A1 in Northumberland: Morpeth to Ellingham

Scheme Number: TR010041

6.4 Environmental Statement – Appendix 16.4 Air Quality Likely Significant Effects of the Scheme

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

June 2020

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

The A1 in Northumberland: Morpeth to Ellingham

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Environmental Statement - Appendix

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1 AIR QUALITY

1.1 INTRODUCTION

1.1.1. This appendix presents the assessment of the Within Topic combined likely significant effects of the A1 in Northumberland: Morpeth to Ellingham (the Scheme) on air quality. A full description of the Scheme is provided in **Chapter 2: The Scheme, Volume 1** of this ES (**Application Document Reference: TR010041/APP/6.1**).

1.1.2. As detailed in **Chapter 16: Assessment of Cumulative Effects** of this ES, this appendix presents the model results of the Within Topic combined effects of the Scheme for both human and ecological receptors. The model results presented in this appendix are based on the Scheme traffic modelling, as set out in **Chapter 4** of the **Case for the Scheme** (**Application Document Reference: TR010041/APP/7.1**).

1.1.3. All other potential effects are presented within the air quality chapters for Part A: Morpeth to Felton (Part A) (**Chapter 5: Air Quality, Volume 2** of this ES (**Application Document Reference: TR010041/APP/6.2**)) and Part B: Alnwick to Ellingham (Part B) (**Chapter 5: Air Quality**, **Volume 3** of this ES (**Application Document Reference: TR010041/APP/6.3**)). Further details of competent expert evidence, legislative and policy framework, methodology and assessment assumption and limitations may also be found in these chapters. These are cross referenced in **Table 1-1**.

Table 1-1 – Summary of Cross-Referencing within Air Quality Chapters

ES Element	Cross Reference	Notes
Legislative and Policy Framework	Part A **Chapter 5: Air Quality, Volume 2** of this ES (**Application Document Reference: TR010041/APP/6.2**), and Part B **Chapter 5: Air Quality, Volume 3** of this ES (**Application Document Reference: TR010041/APP/6.3**)	All legislative and policy elements presented in both the Part A and Part B chapters apply to this assessment**.**
Methodology	**Section 5.4** of Part A **Chapter 5: Air Quality, Volume 2** of this ES (**Application Document Reference: TR010041/APP/6.2**)	All elements of the methodology presented in **Section 5.4** of the Part A chapter is followed apart from those listed below.
Baseline Conditions	**Section 5.5** of Part A **Chapter 5: Air Quality, Volume 2** of this ES (**Application Document Reference: TR010041/APP/6.2**), and Part B **Chapter 5: Air Quality, Volume 3** of this ES (**Application Document Reference: TR010041/APP/6.3**)	The baseline conditions presented in both the Part A and Part B chapters are applicable to this Within Topic combined effects assessment. A summary of the baseline conditions is

ES Element	Cross Reference	Notes
		provided in **Section 1.3** below.

1.1.4. For additional information on the assessment of impacts of the Scheme on ecological receptors please refer to Appendix 16.6: Biodiversity Likely Significant Effects of the Scheme of this ES and Appendix 16.7: Biodiversity DMRB Sensitivity Test: The Scheme of this ES.

1.1.5. The assessment presented below follows the methodology set out in the DMRB HA 207/07 (**Ref. 1**).

CONSTRUCTION TRAFFIC SCREENING

1.1.6. The potential air quality impacts due to construction traffic was screened to determine the level of air quality assessment required. Pollutant concentrations were then estimated using Highways England screening tool (version 6.1).

1.1.7. It was found that ambient concentrations of nitrogen dioxide (NO_2) and particulate matter (PM_{10}) would remain well below the air quality objectives (refer to **Appendix A: Construction Traffic Assessment** of this appendix). Therefore, the potential local air quality impacts from construction traffic emissions are unlikely to give rise to a significant effect.

1.1.8. On occasions during the construction phase it would be necessary to temporarily close the A1 and divert traffic onto alternative routes. Such closures would generally be overnight and of limited duration of no more than a few days. As such, DMRB HA 207/07 (**Ref. 1**) scoping criteria for further assessment would not be met. The potential local air quality impacts as a result of temporary diversions are not likely to give rise to a significant effect and no further assessment is required. Details of temporary diversionary routes are given in the **Construction Traffic Management Plan** (**Application Document Reference: TR010041/APP/7.4**).

1.2 ASSESSMENT METHODOLOGY

CONSTRUCTION

1.2.1. The assessment of construction dust impacts has been undertaken qualitatively following guidance in paragraph 3.45 of DMRB HA 207/07 (**Ref. 1**). This has accounted for sensitive receptors such as housing, schools, hospitals and sensitive features within a designated site within 200 metres (m) of the Order Limits.

OPERATION

Assessment Scenarios

1.2.2. Operational impacts have been assessed for the Scheme (at both a local and regional level) in relation to the following scenarios:

a. Opening year (2023) Do-Something scenario compared to the Do-Minimum scenario.
b. Design year (2038) Do-Something scenario compared to the Do-Minimum.

1.2.3. The future traffic levels for the assessment of the Scheme are based upon an opening year predicted to be in 2023. Since the assessments reported in this ES were completed, the Scheme opening year has been put back to 2024. The assessment is based on traffic modelling for an opening year of 2023 and reported on that basis. However, as explained in **Section 4.1** in **Chapter 4: Environmental Assessment Methodology, Volume 1** of this ES (**Application Document Reference: TR010041/APP6.1**) it is considered that the assessments remain valid for an opening year of 2024.

Assessment Methodology

1.2.4. The assessment methodology for determining the potential effects of the Scheme on operational air quality is the same as that presented in **Section 5.4** of Part A **Chapter 5: Air Quality, Volume 2** of this ES (**Application Document Reference: TR010041/APP/6.2**).

1.2.5. Following DMRB HA 207/07 (**Ref. 1)** procedure, the traffic data were screened using criteria to determine the affected road network (ARN) to be included in the assessment. A road link qualifies as part of the ARN if one or more of the following conditions are satisfied:

a. Road alignment changes by 5 m or more
b. Daily traffic flows change by 1,000 annual average daily traffic (AADT) flow or more
c. Heavy-duty vehicle (HDV) flows change by 200 AADT or more
d. Daily average speed change by 10 kilometres (km) per hour or more
e. Peak hour speed change by 20 km per hour or more

UPDATED DMRB GUIDANCE

1.2.6. Since the assessments reported in production of this ES were completed, the DMRB methodology HA 207/07 (**Ref**. **1**) has been superseded and replaced with updated guidance. The updated guidance, DMRB LA 105 Air Quality (**Ref. 2**), was released in November 2019 and provides an all-encompassing guidance document bringing together HA 207/07, IAN 170/12 (**Ref. 3**), IAN 174/13 (**Ref. 4**), IAN 175/13 (**Ref. 5**) and part of IAN 185/15 (**Ref. 6**).

1.2.7. The implications of the updated guidance have been considered by including a DMRB sensitivity test to determine whether the conclusions of the assessment of the Scheme would be any different.

1.2.8. The findings of the DMRB sensitivity test are given in **Appendix F: DMRB Sensitivity – Scheme Air Quality** of this appendix.

1.3 BASELINE CONDITIONS

1.3.1. The following section summarises the baseline conditions for the Scheme Study Area.

1.3.2. There are no Air Quality Management Areas within 200 m of the ARN, and concentrations of NO_2, PM_{10} and $PM_{2.5}$ are all well below their respective annual mean objectives.

1.3.3. Scheme specific monitoring of NO_2 confirms low pollutant concentrations along the route, with all measured concentrations well below the relevant 40 µg/m^3 objective level. The

highest annual mean concentration is 26.8 µg/m^3 at site A4, which is roadside to the A1 at Earsdon Moor to the north of Morpeth.

1.3.4. Data from the Defra Pollution Climate Mapping model shows that roadside concentrations used to assess the compliance with EU limit values are less than 30 µg/m^3, which is well below the 40 µg/m^3 EU limit value. None of the PCM data for road links within the air quality Study Area exceed or are at risk of exceeding the EU limit value in the opening year.

1.3.5. Baseline concentrations for all 25 modelled human receptors are well below the objectives for all pollutants. The highest annual mean concentrations of 33.0 µg/m^3 for NO_2 and 23.6 µg/m^3 for PM_{10}/$PM_{2.5}$ occur at R25, which is situated on Newgate Street (A192) in Morpeth. 24-hour mean PM_{10} concentrations are compliant with the objective at all receptors.

1.3.6. Of the modelled ecological receptors, the River Coquet and Coquet Valley Woodlands SSSI and Longhorsley Moor SSSI are the only sensitive statutory designated ecological receptors within 200 m of the ARN. There are 22 other non-statutory and ancient woodland sites within 200 m of the ARN. For the purpose of this assessment, statutory sites have been considered as national and international sites in accordance with DMRB HA 207/07 (**Ref. 1)**.

1.3.7. Annual mean NO_x concentrations exceed the critical level of 30 µg/m^3 at 19 of the 33 transect sites and nitrogen deposition exceeds the lower critical load for the most sensitive feature in all cases. Therefore, there is potential that the habitats are currently adversely affected by existing ambient pollutant concentrations.

1.3.8. As detailed in Table 1-1, further detail is provided in Section 5.5 of Part A Chapter 5: Air Quality, Volume 2 of this ES (Application Document Reference: TR010041/APP/6.2), and Part B Chapter 5: Air Quality, Volume 3 of this ES (Application Document Reference: TR010041/APP/6.3).

1.4 POTENTIAL COMBINED IMPACTS

CONSTRUCTION

1.4.1. Air quality impacts due to construction would be temporary, and typically include an increase in emissions of dust from earthworks and general construction activity and a loss of amenity due to increased dust levels without appropriate mitigation.

1.4.2. There are 293 receptors within 200 m of the Order Limits. These include residential premises, Tritlington Church of England Aided First School, Northgate Hospital and Northumbrian Woodland Burials. These are illustrated on Part A **Figure 5.4: Receptors within 200 m of Construction Boundary, Volume 5** of this ES (**Application Document Reference: TR010041/APP/6.5)**, and Part B **Figure 5.4: Construction Receptors, Volume 6** of this ES (**Application Document Reference: TR010041/APP/6.6**). The River Coquet and Coquet Valley Woodlands SSSI would be crossed by the Scheme and could experience increased levels of dust in the absence of appropriate mitigation.

OPERATION

Human Receptors

1.4.3. The Scheme has the potential to impact on ambient concentrations of NO_2, PM_{10} and $PM_{2.5}$ through changes to vehicle emission rates due to traffic re-routing and changes to fleet mix and speeds.

1.4.4. Results for annual mean NO_2 and PM_{10} at human receptors are presented in **Table 1-2** and

1.4.5. **Table** 1-3 respectively. Receptor locations are shown in **Figure 16.3: Human and Ecological Receptors Assessed** of this ES. Full results for NO_2 and PM_{10} are also provided in **Appendix C: Operational Impacts – Human Receptors** of this appendix.

Table 1-2 – Predicted Annual Mean NO_2 Concentrations (µg/m^3) for 2023

Receptor	Do-Minimum	Do-Something Scheme	Change with Do-Something Scheme
R001	5.7	6.2	0.5
R002	8.2	8.7	0.5
R003	14.3	15.7	1.4
R004	13.0	14.2	1.2
R005	6.0	6.3	0.3
R006	9.1	10.2	1.1
R007	5.4	5.8	0.4
R008	10.9	10.6	-0.3
R009	19.0	22.4	3.4
R010	8.4	8.6	0.2
R011	6.4	6.5	0.1
R012	11.8	12.7	0.9
R013	11.6	6.4	-5.2

Receptor	Do-Minimum	Do-Something Scheme	Change with Do-Something Scheme
R014	9.7	10.0	0.3
R015	6.7	7.1	0.4
R016	5.6	6.5	0.9
R017	9.8	8.5	-1.3
R018	6.7	6.4	-0.3
R019	15.2	8.3	-6.9
R020	4.5	5.3	0.8
R021	4.7	5.0	0.3
R022	21.5	8.7	-12.7
R023	10.0	8.2	-1.8
R024	6.1	5.4	-0.7
R025	21.8	22.8	1.0

Table 1-3 – Predicted Annual Mean PM_{10} Concentrations (µg/m^3) for 2023

Receptor	Do-Minimum	Do-Something Scheme	Change with Do-Something Scheme
R001	9.8	10.4	0.6
R002	10.4	10.9	0.5
R003	11.2	11.6	0.4
R004	10.1	10.4	0.3

Receptor	Do-Minimum	Do-Something Scheme	Change with Do-Something Scheme
R005	9.7	9.8	0.1
R006	11.3	11.6	0.3
R007	10.4	10.5	0.1
R008	10.6	10.6	0.0
R009	11.6	12.1	0.5
R010	10.7	10.7	0.0
R011	8.9	8.9	0.0
R012	9.9	10.1	0.2
R013	11.2	10.4	-0.8
R014	11.2	11.2	0.0
R015	10.6	10.8	0.2
R016	7.8	8.0	0.2
R017	9.7	9.5	-0.2
R018	9.4	9.4	0.0
R019	11.4	10.4	-1.0
R020	10.1	10.3	0.2
R021	10.1	10.2	0.1
R022	12.6	10.7	-1.9
R023	10.4	10.2	-0.2
R024	9.3	9.3	0.0

Receptor	Do-Minimum	Do-Something Scheme	Change with Do-Something Scheme
R025	17.4	18.8	1.4

1.4.6. The potential impacts of the Scheme have been assessed in relation to the air quality assessment thresholds given in **Table 5-2** in Part A **Chapter 5: Air Quality, Volume 2** of this ES (**Application Document Reference: TR010041/APP/6.2**).

1.4.7. For 2023, in all scenarios, annual mean NO_2 and PM_{10} concentrations at all receptors would be well below the threshold set for both pollutants of 40 µg/m^3. The highest NO_2 concentration is 22.8 µg/m^3 at R025 (Morpeth) and the highest PM_{10} concentration is 18.8 µg/m^3 at the same receptor with the Scheme Scenario. Twenty-four hour mean PM_{10} concentrations would comply in all scenarios. With PM_{10} concentrations below 25 µg/m^3, the annual mean threshold for $PM_{2.5}$ is not at risk of being exceeded.

1.4.8. In the Scheme Scenario, traffic flows are higher along the A1 resulting in slightly higher concentrations than with Part A or Part B on its own.

