Lane, High Legh | 370348 385245 | 10.5 | 8.1 | 11.0 | 6.9 |
| 3-O-H047 | Agden Lane, Agden | 371314 385293 | 10.3 | 8.0 | 11.2 | 6.9 |
| 3-O-H048 | Agden Park Lane, Broomedge | 370849 385893 | 10.5 | 8.1 | 11.0 | 6.9 |
| 3-O-H049 | Agden Brow, Lymm | 371040 386001 | 10.5 | 8.1 | 9.9 | 6.3 |
| 3-O-H050 | Lymm Road, Agden Brow | 371300 386252 | 10.5 | 8.1 | 9.9 | 6.3 |
| 3-O-H051 | Lymm Road, Little Bollington | 372779 386486 | 10.5 | 8.1 | 9.8 | 6.3 |
| 3-O-H052 | Little Bollington Church of England Primary School, Lymm Road, Little Bollington | 372651 386561 | 10.5 | 8.1 | 9.8 | 6.3 |
| 3-O-H053 | Lymm Road, Little Bollington | 372533 386617 | 10.5 | 8.1 | 9.8 | 6.3 |

Table 20: Modelled ecological receptor backgrounds, APIS data and critical loads (operational phase)

| Receptor | Sensitive habitat | 2038 NO _x background concentration ($\mu\text{g}/\text{m}^3$) | APIS data of average total N deposition (kg N/ha/yr) | Critical load (kg N/ha/yr) |
|--------------------------------|-------------------|--|--|----------------------------|
| The Mere, Mere SSSI Transect 1 | Poor fen | 9.4 | 23.8 | 10 |

Assessment results

- 4.4.7 Table 21, Table 22 and Table 23 provide the summary of the modelled pollutant concentrations for the assessed human receptors. The magnitude of change and impact descriptor are also derived following the IAQM/EPUK methodology⁴.
- 4.4.8 Table 24 and Table 25 provide the summary of the assessment for ecological receptors.

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Table 21: Predicted annual mean NO₂ concentrations and impacts (operation phase)

| Receptor | Description/Location | NO ₂ concentrations (µg/m ³) | | Change in NO ₂ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|------------------------------------|---|-------------------------------|---|-------------------|-----------------|
| | | 2038 without the Proposed Scheme | 2038 with the Proposed Scheme | | | |
| 3-O-H001 | Pickmere Lane, Pickmere | 7.8 | 7.9 | 0.1 | Negligible | Not significant |
| 3-O-H002 | Pickmere Lane, Pickmere | 7.9 | 8.0 | 0.1 | Negligible | Not significant |
| 3-O-H003 | School Farm, School Lane, Tabley | 7.0 | 7.0 | < 0.1 | Negligible | Not significant |
| 3-O-H004 | Church Farm, School Lane, Pickmere | 6.8 | 6.8 | < 0.1 | Negligible | Not significant |
| 3-O-H005 | Frog Lane, Pickmere | 6.7 | 6.7 | < 0.1 | Negligible | Not significant |
| 3-O-H006 | Pickmere Lane, Tabley | 7.6 | 7.8 | 0.2 | Negligible | Not significant |
| 3-O-H007 | Budworth Road, Tabley | 7.1 | 7.0 | -0.1 | Negligible | Not significant |
| 3-O-H008 | Pickmere Lane, Tabley | 8.1 | 8.1 | < 0.1 | Negligible | Not significant |
| 3-O-H009 | Budworth Road, Tabley | 7.5 | 7.4 | -0.1 | Negligible | Not significant |
| 3-O-H010 | Budworth Road, Pickmere | 6.6 | 6.6 | < 0.1 | Negligible | Not significant |
| 3-O-H011 | Chester Road, Tabley | 14.5 | 14.5 | < 0.1 | Negligible | Not significant |
| 3-O-H012 | Chester Road, Tabley | 13.4 | 13.5 | 0.1 | Negligible | Not significant |
| 3-O-H013 | Budworth Road, Aston by Budworth | 6.7 | 6.6 | -0.1 | Negligible | Not significant |
| 3-O-H014 | Old Hall Lane, Over Tabley | 8.8 | 8.9 | 0.1 | Negligible | Not significant |
| 3-O-H015 | Old Hall Lane, Over Tabley | 10.1 | 10.2 | 0.1 | Negligible | Not significant |
| 3-O-H016 | Old Hall Lane, Over Tabley | 9.8 | 9.8 | < 0.1 | Negligible | Not significant |
| 3-O-H017 | Mereside Road, Mere | 9.3 | 9.3 | < 0.1 | Negligible | Not significant |
| 3-O-H018 | Warrington Road, Mere | 9.2 | 9.2 | < 0.1 | Negligible | Not significant |
| 3-O-H019 | Cann Lane, Aston by Budworth | 9.8 | 9.8 | < 0.1 | Negligible | Not significant |
| 3-O-H020 | Mereside Road, Mere | 9.2 | 8.8 | -0.4 | Negligible | Not significant |
| 3-O-H021 | Mereside Road, Mere | 8.7 | 8.5 | -0.2 | Negligible | Not significant |

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| Receptor | Description/Location | NO ₂ concentrations (µg/m ³) | | Change in NO ₂ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|-----------------------------------|---|-------------------------------|---|-------------------|-----------------|
| | | 2038 without the Proposed Scheme | 2038 with the Proposed Scheme | | | |
| 3-O-H022 | Ashley Road, Mere | 8.6 | 8.3 | -0.3 | Negligible | Not significant |
| 3-O-H023 | Chester Road, Mere | 9.3 | 9.4 | 0.1 | Negligible | Not significant |
| 3-O-H024 | Chester Road, Mere | 9.3 | 9.4 | 0.1 | Negligible | Not significant |
| 3-O-H025 | Chester Road, Mere | 8.9 | 9.0 | 0.1 | Negligible | Not significant |
| 3-O-H026 | Tatton Dale, Knutsford | 8.1 | 7.9 | -0.2 | Negligible | Not significant |
| 3-O-H027 | Moss Lane, High Legh | 19.8 | 19.9 | 0.1 | Negligible | Not significant |
| 3-O-H028 | Hoo Green Lane, Knutsford | 8.3 | 7.8 | -0.5 | Negligible | Not significant |
| 3-O-H029 | Mere, Knutsford | 9.1 | 9.1 | < 0.1 | Negligible | Not significant |
| 3-O-H030 | Mere, Knutsford | 9.3 | 9.3 | < 0.1 | Negligible | Not significant |
| 3-O-H031 | Warrington Road, Mere | 8.6 | 8.7 | 0.1 | Negligible | Not significant |
| 3-O-H032 | Arley Road, Appleton Thorn | 10.6 | 10.6 | < 0.1 | Negligible | Not significant |
| 3-O-H033 | Barleycastle Lane, Appleton Thorn | 15.1 | 15.1 | < 0.1 | Negligible | Not significant |
| 3-O-H034 | Peacock Lane, Mere | 8.1 | 8.0 | -0.1 | Negligible | Not significant |
| 3-O-H035 | Withers Lane, High Legh | 12.2 | 12.2 | < 0.1 | Negligible | Not significant |
| 3-O-H036 | Back Lane, Moston | 7.9 | 7.9 | < 0.1 | Negligible | Not significant |
| 3-O-H037 | Peacock Lane, Knutsford | 7.9 | 7.9 | < 0.1 | Negligible | Not significant |
| 3-O-H038 | Peacock Lane, High Legh | 7.9 | 7.9 | < 0.1 | Negligible | Not significant |
| 3-O-H039 | Peacock Lane, Knutsford | 7.9 | 7.9 | < 0.1 | Negligible | Not significant |
| 3-O-H040 | Withers Lane, High Legh | 14.6 | 14.6 | < 0.1 | Negligible | Not significant |
| 3-O-H041 | Agden Lane, Agden | 8.3 | 8.1 | -0.2 | Negligible | Not significant |
| 3-O-H042 | Old Cherry Lane, Lymm | 15.3 | 15.3 | < 0.1 | Negligible | Not significant |
| 3-O-H043 | Cliff Lane, Lymm | 14.9 | 14.9 | < 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | NO ₂ concentrations (µg/m ³) | | Change in NO ₂ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|--|---|-------------------------------|---|-------------------|-----------------|
| | | 2038 without the Proposed Scheme | 2038 with the Proposed Scheme | | | |
| 3-O-H044 | Agden Lane, Agden | 9.2 | 8.7 | -0.5 | Negligible | Not significant |
| 3-O-H045 | Froghall Lane, High Legh | 12.4 | 12.4 | < 0.1 | Negligible | Not significant |
| 3-O-H046 | West Lane, High Legh | 14.5 | 14.5 | < 0.1 | Negligible | Not significant |
| 3-O-H047 | Agden Lane, Agden | 14.3 | 14.1 | -0.2 | Negligible | Not significant |
| 3-O-H048 | Agden Park Lane, Broomedge | 10.1 | 9.7 | -0.4 | Negligible | Not significant |
| 3-O-H049 | Agden Brow, Lymm | 10.6 | 10.8 | 0.2 | Negligible | Not significant |
| 3-O-H050 | Lymm Road, Agden Brow | 10.1 | 10.2 | 0.1 | Negligible | Not significant |
| 3-O-H051 | Lymm Road, Little Bollington | 9.4 | 9.5 | 0.1 | Negligible | Not significant |
| 3-O-H052 | Little Bollington Church of England Primary School, Lymm Road, Little Bollington | 9.2 | 9.3 | 0.1 | Negligible | Not significant |
| 3-O-H053 | Lymm Road, Little Bollington | 10.4 | 10.6 | 0.2 | Negligible | Not significant |