1.4.9. In the Scheme Scenario, six receptors experience a perceptible improvement in air quality due to reductions in traffic flows with the Scheme along the:

a. De-trunked A1 (R013, R019, R022)
b. A697 (R017, R023, R024)

1.4.10. In the Scheme Scenario, 10 receptors experience a perceptible worsening in air quality:

a. Adjacent the existing A1 (R001, R002, R003, R004, R006, R012)
b. Adjacent to the Scheme (R009, R020)
c. On Lemmington Bank (R016)
d. A192 in Morpeth (R025)

1.4.11. In the Scheme Scenario, receptor R009 experiences the largest increase in NO_2 concentration of 3.3 µg/m^3. The increase is a result of the proximity of the receptor to the new offline dual carriageway section of the A1 at the southern extent of the Scheme and the increase in flows of approximately 7,569 vehicles per day. Receptor R025 experiences the largest increase in PM_{10} concentration of 1.4 µg/m^3. This is due to an increase in traffic on the A192 of approximately 1,518 vehicles per day.

1.4.12. Imperceptible change in annual mean NO_2 concentrations occur at nine of the 25 receptors with the Scheme Scenario. For annual mean PM_{10}, 17 of the 25 receptors would experience imperceptible change.

Ecological Receptors

1.4.13. Summaries of NO_x and nitrogen deposition rates are given in **Table 1-4** and **Table 1-5** respectively. **Table 1-4** shows all the locations which exceed the critical level for NO_x where the change is greater than 0.4 µg/m^3. Data for all ecological transect receptors are provided in **Appendix D: Operational Impacts - Ecological Receptors** of this appendix.

1.4.14. The impact on annual mean NO_x concentration at the point within each site nearest the ARN is given in **Table 1-4**. This point is where the highest levels and greatest differences are likely to occur. The distance from the ARN within each site to which the critical level is exceeded is also given. Only the sites where the critical level would be exceeded and the change in concentration are not imperceptible are identified in this table. According to IAN 174/13 (**Ref. 4**), these locations require calculation of nitrogen deposition.

1.4.15. The impact on nitrogen deposition for each site identified in **Table 1-4** is provided in **Table 1-5** where there is an increase in NO_x concentration with the scheme. The distance from the ARN within each of these sites to which the lower critical load for the most sensitive feature is also given.

1.4.16. At the River Coquet Valley crossing, the habitat within the Order Limits would be cleared for construction. This means that the nearest point within the sensitive habitat shifts from 0 m to 10 m on the west side of the crossing. On the east side the shift is from 0 m to 15 m north of the River Coquet, and from 0 m to 25 m south of the river.

1.4.17. Except for transect Eco1W, the impacts at the River Coquet and Coquet Valley Woodlands SSSI are unlikely to give rise to a significant effect as the critical level would not be exceeded with the Scheme (**Table 1-4**). In the case of Eco1W, the critical level is exceeded in the do-minimum scenario but would be below the critical level with the Scheme (Scheme Scenario). This beneficial impact on the western side of the A1 is due to the shift in the southbound carriageway to the east.

1.4.18. The impacts at the Longhorsley Moor SSSI are unlikely to give rise to a significant effect as the critical level would not be exceeded (refer to **Table 1-4**).

1.4.19. Of the 22 non-statutory and ancient woodland sites, seven would experience exceedances of the critical level (refer to **Table 1-4**) with changes in annual mean NO_x that cannot be considered as imperceptible. These sites are:

Ancient Woodland

a. Borough Wood (transects Eco7W and Eco7E)
b. Well Wood (transect Eco8)

Local Wildlife Sites

a. Wansbeck & Hartburn Woods (transects Eco7W and Eco7E)
b. Cocklaw Dene (transects Eco17W)
c. Cawledge Burn (transects Eco18W and Eco18E)
d. Coney Garth Pond (transect Eco19)

Local Nature Reserve

a. Borough Wood (transect Eco7E)

1.4.20. The impacts on nitrogen deposition at these sites are given in **Table 1-5**. The significance of these impacts is addressed in **Appendix 16.6: Biodiversity Likely Significant Effects of the Scheme** of this ES.

Table 1-4 – Summary of Notable Impacts on Annual NO_x Concentrations (µg/m^3) for 2023 at Ecological Sites

Site	Transect	Distance of habitat to roadside (m)	Annual Mean NO_x at Closest Point within Site to Road				
			Do-Minimum	Distance (m) from Road to which Critical Level Exceeded	Do-Something Scheme	Distance (m) from Road to which Critical Level Exceeded	Change with Do-Something Scheme
Designated Sites (National and International)							
River Coquet and Coquet Valley Woodland SSSI (west of A1)	Eco1W	DM - 0 DS - 10	**33.4** at 0 m 18.3 at 10 m	Only at roadside	19.0 at 10 m	N/A	0.7 at 10 m
River Coquet and Coquet Valley Woodland SSSI (west of A1)	Eco1E	DM - 0 DS - 30	22.1. at 0 m 13.8 at 25 m	N/A	19.6 at 25 m	N/A	5.8 at 25 m
River Coquet and Coquet Valley Woodland SSSI (east of A1 Felton)	Eco12E	0	**35.8**	Only at roadside	29.7	N/A	-6.1
Ancient Woodland							
Dukes Bank Wood (west of road)	Eco1W	DM - 0 DS - 10	**33.4** at 0 m 18.3 at 10 m	Only at roadside	19.0 at 10 m	N/A	0.7 at 10 m
Dukes Bank Wood (east of road)	Eco1E	DM - 0 DS - 30	22.1. at 0 m 13.8 at 25 m	N/A	19.6 at 25 m	N/A	5.8 at 25 m
Borough Wood (west of road)	Eco7W	0	**42.7**	Only at roadside	**46.5**	0	3.8
Borough Wood (east of road)	Eco7E	0	**65.4**	10	**71.3**	10	5.9
Well Wood	Eco8	0	**95.7**	25	**99.5**	25	3.7
Local Wildlife sites							
Wansbeck & Hartburn Woods (west of road)	Eco7W	0	**42.7**	Only at roadside	**46.5**	0.0	3.8
Wansbeck & Hartburn Woods (east of road)	Eco7E	0	**65.4**	10	**71.3**	10.0	5.9
Coquet River Felton Park (west of road)	Eco1W	DM - 0 DS - 10	**33.4** at 0 m 18.3 at 10 m	Only at roadside	19.0 at 10 m	N/A	0.7 at 10 m
Coquet River Felton Park (east of road)	Eco1E	DM - 0 DS - 15	22.1 at 0 m 16 at 15 m	N/A	24.7 at 15 m	N/A	8.7 at 15 m

Site	Transect	Distance of habitat to roadside (m)	Annual Mean NO_x at Closest Point within Site to Road				
			Do-Minimum	Distance (m) from Road to which Critical Level Exceeded	Do-Something Scheme	Distance (m) from Road to which Critical Level Exceeded	Change with Do-Something Scheme
Cocklaw Dene (west of road)	Eco17W	0	**34.8**	Only at roadside	**38.4**	0	3.7
Cawledge Burn (west of road)	Eco18W	0	**47.9**	Only at roadside	**54.4**	5	6.5
Cawledge Burn (east of road)	Eco18E	0	**50.9**	Only at roadside	**57.3**	5	6.4
Coney Garth Pond	Eco19	0	**43.8**	Only at roadside	**47.6**	0	3.8
Local Nature Reserve							
Borough Wood (east of road)	Eco7E	0	**65.4**	10	**71.3**	10	5.9

Table 1-5 – Summary of Impacts on Nitrogen Deposition Rates (kg/N/ha/yr) for 2023 at Ecological Sites

Site	Transect	Lower Critical Load for Most Sensitive Feature	Distance of habitat to roadside (m)	Nitrogen Deposition (kgN/ha/yr) at Closest Point within Site to Road			
				Do-Minimum	Do-Something Scheme	Change with Do-Something Scheme	Distance (m) from Road beyond which Change <1%
Ancient Woodland							
Borough Wood (west of road)	Eco7W	10	0	**16.3**	**16.5**	0.2	5
Borough Wood (east of road)	Eco7E	10	0	**17.4**	**17.6**	0.2	15
Well Wood	Eco8	10	0	**16.5**	**16.6**	0.1	0
Local Wildlife Site							
Wansbeck & Hartburn Woods (west of road)	Eco7W	10	0	**16.3**	**16.5**	0.2	5
Wansbeck & Hartburn Woods (east of road)	Eco7E	10	0	**17.4**	**17.6**	0.2	15
Cocklaw Dene (west of road)	Eco17W	15	0	13.1	13.3	0.2	0
Cawledge Burn (west of road)	Eco18W	10	0	**16.0**	**16.3**	0.3	20
Cawledge Burn (east of road)	Eco18E	10	0	**16.2**	**16.5**	0.2	25
Coney Garth Pond	Eco19	5	0	**15.9**	**16.1**	0.2	15

Site	Transect	Lower Critical Load for Most Sensitive Feature	Distance of habitat to roadside (m)	Nitrogen Deposition (kgN/ha/yr) at Closest Point within Site to Road			
				Do-Minimum	Do-Something Scheme	Change with Do-Something Scheme	Distance (m) from Road beyond which Change <1%
Local Nature Reserve							
Borough Wood (east of road)	Eco7E	10	0	**17.4**	**17.6**	0.2	15

REGIONAL AIR QUALITY

1.4.21. At a regional level, the Scheme Scenario would increase emissions of all pollutants (refer to **Table 1-6**). This is due to the increase in vehicle-km travelled having a greater effect than the improvements in traffic flows brought on by the Scheme.

Table 1-6 – Impacts on Regional Emissions with the Scheme Scenario

Scenario	CO_2		NO_x		PM_{10}	
	Tonnes	Change	Tonnes	Change	Tonnes	Change
Base 2015	190,555	-	514.6	-	36.6	-
Do-minimum 2023	194,438	+13,689	282.6	+21.8	31.4	+2.1
Do-something 2023	208,127		304.4		33.5	
Do-minimum 2038 (design year)	226,736	+24,399	199.3	+19.3	35.8	+3.5
Do-something 2038 (design year)	251,135		218.5		39.3	

COMPLIANCE RISK

1.4.22. The compliance risk assessments, following IAN 175/13 (**Ref. 5**) are provided in **Appendix E: Model Results PCM Compliance** of this appendix. There are no roads at risk of exceeding the EU limit value for annual mean NO_2 with the Scheme. As such, the Scheme poses a low risk in relation to EU limit value compliance.

1.5 DESIGN, MITIGATION AND ENHANCEMENT MEASURES

DESIGN

1.5.1. Mitigation would be required to reduce emissions of dust from the Scheme construction works. This would be based on best practice measures for reducing emissions of dust as set out in the Annex 1 of the Minerals Policy Statement (**Ref. 7**) and summarised below. These measures would be incorporated into the Construction Environmental Management Plan (CEMP). The proposed measures

set out below are detailed in the **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**).

Site Management

a. Records of dust and air quality complaints would be kept, including likely causes and mitigation measures to reduce impacts if appropriate.
b. Site perimeter, fences, etc. would be kept clean.
c. A dust audit programme to be devised and implemented by the main contractor, and to include visual inspections of offsite dust deposition. This may need to be supplemented by automatic monitoring of PM_{10} if the risk of impacts increases e.g. during prolonged dry weather.

Site Planning

a. Consideration of weather conditions and the dust generating potential of material to be excavated would be ensured prior to commencement of works.
b. Plan site layout to maximise distance from plant / stockpiles, etc. to sensitive receptors.
c. Dusty materials would be removed from Site as soon as possible.

Construction Traffic

a. Loads entering and leaving the Site with dust generating potential would be covered and wheel washing facilities made available.
b. There would be no idling of vehicles.
c. Vehicles would comply with Site speed limits set by the main contractor to limit generation of dust from vehicle movements.
d. Water assisted sweeping of local roads would be undertaken if material tracked out of site.
e. Hard surfacing would be installed as soon as practicable on Site and ensured is maintained in good condition.

Site Activities

a. Exposed soils would be protected from winds until sealed or re-vegetated.
b. Dust generating activities would be minimised, particularly near residential receptors / sensitive ecosystems during prolonged dry, dusty weather unless damping / other suppressants are used.
c. An adequate water supply to Site would be ensured and water would be used as dust suppressant where applicable.
d. Any site machinery would be well maintained and in full working order.
e. Sand and aggregates would be stored away from sensitive receptors and screened / shielded. Similarly, concrete batching would take place away from receptors.

MITIGATION - CONSTRUCTION

1.5.2. Traffic management measures would be required during the construction phase, taking into account the effects of construction traffic from other developments.

Details of these are included in **Appendix A: Construction Traffic Assessment** of this appendix.

MITIGATION - OPERATION

1.5.3. There is no requirement for Scheme-specific mitigation as no significant effects are anticipated.

1.6 ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

CONSTRUCTION

1.6.1. The Scheme could result in potential adverse impacts from construction works. However, with the application of mitigation measures (refer to **Section 1.5**), **no significant effects** are likely.

OPERATION

1.6.2. IAN 174/13 (**Ref. 4**) sets out key criteria for the assessment of the significance of effects of developments in terms of impacts to human health. The criteria draw together the results of the assessment of local air quality impacts on population exposure, compliance with EU limit values and impacts on ecological receptors.

Human Health

1.6.3. IAN 174/13 (**Ref. 4**) requires the significance of effects to be assessed at properties where exceedances of the air quality assessment thresholds (refer to **Table 5-2** in Part A **Chapter 5: Air Quality, Volume 2** of this ES (**Application Document Reference: TR010041/APP/6.2**) and Part B **Chapter 5: Air Quality, Volume 3** of this ES (**Application Document Reference: TR010041/APP/6.3**)) are predicted. Pollutant concentrations would be below the assessment thresholds at all receptors in the Scheme opening year (NO_2 and PM_{10} / $PM_{2.5}$). There are no properties that experience a worsening or improvement of air quality where pollutant concentrations are already above an assessment threshold, or a creation / removal of an exceedance. Furthermore, the Scheme is at low risk of impacting on compliance with EU limit values (refer to **Appendix E: Model Results PCM Compliance** of this appendix).

Ecological Receptors

1.6.4. The assessment anticipates no significant effects at designated sites of national or international importance. Further commentary on this, and consideration of the impacts at ancient woodland and non-statutory sites, is provided in **Appendix 16.6: Biodiversity Likely Significant Effects of the Scheme** of this ES, which concluded **no significant effects** from air quality impacts at ecological sites.

EU Limit Value Compliance

1.6.5. No PCM links within the Study Area exceed the EU limit value for annual mean NO_2. The Scheme is at low risk of affecting compliance with EU limit values.

Summary

1.6.6. Overall, following the guidance on the evaluation of significant effects in IAN 174/13 (**Ref. 4**), the effects of the Scheme are **not significant**.