Table 22: Predicted annual mean PM₁₀ concentrations and impacts (operation phase)

| Receptor | Description/Location | PM ₁₀ concentrations (µg/m ³) | | Change in PM ₁₀ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|------------------------------------|--|-------------------------------|--|-------------------|-----------------|
| | | 2038 without the Proposed Scheme | 2038 with the Proposed Scheme | | | |
| 3-O-H001 | Pickmere Lane, Pickmere | 10.1 | 10.1 | < 0.1 | Negligible | Not significant |
| 3-O-H002 | Pickmere Lane, Pickmere | 9.8 | 9.9 | 0.1 | Negligible | Not significant |
| 3-O-H003 | School Farm, School Lane, Tabley | 9.9 | 9.9 | < 0.1 | Negligible | Not significant |
| 3-O-H004 | Church Farm, School Lane, Pickmere | 9.8 | 9.8 | < 0.1 | Negligible | Not significant |
| 3-O-H005 | Frog Lane, Pickmere | 9.8 | 9.7 | -0.1 | Negligible | Not significant |
| 3-O-H006 | Pickmere Lane, Tabley | 10.2 | 10.2 | < 0.1 | Negligible | Not significant |
| 3-O-H007 | Budworth Road, Tabley | 9.8 | 9.8 | < 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | PM ₁₀ concentrations (µg/m ³) | | Change in PM ₁₀ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|----------------------------------|--|-------------------------------|--|-------------------|-----------------|
| | | 2038 without the Proposed Scheme | 2038 with the Proposed Scheme | | | |
| 3-O-H008 | Pickmere Lane, Tabley | 11.8 | 11.8 | < 0.1 | Negligible | Not significant |
| 3-O-H009 | Budworth Road, Tabley | 11.6 | 11.5 | -0.1 | Negligible | Not significant |
| 3-O-H010 | Budworth Road, Pickmere | 9.9 | 9.9 | < 0.1 | Negligible | Not significant |
| 3-O-H011 | Chester Road, Tabley | 14.1 | 14.2 | 0.1 | Negligible | Not significant |
| 3-O-H012 | Chester Road, Tabley | 13.6 | 13.6 | < 0.1 | Negligible | Not significant |
| 3-O-H013 | Budworth Road, Aston by Budworth | 9.8 | 9.8 | < 0.1 | Negligible | Not significant |
| 3-O-H014 | Old Hall Lane, Over Tabley | 12.1 | 12.1 | < 0.1 | Negligible | Not significant |
| 3-O-H015 | Old Hall Lane, Over Tabley | 12.6 | 12.6 | < 0.1 | Negligible | Not significant |
| 3-O-H016 | Old Hall Lane, Over Tabley | 11.4 | 11.4 | < 0.1 | Negligible | Not significant |
| 3-O-H017 | Mereside Road, Mere | 10.4 | 10.4 | < 0.1 | Negligible | Not significant |
| 3-O-H018 | Warrington Road, Mere | 10.3 | 10.4 | 0.1 | Negligible | Not significant |
| 3-O-H019 | Cann Lane, Aston by Budworth | 12.6 | 12.6 | < 0.1 | Negligible | Not significant |
| 3-O-H020 | Mereside Road, Mere | 10.4 | 10.2 | -0.2 | Negligible | Not significant |
| 3-O-H021 | Mereside Road, Mere | 10.1 | 10.1 | < 0.1 | Negligible | Not significant |
| 3-O-H022 | Ashley Road, Mere | 10.1 | 10.0 | -0.1 | Negligible | Not significant |
| 3-O-H023 | Chester Road, Mere | 11.3 | 11.4 | 0.1 | Negligible | Not significant |
| 3-O-H024 | Chester Road, Mere | 11.3 | 11.3 | < 0.1 | Negligible | Not significant |
| 3-O-H025 | Chester Road, Mere | 11.2 | 11.2 | < 0.1 | Negligible | Not significant |
| 3-O-H026 | Tatton Dale, Knutsford | 10.1 | 10.0 | -0.1 | Negligible | Not significant |
| 3-O-H027 | Moss Lane, High Legh | 16.0 | 16.1 | 0.1 | Negligible | Not significant |
| 3-O-H028 | Hoo Green Lane, Knutsford | 10.8 | 10.7 | -0.1 | Negligible | Not significant |
| 3-O-H029 | Mere, Knutsford | 11.2 | 11.2 | < 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | PM ₁₀ concentrations (µg/m ³) | | Change in PM ₁₀ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|-----------------------------------|--|-------------------------------|--|-------------------|-----------------|
| | | 2038 without the Proposed Scheme | 2038 with the Proposed Scheme | | | |
| 3-O-H030 | Mere, Knutsford | 11.3 | 11.3 | < 0.1 | Negligible | Not significant |
| 3-O-H031 | Warrington Road, Mere | 10.5 | 10.5 | < 0.1 | Negligible | Not significant |
| 3-O-H032 | Arley Road, Appleton Thorn | 11.9 | 11.9 | < 0.1 | Negligible | Not significant |
| 3-O-H033 | Barleycastle Lane, Appleton Thorn | 13.8 | 13.8 | < 0.1 | Negligible | Not significant |
| 3-O-H034 | Peacock Lane, Mere | 10.2 | 10.1 | -0.1 | Negligible | Not significant |
| 3-O-H035 | Withers Lane, High Legh | 13.4 | 13.4 | < 0.1 | Negligible | Not significant |
| 3-O-H036 | Back Lane, Moston | 9.9 | 9.9 | < 0.1 | Negligible | Not significant |
| 3-O-H037 | Peacock Lane, Knutsford | 9.9 | 9.9 | < 0.1 | Negligible | Not significant |
| 3-O-H038 | Peacock Lane, High Legh | 9.9 | 9.9 | < 0.1 | Negligible | Not significant |
| 3-O-H039 | Peacock Lane, Knutsford | 9.9 | 9.9 | < 0.1 | Negligible | Not significant |
| 3-O-H040 | Withers Lane, High Legh | 13.1 | 13.1 | < 0.1 | Negligible | Not significant |
| 3-O-H041 | Agden Lane, Agden | 10.1 | 10.0 | -0.1 | Negligible | Not significant |
| 3-O-H042 | Old Cherry Lane, Lymm | 13.3 | 13.3 | < 0.1 | Negligible | Not significant |
| 3-O-H043 | Cliff Lane, Lymm | 13.8 | 13.8 | < 0.1 | Negligible | Not significant |
| 3-O-H044 | Agden Lane, Agden | 11.7 | 11.5 | -0.2 | Negligible | Not significant |
| 3-O-H045 | Froghall Lane, High Legh | 13.0 | 12.9 | -0.1 | Negligible | Not significant |
| 3-O-H046 | West Lane, High Legh | 13.6 | 13.5 | -0.1 | Negligible | Not significant |
| 3-O-H047 | Agden Lane, Agden | 13.7 | 13.6 | -0.1 | Negligible | Not significant |
| 3-O-H048 | Agden Park Lane, Broomedge | 11.8 | 11.6 | -0.2 | Negligible | Not significant |
| 3-O-H049 | Agden Brow, Lymm | 10.9 | 11.0 | 0.1 | Negligible | Not significant |
| 3-O-H050 | Lymm Road, Agden Brow | 10.7 | 10.8 | 0.1 | Negligible | Not significant |
| 3-O-H051 | Lymm Road, Little Bollington | 10.3 | 10.4 | 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | PM ₁₀ concentrations (µg/m ³) | | Change in PM ₁₀ concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|--|--|-------------------------------|--|-------------------|-----------------|
| | | 2038 without the Proposed Scheme | 2038 with the Proposed Scheme | | | |
| 3-O-H052 | Little Bollington Church of England Primary School, Lymm Road, Little Bollington | 10.2 | 10.3 | 0.1 | Negligible | Not significant |
| 3-O-H053 | Lymm Road, Little Bollington | 10.7 | 10.8 | 0.1 | Negligible | Not significant |