UPDATED DMRB GUIDANCE

1.6.7. Refer to **Appendix F: DMRB Sensitivity – Scheme Air Quality** of this appendix for further details of the sensitivity test as discussed in **Section 1.2**. The findings of the sensitivity test are summarised below.

1.6.8. The key differences between the DMRB HA 207/07 (**Ref. 1**) and LA 105 (**Ref. 2**) are summarised in **Table 1-7** below.

Table 1-7 – Key Changes between DMRB HA 207/07 and LA 105

Topic	Former guidance - DMRB HA 207/07	Updated guidance – LA 105	Summary of Sensitivity Test Findings
Construction Dust	- Identification of receptors within 200 m of construction site, and application of mitigation measures.	- Definition of construction dust risk potential. - Identification of all sensitive receptors 0 to 50 m, 50 to 100 m and 100 to 200 m of all construction activity. - Definition of the receiving environment sensitivity to construction dust.	- The updated guidance on the assessment of construction dust has been considered through the specification of mitigation as detailed in **Section 1.5**. - Therefore, the conclusions of the assessment would not change.
Compliance Risk Assessment	- Difference between do-something and do-minimum annual mean NO_2 concentration at the nearest relevant receptor is added to the PCM baseline roadside concentration to determine compliance	- Validation of scheme AQ model against the PCM model; - Selection of qualifying features adjacent to AQ model links overlapping PCM links. - Comparison of scheme impact at modelled receptor and at 4 m	The findings of the sensitivity test in relation to the Compliance Risk Assessment are summarised as follows: - Worse case qualifying feature identified as footway next to road, adjacent to R25. - Model results do not indicate any exceedance of EU limit Value, with increase 1.4 µg/m^3 and maximum predicted concentration of 24.9 µg/m^3. - No risk to reported date of compliance and therefore, the conclusion of the assessment would remain the same.
Assessment of Ecological Receptors	- Only considers internationally or nationally designated sites SSSI, SAC, SPA and RAMSAR. - If NO_x concentration close or greater than critical level of 30 µg/m^3 then assess nitrogen deposition. - Background deposition assumed to reduce by 2% per year. - Deposition velocity of 0.001 m/s used for all vegetation.	- Definition of designated sites expanded to include local designations including veteran trees. - Screen of NO_x concentrations against critical level removed. - Background deposition assumed to remain constant from base year. - Differentiation of deposition velocities between long and short vegetation.	The findings of the sensitivity test in relation to revisions to the ecological habitat assessment, with the changes to background projections and application of varying deposition rates, are summarised as follows: - With the application of the updated guidance, 25 of the 50 assessed designated habitats considered in the assessment required further analysis of nitrogen deposition impacts by a competent expert. This exercise was carried out as part of the sensitivity test, as reported in **Appendix F: DMRB Sensitivity – Scheme Air Quality** of this appendix. - The application of the updated guidance would not change the likely significance of effects and therefore the conclusions of the assessment would remain unchanged (refer to **Appendix 16.7: Biodiversity DMRB Sensitivity Test: The Scheme** of this ES for full details).

1.7 MONITORING

1.7.1. During construction, monitoring would be required to determine the effectiveness of the proposed mitigation, or requirement for further mitigation.

1.7.2. In the first instance, monitoring should be limited to visual inspections of emissions and / or dust soiling of local roads or properties. This would be undertaken daily for the duration of the construction of the Scheme.

1.7.3. If risk levels rise, for example during prolonged dry weather, or the visual monitoring indicates persistent soiling, it may be necessary to install continuous monitoring of particulate matter (as 15-minute average PM_{10} and $PM_{2.5}$). The monitors would be equipped with an alert mechanism, set to agreed thresholds with Northumberland County Council.

1.7.4. The construction monitoring regime and reporting requirements are set out in the **Outline CEMP** (**Application Document Reference: TR010041/APP/7.3**) for the Scheme.

1.7.5. No significant effects due to air quality impacts are likely in the operational phase of the Scheme therefore monitoring is not required.

REFERENCES

Ref. 1 - Highways Agency, Air Quality, Design Manual for Roads and Bridges HA 207/07, Volume 11, Section 3, Part 1 (May 2007). Available at: http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf

Ref. 2 - Highways Agency, Air Quality, Design Manual for Roads and Bridges LA 105 Air Quality, Revision 0, Sustainability & Environment Appraisal. Available at: http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/LA%20105%20Air%20quality-web.pdf

Ref. 3 - Highways England (2012). Interim Advice Note 170/12v3. Updated air quality advice on the assessment of future NOx and NO2 projections for users of DMRB Volume 11, Section 3, Part 1 Air Quality. Available at: http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian170.pdf

Ref. 4 - Highways England (2013). Interim Advice Note 174/13. Updated advice for evaluating significant local air quality effects for users of DMRB Volume 11, Section 3, Part 1 Air Quality. Available at: http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian174.pdf

Ref. 5 - Highways England (2013). Interim Advice Note 175/13. Updated air quality advice on risk assessment related to compliance with the ES Directive on ambient air quality and on the project of Scheme air quality action plans for user of DMRB Volume 11, Section 3, Part 1 Air Quality. Available at: http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian175.pdf

Ref. 6 - Highways England (2015). Interim Advice Note 185/15. Updated traffic, air quality and noise advice on the assessment of links speeds and generation of vehicle data into 'speed-bands' for users of DMRB Volume 11, Section 3, Part 1 Air Quality. Available at: http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian185.pdf

Ref. 7 - Office of the Deputy Prime Minister (2005). Minerals Policy Statement 2: Controlling and mitigating the environmental effects of mineral extraction in England. Annex 1: Dust. Available at: https://www.iow.gov.uk/azservices/documents/2782-A27a-MPS2-Annex-1-Dust.pdf

Appendix A

CONSTRUCTION TRAFFIC ASSESSMENT

COMBINED CONSTRUCTION TRAFFIC ASSESSMENT

Construction traffic movements within the Order Limits for the Scheme are not fixed, therefore the likely vehicle movements in and out of the Scheme boundary along public roads have been considered with reference to the **Construction Traffic Management Plan** (**Application Document Reference: TR010041/APP/7.4**). As construction traffic management is going to be in place for more than six months there is potential for impacts on ambient air quality. Consequently, the DMRB HA 207/07 local air quality scoping criteria have been applied to identify the ARN. This has identified that:

- The road alignment alters by more than 5 m for the southern online widening to the west (Part A chainage 10800 to 13700) between Phase 2 and Phase 3 (May 2022 to May 2023) of construction.
- A change in daily average speed of more than 10 kph - from 102 kph to 64 kph - due to traffic management measures for the southern online widening to the west .

With the distribution of the majority of construction materials for both Part A and Part B coming from the south and aggregates from near Alnwick, construction traffic flows were also screened along the existing A1 between Part A and Part B just south of Alnwick.

Table A-1 shows the additional flows generated during construction which are split by light and heavy duty vehicles at both the southern end of the Scheme (Warreners Cottage) and between Part A and Part B. Total two-way flows generated by the Scheme, have been added to modelled do-minimum traffic flows (2023) on the A1 adjacent to the areas to ensure a conservative assessment. The predicted construction flows at Warreners Cottage and between Part A and Part B, would not trigger the DMRB HA 207/07 scoping criteria, namely of an increase of AADT greater than 200 HDVs, and therefore construction traffic impacts between Part A and Part B was scoped out.

As a consequence of the alignment and average speed changes at Warreners Cottage a simple level assessment was undertaken to determine the potential impacts, at this location as the closest and likely worst affected receptor.

Table A-2 shows the inputs to the model. Pollutant concentrations were modelled using the DMRB Modelling Spreadsheet (DMRB V6.1_ETv8). Model results were verified, applying the Group 3 verification factor, and are presented in **Table A-3.**

Figure A-1 and **Figure A-2** illustrate the changes in traffic movements as a result of the construction. The closest receptor to the works is Warreners Cottages (15.5 m), located at the southern end of the Scheme where the existing A1 goes from dual to single carriageway. During Phase 1 and 2 construction works would occur on the other side of the traffic flows, where construction traffic would join the Scheme from the south (refer to **Chapter 2: The Scheme**, **Volume 1** of this ES (**Application Document Reference: TR010041/APP/6.1**)).

In Phase 3 of the works the new road would be operational and works would commence on the near carriageway.

Table A-1 - Forecast Daily Construction Traffic Flows

	Warreners Cottage	A1 Between Part A and Part B
Construction Year	2022	2022
Total HDV	185	196
Total LDV	380	380
Annual Average Daily Construction Traffic Flow	565	576

Table A-2 - Model Inputs for Construction Traffic Screening

Receptor ID	Scenario	Flows	% HDV	Speed category	Distance to Centreline (m)	Comment
R1 Warreners Cottages	Do-minimum	21,902 (base traffic)	10.4	Rural – High Speed	15.5	Before works commenced
	Phase 1 and 2 - lane shift	21,902 (base traffic)	10.4	Rural – Light Congestion	15.5	Base traffic flows on existing carriageways
		565 (construction traffic)	33%	Rural – Light Congestion	26.3	Construction traffic on farside lane
	Phase 3 lane shift	21,902 (base traffic)	10.4	Rural – Light Congestion	26.3	Base traffic flows shifted to new carriageway
		565 (construction traffic)	33%	Rural – Light Congestion	15.5	Construction traffic on nearside lanes

Table A-3 - Model Results

Scenario	Annual Mean NO_2 ($\mu g/m^3$)	Annual Mean PM_{10} ($\mu g/m^3$)
Do-minimum	24.7	15.2
Phase 1 and 2 - lane shift	29.3	15.4
Phase 3 lane shift	19.0	13.0
Objective level ($\mu g/m^3$)	40	40

As can be seen from **Table A-3**, whilst pollutant concentrations would change in the construction phase, the annual mean concentrations remain would well below the air quality objectives. Construction traffic emissions are therefore unlikely to result in a significant effect and therefore have been screened out of the air quality assessment.

Figure A-1 - Phase 1 and 2 of Traffic Management Phasing Southern End (Warreners Cottages)

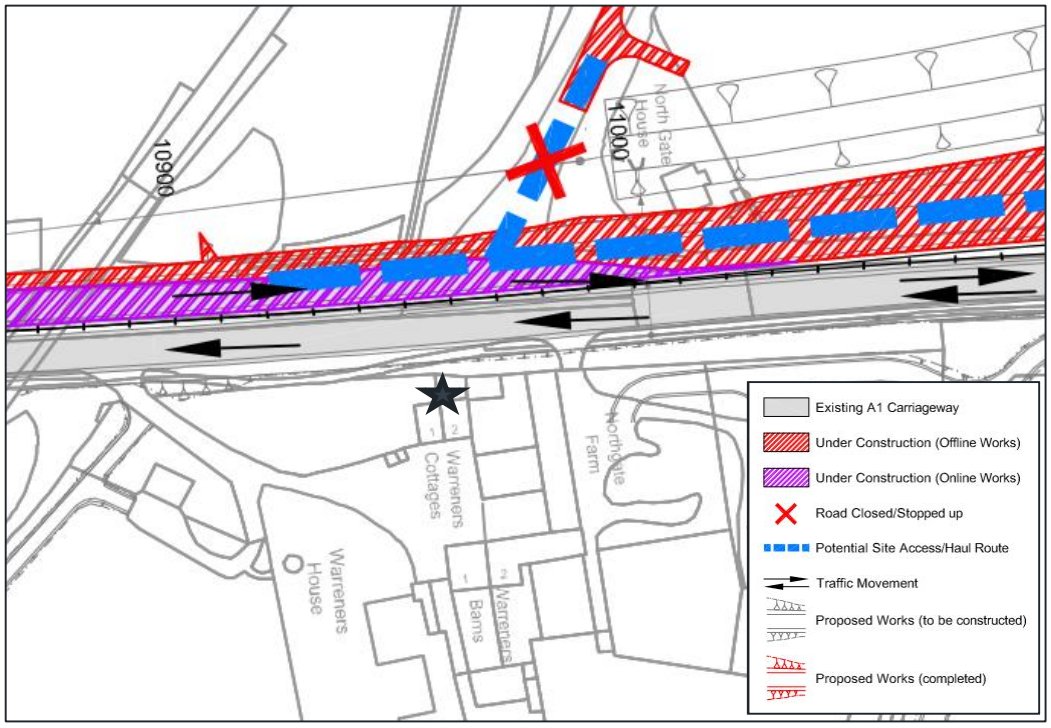
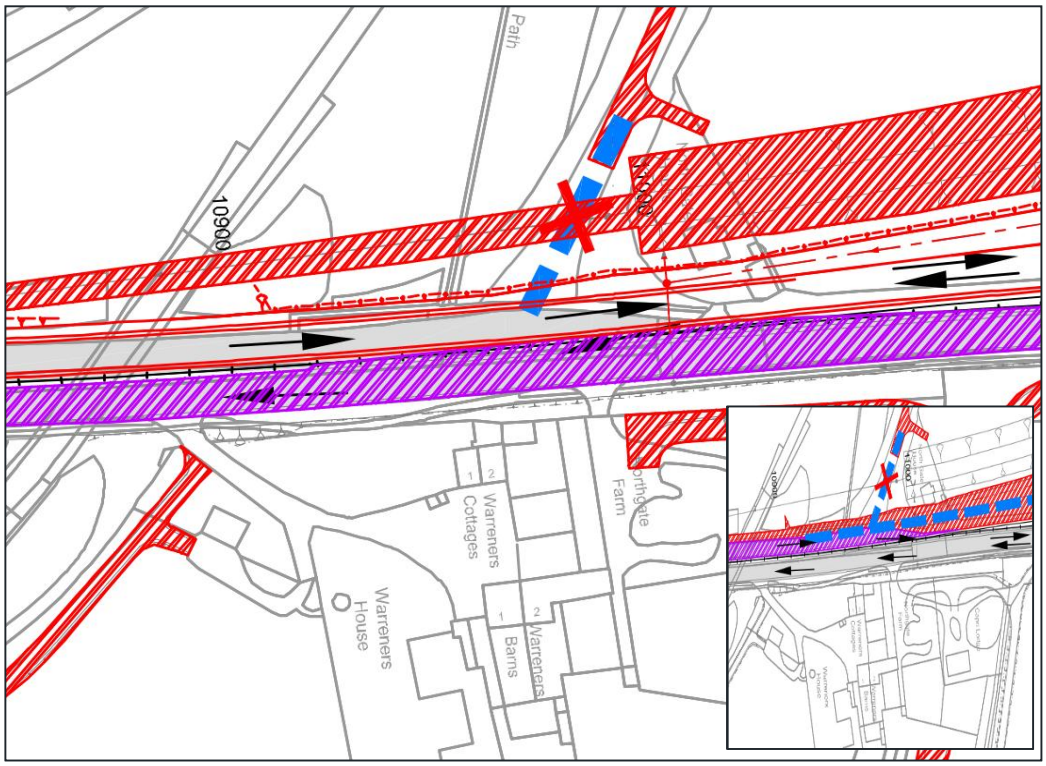


Figure A-2 - Phase 3 Traffic Management Phasing Southern End (Warreners Cottages)



Appendix B

TRAFFIC DATA

TRAFFIC FORECAST SCENARIOS

The following section from the **Case for the Scheme** (**Application Document Reference TR010041/APP/7.1)** describes the derivation of the forecast model for the do-minimum (DM) scenario and Scheme Scenario (DS4).