Table 23: Predicted annual mean PM_{2.5} concentrations and impacts (operation phase)

| Receptor | Description/Location | PM _{2.5} concentrations (µg/m ³) | | Change in PM _{2.5} concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|------------------------------------|---|-------------------------------|---|-------------------|-----------------|
| | | 2038 without the Proposed Scheme | 2038 with the Proposed Scheme | | | |
| 3-O-H001 | Pickmere Lane, Pickmere | 6.3 | 6.4 | 0.1 | Negligible | Not significant |
| 3-O-H002 | Pickmere Lane, Pickmere | 6.3 | 6.3 | < 0.1 | Negligible | Not significant |
| 3-O-H003 | School Farm, School Lane, Tabley | 6.1 | 6.2 | 0.1 | Negligible | Not significant |
| 3-O-H004 | Church Farm, School Lane, Pickmere | 6.1 | 6.1 | < 0.1 | Negligible | Not significant |
| 3-O-H005 | Frog Lane, Pickmere | 6.1 | 6.1 | < 0.1 | Negligible | Not significant |
| 3-O-H006 | Pickmere Lane, Tabley | 6.3 | 6.4 | 0.1 | Negligible | Not significant |
| 3-O-H007 | Budworth Road, Tabley | 6.2 | 6.2 | < 0.1 | Negligible | Not significant |
| 3-O-H008 | Pickmere Lane, Tabley | 7.3 | 7.3 | < 0.1 | Negligible | Not significant |
| 3-O-H009 | Budworth Road, Tabley | 7.1 | 7.1 | < 0.1 | Negligible | Not significant |
| 3-O-H010 | Budworth Road, Pickmere | 6.1 | 6.1 | < 0.1 | Negligible | Not significant |
| 3-O-H011 | Chester Road, Tabley | 8.4 | 8.4 | < 0.1 | Negligible | Not significant |
| 3-O-H012 | Chester Road, Tabley | 8.1 | 8.1 | < 0.1 | Negligible | Not significant |
| 3-O-H013 | Budworth Road, Aston by Budworth | 6.1 | 6.1 | < 0.1 | Negligible | Not significant |
| 3-O-H014 | Old Hall Lane, Over Tabley | 7.5 | 7.5 | < 0.1 | Negligible | Not significant |
| 3-O-H015 | Old Hall Lane, Over Tabley | 7.8 | 7.8 | < 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | PM _{2.5} concentrations (µg/m ³) | | Change in PM _{2.5} concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|-----------------------------------|---|-------------------------------|---|-------------------|-----------------|
| | | 2038 without the Proposed Scheme | 2038 with the Proposed Scheme | | | |
| 3-O-H016 | Old Hall Lane, Over Tabley | 7.1 | 7.1 | < 0.1 | Negligible | Not significant |
| 3-O-H017 | Mereside Road, Mere | 6.6 | 6.6 | < 0.1 | Negligible | Not significant |
| 3-O-H018 | Warrington Road, Mere | 6.6 | 6.6 | < 0.1 | Negligible | Not significant |
| 3-O-H019 | Cann Lane, Aston by Budworth | 7.4 | 7.4 | < 0.1 | Negligible | Not significant |
| 3-O-H020 | Mereside Road, Mere | 6.6 | 6.5 | -0.1 | Negligible | Not significant |
| 3-O-H021 | Mereside Road, Mere | 6.5 | 6.4 | -0.1 | Negligible | Not significant |
| 3-O-H022 | Ashley Road, Mere | 6.5 | 6.4 | -0.1 | Negligible | Not significant |
| 3-O-H023 | Chester Road, Mere | 6.9 | 6.9 | < 0.1 | Negligible | Not significant |
| 3-O-H024 | Chester Road, Mere | 6.9 | 6.9 | < 0.1 | Negligible | Not significant |
| 3-O-H025 | Chester Road, Mere | 6.8 | 6.8 | < 0.1 | Negligible | Not significant |
| 3-O-H026 | Tatton Dale, Knutsford | 6.3 | 6.3 | < 0.1 | Negligible | Not significant |
| 3-O-H027 | Moss Lane, High Legh | 9.8 | 9.8 | < 0.1 | Negligible | Not significant |
| 3-O-H028 | Hoo Green Lane, Knutsford | 6.6 | 6.5 | -0.1 | Negligible | Not significant |
| 3-O-H029 | Mere, Knutsford | 6.8 | 6.8 | < 0.1 | Negligible | Not significant |
| 3-O-H030 | Mere, Knutsford | 6.9 | 6.9 | < 0.1 | Negligible | Not significant |
| 3-O-H031 | Warrington Road, Mere | 6.5 | 6.6 | 0.1 | Negligible | Not significant |
| 3-O-H032 | Arley Road, Appleton Thorn | 7.3 | 7.4 | 0.1 | Negligible | Not significant |
| 3-O-H033 | Barleycastle Lane, Appleton Thorn | 8.4 | 8.4 | < 0.1 | Negligible | Not significant |
| 3-O-H034 | Peacock Lane, Mere | 6.4 | 6.4 | < 0.1 | Negligible | Not significant |
| 3-O-H035 | Withers Lane, High Legh | 7.9 | 7.9 | < 0.1 | Negligible | Not significant |
| 3-O-H036 | Back Lane, Moston | 6.3 | 6.3 | < 0.1 | Negligible | Not significant |
| 3-O-H037 | Peacock Lane, Knutsford | 6.3 | 6.3 | < 0.1 | Negligible | Not significant |
| 3-O-H038 | Peacock Lane, High Legh | 6.3 | 6.3 | < 0.1 | Negligible | Not significant |