The 2015 Stage 3 base networks for the North East were used as a starting point for the do-minimum networks. The following Road Investment Strategy and local authority schemes were represented in the do-minimum scenario:

- A1 Coal House to Metro Centre (open);
- A1 Scotswood to North Brunton;
- A1 Birtley to Coal House;
- A19 Coast Road;
- A19 Testos; and
- A19 Norton to Wynyard.

In addition, 'significant' local schemes within Northumberland and Tyne and Wear were also included in the do-minimum networks, including:

- Morpeth Northern Bypass (open);
- Reopening of B6342 bridge over River Coquet in Rothbury (open);
- Blyth Relief Road; and
- Junction 12 A1 North Brunton roundabout improvements extra lanes and Rotary Way widening that has occurred since the Base Year model was developed.

The do-minimum networks were used as a starting point for the do-something model with the schemes then added on top. These were created for the schemes:

- DS2 Morpeth to Felton (Part A);
- DS3 Alnwick to Ellingham (Part B); and
- DS4 Morpeth to Ellingham (the Scheme).

TRAFFIC DATA FOR AFFECTED ROAD NETWORK

Traffic data for the ARN are included in **Table B-1**. These data should be viewed in conjunction with the **Figure 16.2 Scheme Air Quality Affected Road Network** of this ES. The data presents traffic flows as an AADT and HDV as a percentage.

Table B-1 - Traffic Data

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1204_1220	5120	11%	5580	10%	4631	10%
1204_27001	349	13%	381	12%	382	12%
1220_1246	4800	12%	5239	11%	4292	11%
1233_1744	78	6%	76	7%	61	8%
1246_1248	4614	12%	5049	11%	4109	11%
1246_1356	186	1%	191	1%	183	1%
1248_1344	2790	9%	2971	7%	2501	5%
1248_1306	1824	18%	2078	16%	1608	21%
1310_1421	3258	3%	3470	3%	3401	3%
1322_1366	146	4%	163	4%	160	4%
1327_1331	418	1%	473	1%	463	1%
1331_1344	357	5%	411	4%	401	5%
1331_1353	94	23%	97	22%	96	23%
1344_1356	536	1%	692	0%	443	0%
1344_1353	2968	8%	3252	6%	2542	4%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1353_1392	825	1%	917	1%	1679	0%
1353_1366	2221	10%	2415	8%	942	11%
1366_1393	150	7%	168	7%	164	7%
1366_1376	2216	10%	2410	8%	938	10%
1375_27032	3238	4%	3558	4%	3522	4%
1377_1375	1469	5%	1644	5%	1606	5%
1375_1376	1760	2%	1905	2%	1908	2%
1376_1377	3976	6%	4315	5%	2845	5%
1377_1378	5463	6%	5976	5%	4468	5%
1378_1379	4429	7%	4839	6%	3059	6%
1381_1379	650	5%	723	5%	684	5%
1379_1422	3779	7%	4116	6%	2375	6%
1378_1381	1016	3%	1120	3%	1392	2%
1381_1460	1667	4%	1843	4%	2076	3%
1392_1395	825	1%	917	1%	1679	0%
1395_1457	975	2%	1085	2%	1843	1%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1423_1421	1519	3%	1638	3%	1570	3%
1422_1423	5512	6%	5944	5%	4201	5%
1421_1422	1739	3%	1832	3%	1831	3%
1423_1425	5797	6%	6309	5%	4492	5%
1426_1425	1952	2%	2087	2%	1890	3%
1425_1541	4816	6%	5188	5%	3308	5%
1423_1426	2163	3%	2318	3%	2310	3%
1426_1505	4115	3%	4405	3%	4199	3%
1457_1476	1133	2%	1115	2%	1431	2%
1457_1474	1661	1%	1714	1%	2797	1%
1460_1474	295	6%	274	7%	273	7%
1460_1497	1615	4%	1792	4%	2025	3%
1474_1497	1401	3%	1474	3%	2559	2%
1476_27033	1739	3%	1782	3%	2075	2%
1476_1604	760	3%	807	3%	782	3%
1497_1521	3016	4%	3266	3%	4584	2%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1506_1591	3249	3%	3582	3%	3648	3%
1521_1603	1210	5%	1334	5%	1329	5%
1521_1591	1806	2%	1932	2%	3254	1%
1541_27041	845	5%	945	5%	801	5%
1541_27031	5607	6%	6108	5%	4085	5%
1575_27031	6291	7%	6867	6%	4858	6%
1575_1580	6291	7%	6867	6%	4858	6%
1580_1689	400	5%	405	6%	386	6%
1580_1601	6078	7%	6647	6%	4608	6%
1591_1676	2891	4%	3146	4%	3090	4%
1591_1675	2164	1%	2368	1%	3813	1%
1675_27005	0	-	0	-	0	-
1675_1717	2164	1%	2368	1%	3813	1%
1712_1810	1749	2%	1684	2%	2050	2%
1717_1914	4481	18%	4877	17%	5109	16%
1717_27037	6645	12%	7245	12%	8922	10%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1721_1793	2259	3%	2347	3%	2262	3%
1748_1722	6689	10%	7901	9%	9277	8%
4665_1723	6107	10%	6921	9%	7657	9%
1744_1748	83	34%	81	36%	80	36%
1749_1744	16	23%	17	22%	3	227%
1749_1748	6664	10%	7879	9%	9256	8%
1753_1749	6677	10%	7893	9%	9256	8%
1723_1750	6107	10%	6921	9%	7657	9%
1753_1887	12757	10%	14778	9%	0	-
1750_1753	6068	10%	6885	9%	0	-
1755_4665	1187	6%	1309	6%	1612	5%
1793_1796	1199	5%	1243	5%	1204	5%
1800_1793	10897	13%	12454	11%	15199	10%
1793_1795	11958	11%	13558	11%	16256	10%
1795_1798	729	2%	710	4%	0	-
1798_1796	11971	9%	13604	8%	16433	8%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1816_1798	11078	10%	12664	9%	15113	8%
1798_1910	1628	2%	1656	4%	2203	3%
1808_1800	10897	13%	12454	11%	15199	10%
1802_1805	18153	12%	20181	11%	0	-
1802_27043	18670	11%	20893	10%	0	-
1805_1807	18976	11%	21064	11%	13287	9%
1796_1806	10773	9%	12361	9%	15228	8%
1819_1808	10897	13%	12454	11%	15199	10%
1810_1857	1347	2%	1292	2%	1676	2%
1810_1856	405	0%	392	0%	375	0%
1795_1813	11229	12%	12847	11%	15380	10%
1813_1816	374	1%	388	1%	366	1%
1806_1814	10773	9%	12361	9%	15228	8%
1836_1816	11356	9%	12949	9%	15384	8%
1816_1910	658	2%	679	2%	644	2%
1856_1819	10897	13%	12454	11%	15199	10%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1821_1970	1810	4%	1929	5%	0	-
1814_1824	10773	9%	12361	9%	15228	8%
1829_27043	18670	11%	20893	10%	14668	10%
1860_1829	9454	10%	10590	10%	0	-
1813_1832	11603	12%	13236	11%	15746	10%
1832_1835	11603	12%	13236	11%	15746	10%
1839_1836	11356	9%	12949	9%	15384	8%
1851_1839	11356	9%	12949	9%	15384	8%
1835_1842	11603	12%	13236	11%	15746	10%
1875_1851	11356	9%	12949	9%	15384	8%
1829_1855	9216	12%	10303	11%	14668	10%
1855_1860	2270	11%	2655	10%	1445	8%
1857_1856	10843	13%	12359	12%	15243	10%
1856_1861	1124	0%	1138	0%	678	2%
1855_1857	11486	12%	12958	11%	16112	10%
1857_1865	704	2%	693	2%	807	2%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1862_1860	9454	10%	10590	10%	15980	8%
1860_1871	2270	11%	2655	10%	3227	5%
1824_1861	10773	9%	12361	9%	15228	8%
1861_2051	1954	2%	1914	1%	2133	2%
1865_1862	11245	9%	12851	8%	15995	8%
1861_1865	10541	9%	12157	9%	15189	8%
1842_1866	11603	12%	13236	11%	15746	10%
1866_1875	411	0%	446	0%	429	0%
1862_1871	1791	3%	2260	3%	15	100%
1871_27039	4061	7%	4915	7%	3242	6%
1866_1874	12014	11%	13682	10%	16174	9%
1874_27037	8957	7%	10269	6%	11962	5%
1874_1879	4090	4%	4675	4%	5759	3%
1879_1875	11827	9%	13451	8%	15870	8%
1875_2133	882	1%	948	1%	914	1%
2235_1879	8792	10%	10012	9%	11319	10%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1887_1888	13325	9%	15363	8%	7623	9%
1888_1901	13698	9%	15723	8%	0	-
1890_1888	772	6%	809	6%	0	-
1890_2037	1523	5%	1577	5%	0	-
1897_1899	3430	4%	3718	4%	795	5%
1902_1899	1431	4%	1534	5%	0	-
1901_1902	11683	10%	13536	9%	7559	9%
1899_1901	2005	4%	2191	5%	0	-
1902_2231	10256	11%	12005	9%	7559	9%
1910_1913	2274	1%	2322	3%	2835	3%
1913_2066	805	1%	815	1%	777	1%
1913_2067	1475	2%	1513	4%	2064	4%
1970_2018	6037	6%	6984	6%	5412	5%
1970_2354	4918	6%	5860	6%	4129	4%
2018_27042	1587	3%	1633	3%	1666	3%
2018_27039	4064	7%	4918	7%	3245	6%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
2025_2047	2030	5%	2312	6%	1519	6%
2047_2093	3577	4%	4034	4%	3328	3%
2101_2108	2212	4%	2489	5%	1697	5%
2119_2111	1130	3%	1270	3%	2314	3%
2116_2189	12387	9%	13307	9%	13304	9%
2119_2285	2442	4%	2772	4%	3996	4%
2161_2285	6334	11%	6859	11%	6936	11%
1874_2184	9585	13%	11041	11%	12712	11%
27146_2189	6938	9%	7477	8%	0	-
2200_2192	3006	9%	3186	9%	3158	9%
2194_2192	4151	3%	4523	4%	4599	4%
30157_2194	7005	6%	7557	6%	7641	6%
2196_2206	4973	15%	5525	14%	5750	14%
2184_2196	4926	15%	5475	14%	5701	14%
2194_2200	2854	9%	3034	9%	3042	8%
2200_27035	5869	9%	6229	9%	6209	9%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
2184_2202	4659	10%	5566	8%	7011	8%
2196_2202	41	2%	44	2%	43	2%
2205_2203	2110	19%	2326	19%	0	-
2203_27007	3421	23%	3730	22%	3883	21%
2207_2205	5108	15%	5667	14%	5881	14%
2212_2206	53	26%	56	24%	55	25%
2212_2207	182	2%	192	10%	0	-
2206_2207	4938	15%	5488	15%	5713	14%
2205_2209	2998	11%	3341	11%	3458	10%
2203_2209	1273	26%	1366	24%	0	-
2215_2212	223	2%	236	9%	223	9%
2209_2214	4271	16%	4708	14%	0	-
2217_2215	0	-	0	-	0	-
2221_2215	223	2%	236	9%	0	-
2214_2216	1273	26%	1366	24%	1422	22%
27153_2216	1481	7%	1762	9%	1917	8%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
2216_2217	2754	16%	3128	15%	3339	14%
2221_2228	2978	15%	3364	15%	3562	14%
2217_2221	2754	16%	3128	15%	3339	14%
2228_2240	2621	16%	3015	15%	3229	14%
2228_2266	553	6%	588	12%	572	12%
2314_2231	5135	11%	6158	9%	7559	9%
2238_2235	6257	8%	7116	7%	8208	8%
2237_2235	2523	16%	2895	15%	3110	14%
2238_2237	98	7%	119	6%	119	6%
2237_2240	2621	16%	3015	15%	119	6%
2309_2238	6355	8%	7236	7%	8328	8%
2231_2274	5120	11%	5847	10%	0	-
2274_2278	3938	11%	4513	10%	5267	10%
2290_2278	2417	4%	2722	3%	3062	3%
2285_2288	8776	9%	9631	9%	10932	8%
2288_2310	9184	9%	10139	9%	11453	8%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
2288_2308	3968	6%	4579	5%	5115	6%
2290_2310	3600	6%	4056	6%	5425	4%
2274_2290	1182	11%	1334	10%	2363	6%
2321_2308	1772	4%	2021	3%	2310	4%
2278_2309	6355	8%	7236	7%	8328	8%
2310_2346	10183	9%	11204	9%	11409	9%
2321_2314	2939	14%	3600	11%	4754	11%
2308_2314	2202	7%	2564	6%	2810	7%
2202_2321	4712	10%	5610	8%	7054	8%
2340_27035	5869	9%	6229	9%	6209	9%
2340_2454	5878	9%	6238	9%	6218	9%
2346_2360	8620	9%	9339	9%	9583	9%
2346_2454	1562	9%	1864	8%	1826	7%
2354_2466	831	4%	975	3%	814	2%
2354_27044	5149	7%	6004	6%	4121	5%
2360_2428	5988	8%	6585	8%	6633	8%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
2360_2479	2628	11%	2750	11%	2946	11%
2417_27044	5466	6%	6333	6%	4458	4%
4246_4297	11195	10%	12902	9%	13132	10%
4268_4297	6673	9%	6982	9%	7165	9%
4297_4304	17868	10%	19884	9%	20298	9%
4304_4316	12700	11%	14384	11%	14842	11%
4316_4326	13076	12%	14822	11%	15302	11%
4326_4346	11647	11%	13271	10%	13754	11%
4346_4351	12006	11%	13670	11%	14159	11%
4351_4377	10618	12%	12167	11%	12658	12%
4377_4406	8925	11%	10296	10%	11244	10%
4405_4404	167	0%	200	0%	197	0%
4407_4405	167	0%	200	0%	197	0%
4406_4407	9013	11%	10397	10%	11352	10%
4404_4406	88	21%	100	20%	107	19%
4407_27136	9180	11%	10597	10%	11549	10%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
4437_4446	9647	11%	11128	10%	12097	10%
4437_27136	9299	11%	10740	10%	11694	10%
4446_4472	8922	12%	10321	11%	11297	11%
4472_4486	8757	12%	10142	11%	11122	11%
4486_4487	8881	12%	10272	11%	11250	11%
4487_27135	10251	12%	11827	11%	13025	11%
4508_4514	10541	12%	12172	10%	13403	11%
4508_27135	10760	11%	12412	10%	13641	10%
4514_4515	10586	12%	12228	10%	13468	10%
4515_4531	10725	11%	12400	10%	13660	10%
4518_4583	1185	8%	1289	8%	1278	8%
4531_4559	10725	11%	12400	10%	13660	10%
4546_4570	1727	8%	1925	7%	2086	8%
4559_4560	10725	11%	12400	10%	13660	10%
4560_4563	11006	11%	12707	10%	13966	10%
4563_4564	11006	11%	12707	10%	13966	10%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
4564_4571	10271	11%	11975	10%	13181	10%
4570_4572	1689	5%	1887	5%	2048	6%
4571_4572	10269	11%	11972	10%	13179	10%
4572_4573	11958	10%	13860	9%	15227	9%
4573_4574	11977	10%	13879	9%	15246	9%
4574_4581	11757	10%	13642	9%	15009	10%
4574_4575	1029	4%	1135	4%	1129	4%
4575_4603	1038	5%	1145	5%	1138	5%
4581_4583	12408	10%	14343	9%	15699	9%
4581_4603	2612	7%	2959	7%	2928	7%
4583_27138	11242	10%	13073	9%	14439	10%
4587_4592	683	12%	783	10%	860	9%
4592_4595	12059	10%	13878	9%	15063	9%
4592_27138	11550	10%	13297	9%	14402	9%
4595_4602	11894	10%	13768	9%	15336	9%
4595_4596	807	3%	1074	3%	1253	3%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
4602_4613	11951	10%	13830	9%	15399	9%
4613_4646	11993	10%	13898	9%	15533	9%
4646_4658	12323	10%	14288	9%	16083	9%
4664_4658	6304	11%	7493	9%	8686	9%
1722_4664	6686	10%	7901	9%	9277	8%
4658_4665	6004	10%	6795	9%	7397	10%
27007_28000	125	82%	98	114%	98	110%
27007_27066	3259	19%	3595	19%	3748	18%
27031_27090	2353	8%	2523	7%	1329	5%
27037_27096	6212	10%	7399	8%	4616	7%
27151_27146	8673	8%	9289	7%	9298	7%
27146_27147	1735	3%	1811	3%	1857	3%
2189_27147	5410	8%	5791	9%	5825	9%
2192_27150	7157	6%	7709	6%	7757	6%
27150_27151	5675	6%	5947	6%	5839	6%
27152_27151	2998	11%	3342	11%	0	-

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
27150_27152	1481	7%	1762	9%	1917	8%
27152_27153	4479	10%	5104	10%	5376	10%
2214_27153	2998	11%	3342	11%	3459	10%
27147_30156	7144	7%	7602	7%	0	-
30156_30157	3161	11%	3480	12%	3547	11%
30158_30157	3843	1%	4077	1%	4094	1%
30156_30158	3983	4%	4122	4%	4134	4%
30158_30159	7826	3%	8199	3%	8229	3%
1802_27166	0	-	0	-	2302	3%
29213_1805	0	-	4539	2%	14198	8%
1821_27165	0	-	7669	2%	2175	1%
1970_27165	0	-	5581	2%	2173	5%
29210_27043	0	-	9929	12%	14668	10%
27165_27167	0	-	3047	11%	3013	2%
27166_27167	0	-	5897	26%	3013	2%
1860_27170	0	-	587	9%	14198	8%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
27170_27171	0	-	983	16%	14198	8%
29212_29210	0	-	0	-	14668	10%
27171_29211	0	-	0	-	14198	8%
1802_29212	0	-	0	-	14668	10%
29211_29213	0	-	0	-	14198	8%
1166_1204	4780	11%	5207	10%	4256	10%
1255_1601	0	-	183	1%	197	1%
27175_1753	0	-	0	-	9256	8%
27176_27175	0	-	0	-	9256	8%
40021_40020	0	-	0	-	1186	4%
29032_2037	0	-	0	-	1312	5%
27173_29031	0	-	0	-	211	21%
29031_27174	0	-	0	-	216	9%
27173_27174	0	-	0	-	7413	9%
27177_1887	0	-	0	-	7623	9%
1901_27176	0	-	0	-	9256	8%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1902_30200	0	-	0	-	0	-
30200_1901	0	-	0	-	1697	4%
1897_2025	2894	4%	3152	5%	2110	4%
1899_1648	0	-	0	-	573	3%
27174_27172	0	-	0	-	7629	9%
1508_1787	2619	11%	3485	11%	4097	9%
1514_1611	883	1%	1005	1%	897	1%
1539_1621	740	7%	663	8%	284	0%
1601_1609	6078	7%	6823	6%	4799	6%
1609_1659	1101	0%	1346	0%	1334	0%
1609_1611	7010	6%	7760	5%	5872	5%
1611_27048	6156	6%	6755	6%	4975	6%
1621_27049	803	0%	772	0%	592	0%
1621_1639	1541	4%	1434	4%	875	0%
1639_27048	6483	6%	7113	5%	5330	6%
1639_1640	7406	6%	7974	6%	5386	6%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1640_1662	1250	4%	1182	5%	549	0%
1640_1725	6157	7%	6791	6%	4837	6%
1659_1802	976	0%	1206	0%	0	-
1659_1841	125	1%	141	1%	86	1%
1662_1933	903	6%	863	7%	189	1%
1662_2107	353	2%	326	2%	366	2%
1681_1791	2940	8%	2428	9%	2629	8%
1724_1904	2259	1%	3215	3%	3180	3%
1725_2061	108	6%	95	7%	0	-
1725_1801	6055	7%	6703	6%	4641	6%
1787_2023	2856	10%	2901	14%	3017	13%
1791_1799	5	0%	0	-	27	0%
1791_1854	2946	8%	2428	9%	2601	8%
1799_1801	0	-	0	-	5	0%
1799_1815	5	0%	0	-	22	0%
1801_1815	6055	7%	6703	6%	4635	6%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1807_27045	19498	11%	21610	11%	0	-
1821_1807	747	3%	814	4%	1266	2%
1815_1854	6060	7%	6703	6%	4614	6%
1841_1937	20061	11%	22181	10%	0	-
1841_27045	20077	11%	22173	10%	0	-
1854_1858	9006	7%	9131	7%	7215	7%
1858_1918	7670	8%	8243	7%	6140	8%
1858_1985	1337	2%	888	3%	0	-
1904_27055	2773	2%	3707	2%	3767	2%
1920_1918	3920	11%	4584	8%	3523	8%
1941_1920	4394	13%	4584	8%	3523	8%
1920_1922	474	32%	0	-	0	-
1918_1922	3750	5%	3659	5%	2617	7%
1927_1934	4495	3%	3837	2%	3784	2%
1927_27055	5304	2%	3837	2%	3784	2%
1927_1931	810	0%	0	-	0	-

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1931_1934	3644	7%	0	-	0	-
1943_1933	0	-	4122	4%	154	1%
1934_1944	8139	5%	3837	2%	3784	2%
1937_1943	19670	11%	21832	10%	694	5%
1933_1937	0	-	7557	6%	35	1%
3406_1938	4454	6%	0	-	0	-
1943_2040	19195	11%	21343	10%	548	6%
1944_1954	6654	6%	3840	2%	3787	2%
1954_1956	6651	6%	3837	2%	3784	2%
1954_1955	0	-	0	-	0	-
1944_1955	1491	1%	0	-	0	-
1956_1962	5667	6%	3837	2%	3784	2%
1960_1956	985	5%	0	-	0	-
1955_1959	1488	1%	0	-	0	-
1945_1959	5168	9%	0	-	0	-
1959_1960	6653	7%	0	-	0	-