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| Receptor | Description/Location | PM _{2.5} concentrations (µg/m ³) | | Change in PM _{2.5} concentrations (µg/m ³) | Impact descriptor | Significance |
|----------|--|---|-------------------------------|---|-------------------|-----------------|
| | | 2038 without the Proposed Scheme | 2038 with the Proposed Scheme | | | |
| 3-O-H039 | Peacock Lane, Knutsford | 6.3 | 6.3 | < 0.1 | Negligible | Not significant |
| 3-O-H040 | Withers Lane, High Legh | 7.9 | 7.9 | < 0.1 | Negligible | Not significant |
| 3-O-H041 | Agden Lane, Agden | 6.4 | 6.3 | -0.1 | Negligible | Not significant |
| 3-O-H042 | Old Cherry Lane, Lymm | 8.0 | 8.0 | < 0.1 | Negligible | Not significant |
| 3-O-H043 | Cliff Lane, Lymm | 8.3 | 8.3 | < 0.1 | Negligible | Not significant |
| 3-O-H044 | Agden Lane, Agden | 7.2 | 7.1 | -0.1 | Negligible | Not significant |
| 3-O-H045 | Froghall Lane, High Legh | 8.0 | 8.0 | < 0.1 | Negligible | Not significant |
| 3-O-H046 | West Lane, High Legh | 8.5 | 8.4 | -0.1 | Negligible | Not significant |
| 3-O-H047 | Agden Lane, Agden | 8.5 | 8.4 | -0.1 | Negligible | Not significant |
| 3-O-H048 | Agden Park Lane, Broomedge | 7.4 | 7.3 | -0.1 | Negligible | Not significant |
| 3-O-H049 | Agden Brow, Lymm | 6.9 | 7.0 | 0.1 | Negligible | Not significant |
| 3-O-H050 | Lymm Road, Agden Brow | 6.8 | 6.9 | 0.1 | Negligible | Not significant |
| 3-O-H051 | Lymm Road, Little Bollington | 6.6 | 6.6 | < 0.1 | Negligible | Not significant |
| 3-O-H052 | Little Bollington Church of England Primary School, Lymm Road, Little Bollington | 6.6 | 6.6 | < 0.1 | Negligible | Not significant |
| 3-O-H053 | Lymm Road, Little Bollington | 6.9 | 6.9 | < 0.1 | Negligible | Not significant |

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Table 24: Predicted annual mean of NOx concentrations at ecological sites (operation phase)

| Ecological Site | Distance to road (m) | NOx concentrations ($\mu\text{g}/\text{m}^3$) | | Change in NOx concentrations ($\mu\text{g}/\text{m}^3$) | Comparison against air quality standard ($30\mu\text{g}/\text{m}^3$) |
|---------------------------------|----------------------|---|-------------------------------|---|--|
| | | 2038 without the Proposed Scheme | 2038 with the Proposed Scheme | | |
| The Mere, Mere SSSI, Transect 1 | 193m | 10.2 | 10.2 | < 0.1 | Within standard |
| | 200m | 10.2 | 10.2 | < 0.1 | Within standard |

Note: Data for the Ecology Assessment is presented within the boundary of the relevant designations, therefore data from The Mere, Mere SSSI Transect 1 is presented from 193m.

Table 25: Assessment of N deposition at ecological sites (operation phase)

| Ecological site | Distance to road (m) | Dry deposition (kg N/ha/yr) | | Change in N deposition (kg N/ha/yr) | Critical Load (kg N/ha/yr) | Percentage change in relation to lower critical load |
|---------------------------------|----------------------|----------------------------------|-------------------------------|-------------------------------------|----------------------------|--|
| | | 2038 without the Proposed Scheme | 2038 with the Proposed Scheme | | | |
| The Mere, Mere SSSI, Transect 1 | 193m | 23.9 | 23.9 | <0.1 | 10 | <0.1% |
| | 200m | 23.9 | 23.9 | <0.1 | 10 | <0.1% |

Note: Data for the Ecology Assessment is presented within the boundary of the relevant designations, therefore data from The Mere, Mere SSSI Transect 1 is presented from 193m.

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- 4.4.9 The annual mean NO₂, PM₁₀ and PM_{2.5} concentrations are predicted to be within the air quality standards with and without operation of the Proposed Scheme. Since the annual mean NO₂ concentrations are predicted to be below 60µg/m³, the hourly mean standard is also expected to be met. Similarly, since the annual mean PM₁₀ concentrations are predicted to be below 35µg/m³, the daily mean standard is also expected to be met.
- 4.4.10 Negligible impacts are predicted at all human receptors for annual mean NO₂, PM₁₀ and PM_{2.5} concentrations.
- 4.4.11 NO_x concentrations at The Mere, Mere SSSI are predicted to be within the air quality standard, both without and with the Proposed Scheme. The change in N deposition due to the Proposed Scheme is also predicted to be less than 1% of the lower critical load for this site.

Assessment of significance

- 4.4.12 No significant effects are anticipated at any receptors in relation to annual mean NO₂, PM₁₀ and PM_{2.5} concentrations.
- 4.4.13 Since the change in N deposition is predicted to be less than 1% of the lower critical load, no significant effects are predicted at The Mere, Mere SSSI.

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