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1962_2213	11378	7%	0	-	0	-
1960_1962	5668	8%	0	-	0	-
1985_1990	20935	10%	22790	10%	0	-
1990_2059	19971	11%	22245	10%	0	-
1990_2185	2392	3%	1936	4%	0	-
2023_2183	2458	10%	1437	12%	1357	12%
2040_2107	19506	11%	21726	10%	889	5%
2040_2417	348	8%	408	6%	349	3%
2059_2344	389	1%	235	3%	140	1%
2059_2061	20290	11%	22481	10%	140	1%
2061_27047	20288	11%	22503	10%	0	-
2076_2313	688	1%	637	1%	748	1%
2076_27047	20703	11%	22775	10%	0	-
2076_2099	20688	11%	22773	10%	2426	4%
2117_2099	1574	2%	1534	2%	1319	3%
2099_2100	19990	11%	22149	10%	1663	4%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
2100_2107	19853	11%	22045	10%	1242	4%
2117_2353	2732	2%	2657	2%	2246	2%
2100_2117	1157	2%	1122	2%	927	2%
2183_2213	10495	9%	8587	8%	8314	8%
2185_27054	1999	1%	2098	1%	2050	1%
2185_2413	2548	2%	2154	3%	3710	2%
2213_2251	20074	7%	17357	7%	18875	7%
2251_2272	3693	13%	2753	5%	2696	5%
2251_24021	16467	6%	17059	7%	18596	6%
2272_2289	3650	12%	2302	4%	2244	4%
2289_2400	12996	8%	11938	8%	11284	8%
2289_24032	9222	5%	10793	6%	10167	7%
2301_2292	11592	8%	11580	8%	11620	9%
2292_35011	22306	7%	22795	6%	11226	5%
2292_2297	10714	5%	11215	5%	11226	5%
2301_2297	5495	0%	6021	0%	6520	0%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
2297_2299	16207	3%	17232	3%	17742	3%
2305_2301	17087	6%	17601	5%	18140	6%
2303_24021	28756	4%	29652	4%	14334	0%
2299_2303	13016	0%	13775	0%	14320	0%
2299_2304	3191	17%	3457	16%	3422	16%
2303_2304	15680	6%	15788	6%	16064	6%
2304_2305	18870	8%	19241	8%	0	-
2305_2324	17994	9%	19559	8%	9573	6%
2319_2313	527	0%	502	0%	547	0%
2324_2352	8490	11%	8965	11%	4510	10%
2324_24112	9559	7%	10649	6%	11093	6%
2344_2350	2	1%	1	17%	0	0%
2352_2389	2130	24%	2346	23%	2651	21%
2353_2451	3052	2%	2925	2%	2500	2%
2361_27054	1361	0%	437	2%	337	3%
2403_2397	1387	4%	3212	3%	4121	3%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
2400_2397	5853	11%	5499	11%	5151	12%
2397_2398	7178	9%	6496	9%	7164	8%
2403_2400	7143	6%	6439	5%	6134	5%
2401_2413	5719	4%	5538	4%	6761	3%
2398_2401	2693	4%	2388	4%	3218	3%
2405_2403	8468	5%	9589	4%	10193	4%
2398_2404	4486	12%	4876	11%	4697	12%
2401_2404	3026	4%	3150	4%	3543	4%
2409_2405	3974	4%	4361	3%	4133	4%
2415_2405	4556	7%	5290	5%	6122	5%
2404_2406	7512	9%	8026	9%	8240	8%
2410_2409	7198	9%	7810	9%	0	-
27132_2410	2143	4%	2223	4%	2235	4%
2406_2410	5056	12%	5587	11%	5930	10%
2413_27025	3323	5%	3464	5%	3133	5%
2415_2524	7842	12%	8801	10%	10216	9%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
2409_2415	3286	19%	3511	17%	4094	15%
2417_2446	5119	6%	5926	6%	4109	4%
2446_2451	7123	5%	7899	5%	5936	4%
2446_2623	2396	3%	2431	3%	2328	3%
2451_27050	870	1%	821	1%	849	1%
2451_27017	5264	6%	6163	6%	3891	5%
2476_27052	3660	5%	3874	5%	3546	5%
2494_2656	775	1%	487	2%	380	1%
2530_2524	4494	6%	5228	4%	6060	3%
2527_2526	5343	14%	5654	14%	6363	12%
2530_2527	2119	12%	2204	11%	2330	10%
2524_2527	3224	16%	3449	15%	4033	13%
2532_2530	6613	8%	7433	6%	8390	5%
27130_2531	1986	4%	1995	4%	1996	4%
2526_2531	3225	16%	3451	15%	4034	13%
2537_2532	6613	8%	7433	6%	8390	5%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
2531_2534	5211	12%	5446	11%	6029	10%
2534_2536	0	-	0	-	0	-
2539_2536	6613	8%	7433	6%	8390	5%
2536_2537	6613	8%	7433	6%	8390	5%
2534_2539	5211	12%	5446	11%	0	-
2539_2760	11947	11%	13001	9%	14543	8%
2570_27052	4809	3%	5039	4%	4736	4%
2570_2607	7023	6%	7716	6%	5331	5%
2570_2654	4068	6%	4546	6%	2519	4%
2607_2634	6522	6%	7407	6%	5038	5%
2607_2678	501	0%	309	1%	293	1%
2622_2846	8733	13%	9977	12%	9365	12%
2622_2826	8142	14%	9333	12%	8694	13%
2622_2623	592	1%	643	1%	671	1%
2633_27017	6367	6%	7355	6%	5074	5%
2633_2640	1889	5%	2539	4%	2148	5%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
2633_2634	4478	6%	4816	6%	2926	5%
2634_2640	2044	6%	2591	5%	2111	6%
2640_2671	3933	6%	4586	5%	4259	5%
2654_2918	91	23%	60	34%	61	33%
2654_2656	4139	6%	4586	6%	2560	4%
2656_2760	4773	5%	4993	5%	2858	4%
2671_2713	3477	6%	3802	6%	3575	6%
2671_2684	456	0%	784	0%	684	0%
2713_2799	2180	6%	2470	5%	2263	5%
2760_27024	16596	8%	17871	7%	17279	7%
2803_2799	1356	5%	1502	5%	1380	5%
2799_2800	818	6%	963	5%	877	5%
2800_2802	4433	10%	5107	9%	4806	9%
2809_2803	4970	9%	5646	9%	5309	9%
2802_2806	4433	10%	5107	9%	4806	9%
2806_2832	9803	11%	11010	11%	10334	11%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
2822_2808	676	1%	689	1%	685	1%
2808_27050	1478	1%	1514	1%	1480	1%
2812_2809	1356	5%	1502	5%	1380	5%
2819_2809	3614	11%	4144	10%	3929	10%
2806_2810	5358	12%	5890	12%	5516	12%
2810_2812	5358	12%	5890	12%	5516	12%
2814_2817	11639	8%	12690	7%	12047	6%
2814_2830	11639	8%	12690	7%	12047	6%
2812_2819	4002	15%	4389	14%	4135	14%
2819_2902	7616	13%	8533	12%	8064	12%
2808_2821	803	1%	825	1%	794	1%
2825_27024	16596	8%	17871	7%	17279	7%
2825_2833	16016	5%	17514	5%	17353	5%
2830_2825	5248	15%	5680	13%	5261	11%
2833_2830	6514	4%	7133	4%	6909	4%
2833_2875	17392	5%	19230	5%	19225	5%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
2844_2837	1275	1%	1304	1%	1301	1%
2838_2844	678	1%	708	1%	704	1%
2844_27051	1953	1%	2012	1%	2004	1%
2875_2881	11175	7%	12564	7%	12509	6%
2875_2931	7294	4%	7659	3%	7694	3%
2881_2930	7893	7%	8809	6%	8802	6%
1931_3406	4454	6%	0	-	0	-
23992_35011	19010	7%	19382	7%	19346	8%
23992_24085	12694	7%	12353	7%	12210	8%
23992_35023	4245	15%	5155	12%	5198	12%
24021_35009	16364	4%	18500	5%	17997	6%
24033_24032	4396	7%	5054	11%	4714	11%
24034_24033	4396	7%	5054	11%	4714	11%
24037_24034	0	-	0	-	0	-
24035_24034	4396	7%	5054	11%	4714	11%
24037_24035	4826	4%	5739	3%	5453	3%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
24035_24050	9222	5%	10793	6%	10167	7%
24032_24036	4826	4%	5739	3%	5453	3%
24033_24036	0	-	0	-	0	-
24036_24037	4826	4%	5739	3%	5453	3%
24041_35009	9222	5%	10793	6%	10167	7%
24049_24041	4826	4%	5739	3%	5453	3%
24049_24044	0	-	0	-	0	-
24041_24044	4397	7%	5054	11%	4714	11%
24044_24046	4396	7%	5054	11%	4714	11%
24051_24049	4826	4%	5739	3%	5453	3%
24046_24050	4396	7%	5054	11%	4714	11%
24050_24051	4826	4%	5739	3%	5453	3%
24046_24051	0	-	0	-	0	-
24083_24079	6662	3%	6782	3%	6648	3%
24080_24082	6662	3%	6782	3%	6648	3%
24079_24080	6662	3%	6782	3%	6648	3%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
24082_24084	6662	3%	6782	3%	6648	3%
24080_24083	0	-	0	-	0	-
24084_24086	6662	3%	6782	3%	6648	3%
24085_24086	6662	3%	6782	3%	6648	3%
24085_24088	7621	13%	7457	14%	7406	15%
24086_24088	0	-	0	-	0	-
35000_24094	7621	13%	7457	14%	7406	15%
27048_27107	1570	1%	1582	1%	1581	1%
27054_27113	2084	0%	2105	0%	2123	0%
2526_27130	2118	12%	2203	11%	2329	10%
2406_27132	2456	3%	2439	4%	0	-
24088_35000	7621	13%	7457	14%	7406	15%
35009_35010	11714	9%	12408	8%	12406	8%
35032_35033	1499	13%	1570	14%	1633	16%
24155_24101	16059	10%	18648	10%	19813	10%
24094_24151	16815	11%	19405	10%	20488	11%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
24101_23907	9398	16%	11867	14%	13165	14%
23909_24094	9195	9%	11950	8%	13084	8%
24101_24083	6662	3%	6782	3%	6648	3%
23907_23848	9398	16%	11867	14%	13165	14%
23849_23909	9195	9%	11950	8%	13084	8%
23848_1938	9398	16%	0	-	0	-
1945_23849	9195	9%	0	-	0	-
1938_1941	13851	13%	15187	11%	18097	10%
1941_1951	9460	13%	10603	12%	14575	11%
1952_1945	14362	9%	14958	8%	17514	8%
1951_1952	10135	10%	11299	9%	0	-
1922_1952	4227	8%	3662	5%	2620	7%
1951_1985	19599	11%	21902	10%	14575	11%
1659_27166	0	-	0	-	1247	0%
1725_40009	0	-	0	-	22	0%
1787_29024	0	-	4071	10%	5035	8%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
27045_1802	0	-	0	-	14973	10%
1841_29122	0	-	0	-	86	1%
1858_35147	0	-	0	-	1075	3%
1904_29024	0	-	2949	4%	3015	4%
1937_29120	0	-	0	-	729	5%
29027_1938	0	-	15187	11%	18097	10%
35146_1952	0	-	4122	4%	14898	8%
1962_29023	0	-	3837	2%	3784	2%
1985_35147	0	-	0	-	1832	2%
40013_1990	0	-	7457	14%	15907	8%
1990_27148	0	-	10368	6%	1470	1%
2061_40010	0	-	0	-	2635	4%
2061_2076	0	-	12408	8%	2512	4%
2185_27148	0	-	13598	5%	3675	2%
2213_29023	0	-	9049	6%	10781	6%
29020_2398	0	-	768	7%	752	7%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
29030_23849	0	-	11950	8%	13084	8%
40017_27045	0	-	0	-	14973	10%
27148_27149	0	-	1881	8%	2511	3%
27149_35147	0	-	0	-	2511	3%
35152_27160	0	-	984	6%	14973	10%
27164_27162	0	-	2702	10%	14554	8%
27162_27163	0	-	1048	2%	14554	8%
1807_27164	0	-	4470	8%	14554	8%
27165_29120	0	-	3865	5%	729	5%
27166_29122	0	-	0	-	1877	1%
40014_27169	0	-	984	16%	14554	8%
2397_29020	0	-	2153	2%	2047	2%
29020_29021	0	-	2921	3%	2799	4%
29022_29023	0	-	3102	3%	3049	3%
29023_29025	0	-	8312	7%	10045	6%
29024_29026	0	-	6221	8%	7262	7%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
29025_29026	0	-	7517	6%	9009	5%
29028_29025	0	-	5164	6%	6487	6%
29029_29026	0	-	1738	22%	1716	21%
29026_29027	0	-	5058	6%	6649	5%
29029_29027	0	-	10129	13%	11449	13%
1945_29028	0	-	14958	8%	17514	8%
23848_29029	0	-	11867	14%	13165	14%
29028_29030	0	-	9794	10%	11029	9%
29025_29030	0	-	2156	3%	2056	1%
27160_29104	0	-	2553	4%	14973	10%
1990_35146	0	-	0	-	14898	8%
40011_35152	0	-	0	-	15814	10%
35152_40009	0	-	0	-	1315	4%
27169_35153	0	-	0	-	14554	8%
35153_40010	0	-	0	-	1813	3%
40009_40010	0	-	0	-	1867	2%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
1985_40011	0	-	0	-	15814	10%
35153_40012	0	-	0	-	15907	8%
40012_40013	0	-	0	-	15907	8%
40019_40014	0	-	6885	14%	14554	8%
29104_40015	0	-	0	-	14973	10%
27163_40016	0	-	2902	2%	14554	8%
40018_40017	0	-	0	-	14973	10%
40015_40018	0	-	0	-	14973	10%
40016_40019	0	-	6017	4%	14554	8%
7330_24214	14744	7%	16674	7%	17448	7%
7332_7330	18503	7%	21496	7%	22221	6%
24151_24168	16829	11%	19449	10%	20533	11%
24151_24173	0	-	0	-	0	0%
24157_24155	3960	32%	3747	38%	3892	37%
24166_24155	12100	3%	14902	3%	15921	4%
24166_24168	3258	16%	3489	18%	3852	21%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
24168_24180	16870	9%	19287	8%	20064	8%
24176_24180	12	0%	67	0%	67	0%
24180_24199	16882	9%	19354	8%	20130	8%
24184_24166	11660	0%	14362	0%	15186	0%
24190_35028	15295	7%	17601	7%	18442	7%
24195_24190	15295	7%	17601	7%	18442	7%
24199_24201	16882	9%	19354	8%	20130	8%
24201_24215	16882	9%	19354	8%	20130	8%
24202_24195	550	9%	927	7%	994	6%
24202_24210	0	-	0	-	0	-
24207_35027	1126	6%	1980	4%	2127	4%
24209_24204	0	-	0	-	0	-
24209_24207	576	4%	1053	2%	1133	2%
24210_24209	576	4%	1053	2%	1133	2%
24214_24195	14744	7%	16674	7%	17448	7%
24214_24210	576	4%	1053	2%	1133	2%

Link ID	Base 2015		Do-Minimum 2023		Do-Something Scheme Scenario 2023	
	AADT	HDV	AADT	HDV	AADT	HDV
24215_24282	16306	9%	18301	9%	18997	9%
24333_35027	2939	10%	4560	7%	4686	7%
35022_35023	1854	19%	2431	15%	2508	15%
35023_35025	1871	12%	1891	9%	1879	10%
35025_35029	4410	8%	4848	9%	5169	8%
35026_35034	5687	7%	7022	6%	6991	6%
35026_35035	3875	5%	4443	5%	4431	5%
35026_35027	1813	12%	2580	9%	2560	10%
35028_35029	3635	29%	3239	37%	3258	37%
35028_24184	11660	0%	14362	0%	15186	0%
35029_35030	6825	20%	6825	23%	7179	22%
35031_35032	1499	13%	1570	14%	1633	16%
1805_1821	1057	4%	1109	6%	910	1%
1787_1904	977	4%	0	-	0	-

Appendix C

OPERATIONAL IMPACTS – HUMAN RECEPTORS

OPERATIONAL IMPACTS – HUMAN RECEPTORS

Table C-1 - Annual Mean NO_2 Concentrations (µg/m^3)

Receptor	Verification Factor Group*	Baseline 2015	Do-Minimum 2023	Do-Something Scheme 2023	Change with Do-Something Scheme
R001	3	7.48	5.7	6.2	0.5
R002	3	10.51	8.2	8.7	0.5
R003	3	17.63	14.3	15.7	1.4
R004	3	16.03	13.0	14.2	1.2
R005	3	7.74	6.0	6.3	0.4
R006	3	11.55	9.1	10.2	1.1
R007	3	7.06	5.4	5.8	0.4
R008	3	13.86	10.9	10.6	-0.4
R009	3	23.85	19.0	22.4	3.3
R010	3	10.73	8.4	8.6	0.2
R011	3	8.16	6.4	6.5	0.1
R012	3	13.65	11.8	12.7	0.9
R013	3	14.77	11.6	6.4	-5.1
R014	3	12.32	9.7	10.0	0.2
R015	3	8.56	6.7	7.1	0.3
R016	3	7.32	5.6	6.5	0.9
R017	3	12.46	9.8	8.5	-1.3
R018	3	8.60	6.7	6.4	-0.4

Receptor	Verification Factor Group*	Baseline 2015	Do-Minimum 2023	Do-Something Scheme 2023	Change with Do-Something Scheme
R019	2	19.14	15.2	8.3	-6.9
R020	3	6.01	4.5	5.3	0.8
R021	3	6.23	4.7	5.0	0.3
R022	3	26.81	21.5	8.7	-12.7
R023	3	13.01	10.0	8.2	-1.8
R024	3	7.91	6.1	5.4	-0.6
R025	1	33.02	21.8	22.8	1.0

Table C-2 - Annual Mean PM_{10} Concentrations ($\mu g/m^3$)

Receptor	Baseline 2015	Do-Minimum 2023	Do-Something Scheme 2023	Change with Do-Something Scheme
R001	10.2	9.8	10.4	0.5
R002	10.9	10.4	10.9	0.4
R003	11.7	11.2	11.6	0.5
R004	10.6	10.1	10.4	0.3
R005	10.1	9.7	9.8	0.1
R006	11.8	11.3	11.6	0.2
R007	10.8	10.4	10.5	0.1
R008	11.1	10.6	10.6	0.0
R009	12.4	11.6	12.1	0.5
R010	11.1	10.7	10.7	0.1

Receptor	Baseline 2015	Do-Minimum 2023	Do-Something Scheme 2023	Change with Do-Something Scheme
R011	9.3	8.9	8.9	0.1
R012	10.3	9.9	10.1	0.2
R013	11.7	11.2	10.4	-0.8
R014	11.6	11.2	11.2	0.1
R015	10.9	10.6	10.8	0.2
R016	8.2	7.8	8.0	0.2
R017	10.2	9.7	9.5	-0.2
R018	9.8	9.4	9.4	0.0
R019	12.0	11.4	10.4	-1.0
R020	10.5	10.1	10.3	0.2
R021	10.5	10.1	10.2	0.1
R022	13.3	12.6	10.7	-1.9
R023	11.0	10.4	10.2	-0.2
R024	9.6	9.3	9.3	0.0
R025	23.6	17.4	18.8	1.4

Table C-3 - 24-hour Mean PM_{10} Concentrations (number of days exceeding 50 µg/m^3)

Receptor	Baseline 2015	Do-Minimum 2023	Scheme 2023	Change with Do-Something Scheme
R001	< 1	< 1	< 1	-
R002	< 1	< 1	< 1	-
R003	< 1	< 1	< 1	-

Receptor	Baseline 2015	Do-Minimum 2023	Scheme 2023	Change with Do-Something Scheme
R004	< 1	< 1	< 1	-
R005	< 1	< 1	< 1	-
R006	< 1	< 1	< 1	-
R007	< 1	< 1	< 1	-
R008	< 1	< 1	< 1	-
R009	< 1	< 1	< 1	-
R010	< 1	< 1	< 1	-
R011	< 1	< 1	< 1	-
R012	< 1	< 1	< 1	-
R013	< 1	< 1	< 1	-
R014	< 1	< 1	< 1	-
R015	< 1	< 1	< 1	-
R016	< 1	< 1	< 1	-
R017	< 1	< 1	< 1	-
R018	< 1	< 1	< 1	-
R019	< 1	< 1	< 1	-
R020	< 1	< 1	< 1	-
R021	< 1	< 1	< 1	-
R022	< 1	< 1	< 1	-
R023	< 1	< 1	< 1	-

Receptor	Baseline 2015	Do-Minimum 2023	Scheme 2023	Change with Do-Something Scheme
R024	< 1	< 1	< 1	-
R025	9	1	2	1

Appendix D

OPERATIONAL IMPACTS – ECOLOGICAL RECEPTORS

OPERATIONAL IMPACTS – ECOLOGICAL RECEPTORS

Table D-1 - Annual Mean NO_x concentrations (µg/m^3)

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco5_AW_0	0	17.0	11.0	11.5
Eco5_AW_5	5	16.3	10.7	11.0
Eco5_AW_10	10	15.8	10.3	10.7
Eco5_AW_15	15	15.4	10.1	10.4
Eco5_AW_20	20	15.0	9.9	10.2
Eco5_AW_25	25	14.7	9.7	10.0
Eco5_AW_30	30	14.5	9.6	9.8
Eco5_AW_35	35	14.3	9.5	9.7
Eco5_AW_40	40	14.2	9.4	9.6
Eco5_AW_45	45	14.0	9.3	9.5
Eco5_AW_50	50	13.9	9.2	9.4
Eco5_AW_60	60	13.7	9.1	9.3
Eco5_AW_70	70	13.6	9.0	9.2
Eco5_AW_80	80	13.5	8.9	9.1
Eco5_AW_90	90	13.4	8.9	9.1
Eco5_AW_100	100	13.3	8.9	9.0
Eco5_AW_110	110	13.2	8.8	9.0
Eco5_AW_120	120	13.2	8.8	9.0
Eco5_AW_130	130	13.2	8.8	8.9
Eco5_AW_140	140	13.1	8.7	8.9

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco5_AW_150	150	13.1	8.7	8.9
Eco5_AW_160	160	13.1	8.7	8.9
Eco5_AW_170	170	13.1	8.7	8.9
Eco5_AW_180	180	13.1	8.7	8.9
Eco4_AW_0	0	14.1	9.3	9.6
Eco4_AW_5	5	14.0	9.3	9.5
Eco4_AW_10	10	13.9	9.2	9.5
Eco4_AW_15	15	13.9	9.2	9.4
Eco4_AW_20	20	13.8	9.2	9.4
Eco4_AW_25	25	13.7	9.1	9.3
Eco4_AW_30	30	13.7	9.1	9.3
Eco4_AW_35	35	13.6	9.0	9.3
Eco4_AW_40	40	13.5	9.0	9.2
Eco4_AW_45	45	13.5	9.0	9.2
Eco4_AW_50	50	13.4	8.9	9.2
Eco4_AW_60	60	13.3	8.9	9.1
Eco4_AW_70	70	13.3	8.8	9.1
Eco1W_SSSI_0	0	45.9	33.4	31.9
Eco1W_SSSI_5	5	32.1	23.1	23.3
Eco1W_SSSI_10	10	25.5	18.3	19
Eco1W_SSSI_15	15	21.7	15.5	16.4
Eco1W_SSSI_20	20	19.2	13.6	14.6

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco1W_SSSI_25	25	17.4	12.3	13.3
Eco1W_SSSI_30	30	16.1	11.3	12.3
Eco1W_SSSI_35	35	15	10.5	11.5
Eco1W_SSSI_40	40	14.2	9.9	10.8
Eco1W_SSSI_45	45	13.5	9.5	10.3
Eco1W_SSSI_50	50	13	9	9.9
Eco1W_SSSI_60	60	12.1	8.4	9.1
Eco1W_SSSI_70	70	11.5	7.9	8.6
Eco1W_SSSI_80	80	11	7.6	8.2
Eco1W_SSSI_90	90	10.6	7.3	7.9
Eco1W_SSSI_100	100	10.2	7	7.6
Eco1W_SSSI_110	110	10	6.8	7.3
Eco1W_SSSI_120	120	9.7	6.7	7.1
Eco1W_SSSI_130	130	9.6	6.5	7
Eco1W_SSSI_140	140	9.4	6.4	6.8
Eco1W_SSSI_150	150	9.2	6.3	6.7
Eco1W_SSSI_160	160	9.1	6.2	6.6
Eco1W_SSSI_170	170	9	6.1	6.5
Eco1W_SSSI_180	180	8.9	6	6.4
Eco1W_SSSI_190	190	8.8	6	6.3
Eco1W_SSSI_200	200	8.7	5.9	6.2
Eco1E_SSSI_0	0	30.7	22.1	49.7

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco1E_SSSI_5	5	27.2	19.5	36.1
Eco1E_SSSI_10	10	24.5	17.5	29.1
Eco1E_SSSI_15	15	22.5	16	24.7
Eco1E_SSSI_20	20	20.8	14.8	21.8
Eco1E_SSSI_25	25	19.5	13.8	19.6
Eco1E_SSSI_30	30	18.4	13	18
Eco1E_SSSI_35	35	17.5	12.4	16.7
Eco1E_SSSI_40	40	16.8	11.8	15.6
Eco1E_SSSI_45	45	16.1	11.3	14.7
Eco1E_SSSI_50	50	15.5	10.9	14
Eco1E_SSSI_60	60	14.6	10.2	12.7
Eco1E_SSSI_70	70	13.8	9.7	11.8
Eco1E_SSSI_80	80	13.2	9.2	11.1
Eco1E_SSSI_90	90	12.7	8.8	10.5
Eco1E_SSSI_100	100	12.3	8.5	10
Eco1E_SSSI_110	110	11.9	8.3	9.6
Eco1E_SSSI_120	120	11.6	8	9.3
Eco1E_SSSI_130	130	11.3	7.8	9
Eco1E_SSSI_140	140	11.1	7.7	8.7
Eco1E_SSSI_150	150	10.9	7.5	8.5
Eco1E_SSSI_160	160	10.7	7.3	8.3
Eco1E_SSSI_170	170	10.5	7.2	8.1

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco1E_SSSI_180	180	10.3	7.1	7.9
Eco1E_SSSI_190	190	10.2	7	7.8
Eco1E_SSSI_200	200	10.1	6.9	7.7
Eco8_AW_0	0	127.6	95.7	99.5
Eco8_AW_5	5	83.4	62.1	64.5
Eco8_AW_10	10	64.3	47.6	49.4
Eco8_AW_15	15	53.4	39.4	40.8
Eco8_AW_20	20	46.4	34.0	35.2
Eco8_AW_25	25	41.4	30.2	31.2
Eco8_AW_30	30	37.7	27.4	28.3
Eco8_AW_35	35	34.8	25.2	26.0
Eco8_AW_40	40	32.5	23.5	24.2
Eco8_AW_45	45	30.5	22.0	22.6
Eco8_AW_50	50	28.9	20.8	21.4
Eco8_AW_60	60	26.4	18.9	19.4
Eco8_AW_70	70	24.5	17.5	17.9
Eco8_AW_80	80	23.1	16.4	16.8
Eco8_AW_90	90	21.9	15.5	15.8
Eco8_AW_100	100	20.9	14.7	15.1
Eco8_AW_110	110	20.1	14.1	14.5
Eco8_AW_120	120	19.4	13.6	13.9
Eco8_AW_130	130	18.9	13.2	13.5

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco8_AW_140	140	18.3	12.8	13.1
Eco8_AW_150	150	17.9	12.5	12.7
Eco8_AW_160	160	17.5	12.2	12.4
Eco8_AW_170	170	17.1	11.9	12.1
Eco8_AW_180	180	16.8	11.7	11.9
Eco8_AW_190	190	16.5	11.5	11.7
Eco8_AW_200	200	16.3	11.3	11.5
Eco3_AW_0	0	15.3	10.5	10.8
Eco3_AW_5	5	14.8	10.1	10.5
Eco3_AW_10	10	14.5	9.9	10.2
Eco3_AW_15	15	14.1	9.6	10.0
Eco3_AW_20	20	13.9	9.4	9.7
Eco3_AW_25	25	13.6	9.3	9.6
Eco3_AW_30	30	13.4	9.1	9.4
Eco3_AW_35	35	13.2	9.0	9.3
Eco3_AW_40	40	13.1	8.9	9.1
Eco3_AW_45	45	12.9	8.8	9.0
Eco3_AW_50	50	12.8	8.7	8.9
Eco3_AW_60	60	12.6	8.5	8.7
Eco3_AW_70	70	12.4	8.4	8.6
Eco3_AW_80	80	12.2	8.3	8.5
Eco3_AW_90	90	12.1	8.2	8.4

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco3_AW_100	100	12.0	8.1	8.3
Eco3_AW_110	110	11.8	8.0	8.2
Eco3_AW_120	120	11.8	7.9	8.1
Eco3_AW_130	130	11.7	7.9	8.1
Eco3_AW_140	140	11.6	7.8	8.0
Eco3_AW_150	150	11.5	7.8	7.9
Eco6_AW_0	0	12.6	9.0	9.3
Eco7E_AW_0	0	79.1	65.4	71.3
Eco7E_AW_5	5	52.9	43.0	46.6
Eco7E_AW_10	10	41.6	33.3	36.0
Eco7E_AW_15	15	35.0	27.7	29.9
Eco7E_AW_20	20	30.7	24.1	25.9
Eco7E_AW_25	25	27.7	21.6	23.1
Eco7E_AW_30	30	25.5	19.6	21.0
Eco7E_AW_35	35	23.7	18.1	19.3
Eco7E_AW_40	40	22.3	16.9	18.0
Eco7E_AW_45	45	21.1	16.0	16.9
Eco7E_AW_50	50	20.1	15.2	16.1
Eco7E_AW_60	60	18.6	13.9	14.7
Eco7E_AW_70	70	17.4	12.9	13.6
Eco7E_AW_80	80	16.5	12.2	12.8
Eco7E_AW_90	90	15.8	11.6	12.1

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco7E_AW_100	100	15.2	11.1	11.6
Eco7E_AW_110	110	14.8	10.7	11.2
Eco7E_AW_120	120	14.3	10.4	10.8
Eco7E_AW_130	130	14.0	10.1	10.5
Eco7E_AW_140	140	13.7	9.8	10.2
Eco7E_AW_150	150	13.4	9.6	10.0
Eco7E_AW_160	160	13.2	9.4	9.8
Eco7E_AW_170	170	13.0	9.2	9.6
Eco7E_AW_180	180	12.8	9.1	9.4
Eco7E_AW_190	190	12.6	8.9	9.3
Eco7E_AW_200	200	12.5	8.8	9.1
Eco7W_AW_0	0	53.1	42.7	46.5
Eco7W_AW_5	5	33.6	26.4	28.4
Eco7W_AW_10	10	26.5	20.5	21.9
Eco7W_AW_15	15	22.7	17.3	18.4
Eco7W_AW_20	20	20.2	15.2	16.1
Eco7W_AW_25	25	18.5	13.8	14.6
Eco7W_AW_30	30	17.2	12.7	13.4
Eco7W_AW_35	35	16.2	11.9	12.5
Eco7W_AW_40	40	15.4	11.3	11.8
Eco7W_AW_45	45	14.8	10.8	11.2
Eco7W_AW_50	50	14.3	10.3	10.8

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco7W_AW_60	60	13.4	9.6	10.0
Eco7W_AW_70	70	12.8	9.1	9.5
Eco7W_AW_80	80	12.3	8.7	9.0
Eco7W_AW_90	90	11.9	8.4	8.7
Eco7W_AW_100	100	11.6	8.2	8.4
Eco7W_AW_110	110	11.3	8.0	8.2
Eco7W_AW_120	120	11.1	7.8	8.0
Eco7W_AW_130	130	10.9	7.6	7.8
Eco7W_AW_140	140	10.8	7.5	7.7
Eco7W_AW_150	150	10.6	7.4	7.6
Eco7W_AW_160	160	10.5	7.3	7.5
Eco7W_AW_170	170	10.4	7.2	7.4
Eco7W_AW_180	180	10.3	7.1	7.3
Eco7W_AW_190	190	10.2	7.0	7.2
Eco7W_AW_200	200	10.1	7.0	7.1
Eco2_SSSI_0	0	26.9	19.2	15.7
Eco2_SSSI_5	5	16.8	11.8	10.2
Eco2_SSSI_10	10	13.6	9.5	8.5
Eco2_SSSI_15	15	12.0	8.3	7.6
Eco2_SSSI_20	20	11.0	7.6	7.1
Eco2_SSSI_25	25	10.4	7.1	6.7
Eco2_SSSI_30	30	9.9	6.8	6.4

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco2_SSSI_35	35	9.6	6.5	6.2
Eco2_SSSI_40	40	9.3	6.3	6.1
Eco2_SSSI_45	45	9.1	6.2	6.0
Eco2_SSSI_50	50	8.9	6.0	5.9
Eco2_SSSI_60	60	8.6	5.8	5.7
Eco2_SSSI_70	70	8.4	5.7	5.6
Eco2_SSSI_80	80	8.3	5.6	5.5
Eco2_SSSI_90	90	8.2	5.5	5.5
Eco2_SSSI_100	100	8.1	5.4	5.4
Eco2_SSSI_110	110	8.0	5.4	5.4
Eco2_SSSI_120	120	7.9	5.3	5.3
Eco2_SSSI_130	130	7.9	5.3	5.3
Eco2_SSSI_140	140	7.8	5.3	5.3
Eco2_SSSI_150	150	7.8	5.2	5.2
Eco2_SSSI_160	160	7.7	5.2	5.2
Eco2_SSSI_170	170	7.7	5.2	5.2
Eco2_SSSI_180	180	7.7	5.2	5.2
Eco2_SSSI_190	190	7.6	5.1	5.2
Eco2_SSSI_200	200	7.6	5.1	5.1
Eco9E_SSSI_0	0	38.5	28.2	21.6
Eco9E_SSSI_5	5	24.5	17.7	14.2
Eco9E_SSSI_10	10	19.0	13.6	11.2

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco9E_SSSI_15	15	16.1	11.4	9.7
Eco9E_SSSI_20	20	14.3	10.1	8.7
Eco9E_SSSI_25	25	13.1	9.2	8.1
Eco9E_SSSI_30	30	12.2	8.5	7.6
Eco9E_SSSI_35	35	11.5	8.0	7.2
Eco9E_SSSI_40	40	11.0	7.6	6.9
Eco9E_SSSI_45	45	10.6	7.3	6.7
Eco9E_SSSI_50	50	10.2	7.1	6.5
Eco9E_SSSI_55	55	9.9	6.9	6.4
Eco9E_SSSI_60	60	9.7	6.7	6.2
Eco9E_SSSI_65	65	9.5	6.5	6.1
Eco9E_SSSI_70	70	9.3	6.4	6.0
Eco9E_SSSI_75	75	9.1	6.3	5.9
Eco9E_SSSI_80	80	9.0	6.2	5.8
Eco9E_SSSI_85	85	8.9	6.1	5.8
Eco9E_SSSI_90	90	8.8	6.0	5.7
Eco9E_SSSI_95	95	8.7	5.9	5.6
Eco9E_SSSI_100	100	8.6	5.9	5.6
Eco9E_SSSI_110	110	8.4	5.7	5.5
Eco9E_SSSI_120	120	8.4	5.7	5.5
Eco9E_SSSI_130	130	8.3	5.6	5.4
Eco9E_SSSI_140	140	8.2	5.6	5.4

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco9E_SSSI_150	150	8.1	5.5	5.3
Eco9E_SSSI_160	160	8.0	5.4	5.3
Eco9E_SSSI_170	170	7.9	5.4	5.3
Eco9E_SSSI_180	180	7.9	5.3	5.2
Eco9E_SSSI_190	190	7.8	5.3	5.2
Eco9W_SSSI_0	0	26.1	18.8	15.0
Eco9W_SSSI_5	5	16.3	11.5	9.8
Eco9W_SSSI_10	10	13.1	9.2	8.1
Eco9W_SSSI_15	15	11.5	8.0	7.2
Eco9W_SSSI_20	20	10.6	7.3	6.7
Eco9W_SSSI_25	25	9.9	6.8	6.3
Eco9W_SSSI_30	30	9.4	6.5	6.1
Eco9W_SSSI_35	35	9.1	6.2	5.9
Eco9W_SSSI_40	40	8.8	6.0	5.7
Eco9W_SSSI_45	45	8.6	5.9	5.6
Eco9W_SSSI_50	50	8.4	5.7	5.5
Eco9W_SSSI_55	55	8.3	5.6	5.4
Eco9W_SSSI_60	60	8.1	5.5	5.4
Eco9W_SSSI_65	65	8.0	5.5	5.3
Eco9W_SSSI_70	70	7.9	5.4	5.2
Eco9W_SSSI_75	75	7.9	5.3	5.2
Eco9W_SSSI_80	80	7.8	5.3	5.2

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco9W_SSSI_85	85	7.7	5.2	5.1
Eco9W_SSSI_90	90	7.7	5.2	5.1
Eco9W_SSSI_95	95	7.6	5.2	5.1
Eco10_0	0	39.7	28.9	21.9
Eco10_5	5	26.0	18.6	14.9
Eco10_10	10	21.0	14.8	12.3
Eco10_15	15	18.3	12.8	11.0
Eco10_20	20	16.7	11.6	10.1
Eco10_25	25	15.6	10.7	9.5
Eco10_30	30	14.8	10.1	9.1
Eco10_35	35	14.1	9.6	8.8
Eco10_40	40	13.6	9.2	8.5
Eco10_45	45	13.2	8.9	8.3
Eco10_50	50	12.8	8.6	8.1
Eco10_55	55	12.5	8.4	7.9
Eco10_60	60	12.3	8.2	7.8
Eco10_65	65	12.0	8.1	7.6
Eco10_70	70	11.8	7.9	7.5
Eco10_75	75	11.6	7.8	7.4
Eco10_80	80	11.5	7.7	7.3
Eco10_85	85	11.3	7.6	7.3
Eco10_90	90	11.2	7.5	7.2

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco10_95	95	11.1	7.4	7.1
Eco10_100	100	11.0	7.3	7.1
Eco10_110	110	10.8	7.2	7.0
Eco10_120	120	10.7	7.1	6.9
Eco10_130	130	10.6	7.0	6.9
Eco10_140	140	10.6	7.0	6.8
Eco10_150	150	10.6	7.0	6.9
Eco10_160	160	10.7	7.0	6.9
Eco10_170	170	10.9	7.1	7.0
Eco10_180	180	11.3	7.2	7.1
Eco10_190	190	11.2	7.1	7.0
Eco10_200	200	10.9	7.0	6.9
Eco11_0	0	12.4	8.7	7.7
Eco11_5	5	11.7	8.1	7.3
Eco11_10	10	11.1	7.7	7.0
Eco11_15	15	10.7	7.4	6.7
Eco11_20	20	10.3	7.1	6.5
Eco11_25	25	10.0	6.9	6.4
Eco11_30	30	9.8	6.7	6.2
Eco11_35	35	9.5	6.6	6.1
Eco11_40	40	9.4	6.4	6.0
Eco11_45	45	9.2	6.3	5.9

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco11_50	50	9.0	6.2	5.8
Eco11_55	55	8.9	6.1	5.8
Eco11_60	60	8.8	6.0	5.7
Eco11_65	65	8.7	5.9	5.7
Eco11_70	70	8.6	5.9	5.6
Eco11_75	75	8.5	5.8	5.6
Eco11_80	80	8.4	5.8	5.5
Eco11_85	85	8.4	5.7	5.5
Eco11_90	90	8.3	5.7	5.4
Eco11_95	95	8.2	5.6	5.4
Eco11_100	100	8.2	5.6	5.4
Eco11_110	110	8.1	5.5	5.3
Eco11_120	120	8.0	5.4	5.3
Eco11_130	130	7.9	5.4	5.2
Eco11_140	140	8.0	5.4	5.3
Eco11_150	150	7.9	5.4	5.2
Eco11_160	160	7.8	5.3	5.2
Eco11_170	170	7.8	5.3	5.2
Eco11_180	180	7.7	5.2	5.1
Eco11_190	190	7.7	5.2	5.1
Eco11_200	200	7.7	5.2	5.1
Eco12E_0	0	48.4	35.8	29.7

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco12E_5	5	30.2	22.0	19.0
Eco12E_10	10	23.2	16.8	14.8
Eco12E_15	15	19.5	14.0	12.6
Eco12E_20	20	17.2	12.3	11.2
Eco12E_25	25	15.7	11.1	10.3
Eco12E_30	30	14.6	10.3	9.6
Eco12E_35	35	13.8	9.7	9.1
Eco12E_40	40	13.2	9.2	8.8
Eco12E_45	45	12.7	8.9	8.4
Eco12E_50	50	12.3	8.5	8.2
Eco12E_55	55	11.9	8.3	8.0
Eco12E_60	60	11.6	8.1	7.8
Eco12E_65	65	11.4	7.9	7.7
Eco12E_70	70	11.2	7.7	7.5
Eco12E_75	75	11.0	7.6	7.4
Eco12E_80	80	10.8	7.5	7.3
Eco12E_85	85	10.7	7.4	7.2
Eco12E_90	90	10.5	7.3	7.1
Eco12E_95	95	10.4	7.2	7.1
Eco12E_100	100	10.3	7.1	7.0
Eco12E_110	110	10.1	7.0	6.9
Eco12E_120	120	10.0	6.8	6.8

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco12E_130	130	9.8	6.7	6.7
Eco12E_140	140	9.7	6.6	6.6
Eco12E_150	150	9.6	6.6	6.6
Eco12E_160	160	9.5	6.5	6.5
Eco12E_170	170	9.4	6.4	6.5
Eco12E_180	180	9.4	6.4	6.4
Eco12E_190	190	9.3	6.3	6.4
Eco12E_200	200	9.2	6.3	6.3
Eco12W_0	0	35.7	26.2	22.2
Eco12W_5	5	23.4	16.9	14.9
Eco12W_10	10	19.4	13.9	12.6
Eco12W_15	15	17.5	12.4	11.4
Eco12W_20	20	16.3	11.5	10.7
Eco12W_25	25	15.5	10.9	10.2
Eco12W_30	30	14.9	10.5	9.9
Eco12W_35	35	14.5	10.1	9.6
Eco12W_40	40	14.1	9.9	9.4
Eco12W_45	45	13.8	9.6	9.2
Eco12W_50	50	13.5	9.4	9.1
Eco12W_55	55	13.3	9.2	8.9
Eco12W_60	60	13.1	9.1	8.8
Eco12W_65	65	12.9	8.9	8.7

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco12W_70	70	12.7	8.8	8.6
Eco12W_75	75	12.5	8.7	8.5
Eco12W_80	80	12.3	8.5	8.3
Eco12W_85	85	12.1	8.4	8.2
Eco12W_90	90	11.9	8.2	8.1
Eco12W_95	95	11.7	8.1	8.0
Eco12W_100	100	11.5	8.0	7.9
Eco12W_110	110	11.2	7.7	7.6
Eco13	0	10.3	7.1	6.9
Eco14	0	7.1	4.8	4.8
Eco15	0	15.8	10.7	10.9
Eco16	0	13.4	9.4	9.0
Eco17W_0	0	46.4	34.8	38.4
Eco17W_5	5	26.4	19.4	21.4
Eco17W_10	10	19.9	14.5	15.8
Eco17W_15	15	16.6	11.9	13.0
Eco17W_20	20	14.5	10.4	11.3
Eco17W_25	25	13.1	9.3	10.1
Eco17W_30	30	12.2	8.6	9.3
Eco17W_35	35	11.4	8.0	8.7
Eco17W_40	40	10.9	7.6	8.2
Eco17W_45	45	10.4	7.3	7.8

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco17W_50	50	10.0	7.0	7.5
Eco17W_55	55	9.7	6.7	7.3
Eco17W_60	60	9.5	6.5	7.1
Eco17W_65	65	9.2	6.4	6.9
Eco17W_70	70	9.0	6.2	6.7
Eco17W_75	75	8.9	6.1	6.6
Eco17W_80	80	8.7	6.0	6.5
Eco17W_85	85	8.6	5.9	6.3
Eco17W_90	90	8.5	5.8	6.2
Eco17W_95	95	8.4	5.7	6.2
Eco17W_100	100	8.3	5.7	6.1
Eco17W_110	110	8.1	5.5	5.9
Eco17W_120	120	8.0	5.4	5.8
Eco17W_130	130	7.8	5.3	5.7
Eco17W_140	140	7.7	5.3	5.6
Eco17W_150	150	7.7	5.2	5.6
Eco17W_160	160	7.6	5.1	5.5
Eco17W_170	170	7.5	5.1	5.5
Eco17W_180	180	7.4	5.0	5.4
Eco17W_190	190	7.4	5.0	5.4
Eco17W_200	200	7.3	5.0	5.3
Eco18E_0	0	68.1	50.9	57.3

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco18E_5	5	43.3	32.1	36.0
Eco18E_10	10	33.7	24.7	27.7
Eco18E_15	15	28.3	20.7	23.1
Eco18E_20	20	24.8	18.0	20.0
Eco18E_25	25	22.3	16.2	17.9
Eco18E_30	30	20.5	14.8	16.3
Eco18E_35	35	19.1	13.7	15.1
Eco18E_40	40	17.9	12.8	14.1
Eco18E_45	45	17.0	12.1	13.3
Eco18E_50	50	16.2	11.5	12.7
Eco18E_55	55	15.6	11.0	12.1
Eco18E_60	60	15.0	10.6	11.6
Eco18E_65	65	14.5	10.3	11.2
Eco18E_70	70	14.1	9.9	10.8
Eco18E_75	75	13.7	9.6	10.5
Eco18E_80	80	13.4	9.4	10.2
Eco18E_85	85	13.1	9.2	10.0
Eco18E_90	90	12.8	9.0	9.7
Eco18E_95	95	12.5	8.8	9.5
Eco18E_100	100	12.3	8.6	9.3
Eco18E_110	110	11.9	8.3	9.0
Eco18E_120	120	11.6	8.1	8.7

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco18E_130	130	11.3	7.8	8.5
Eco18E_140	140	11.0	7.6	8.3
Eco18E_150	150	10.8	7.5	8.1
Eco18E_160	160	10.6	7.3	7.9
Eco18E_170	170	10.4	7.2	7.8
Eco18E_180	180	10.3	7.1	7.6
Eco18E_190	190	10.1	7.0	7.5
Eco18E_200	200	10.0	6.9	7.4
Eco18W_0	0	64.0	47.9	54.4
Eco18W_5	5	39.3	29.1	32.7
Eco18W_10	10	30.3	22.2	24.9
Eco18W_15	15	25.3	18.4	20.5
Eco18W_20	20	22.2	16.0	17.8
Eco18W_25	25	20.0	14.4	15.9
Eco18W_30	30	18.3	13.1	14.5
Eco18W_35	35	17.1	12.2	13.4
Eco18W_40	40	16.1	11.4	12.6
Eco18W_45	45	15.3	10.8	11.9
Eco18W_50	50	14.6	10.3	11.3
Eco18W_55	55	14.0	9.9	10.8
Eco18W_60	60	13.5	9.5	10.4
Eco18W_65	65	13.1	9.2	10.0

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco18W_70	70	12.7	8.9	9.7
Eco18W_75	75	12.4	8.7	9.4
Eco18W_80	80	12.1	8.5	9.2
Eco18W_85	85	11.9	8.3	9.0
Eco18W_90	90	11.7	8.1	8.8
Eco18W_95	95	11.4	8.0	8.6
Eco18W_100	100	11.3	7.8	8.4
Eco18W_110	110	10.9	7.6	8.2
Eco18W_120	120	10.7	7.4	7.9
Eco18W_130	130	10.4	7.2	7.7
Eco18W_140	140	10.2	7.0	7.6
Eco18W_150	150	10.0	6.9	7.4
Eco18W_160	160	9.9	6.8	7.3
Eco18W_170	170	9.7	6.7	7.2
Eco18W_180	180	9.6	6.6	7.1
Eco18W_190	190	9.5	6.5	7.0
Eco18W_200	200	9.4	6.4	6.9
Eco19_0	0	61.7	43.8	47.6
Eco19_5	5	35.2	24.8	26.6
Eco19_10	10	27.0	18.9	20.1
Eco19_15	15	22.8	15.8	16.8
Eco19_20	20	20.2	14.0	14.7

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco19_25	25	18.5	12.8	13.4
Eco19_30	30	17.2	11.9	12.4
Eco19_35	35	16.3	11.2	11.7
Eco19_40	40	15.6	10.7	11.1
Eco19_45	45	15.0	10.3	10.6
Eco19_50	50	14.5	9.9	10.3
Eco19_55	55	14.1	9.6	10.0
Eco19_60	60	13.8	9.4	9.7
Eco19_65	65	13.5	9.2	9.5
Eco19_70	70	13.2	9.0	9.3
Eco19_75	75	13.0	8.8	9.1
Eco19_80	80	12.8	8.7	8.9
Eco19_85	85	12.6	8.6	8.8
Eco19_90	90	12.5	8.5	8.7
Eco19_95	95	12.3	8.4	8.6
Eco19_100	100	12.2	8.3	8.5
Eco19_110	110	12.0	8.1	8.3
Eco19_120	120	11.8	8.0	8.2
Eco19_130	130	11.6	7.9	8.1
Eco19_140	140	11.5	7.8	7.9
Eco19_150	150	11.4	7.7	7.9
Eco19_160	160	11.3	7.6	7.8

Transect Receptor	Distance from Road Edge (m)	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023
Eco19_170	170	11.2	7.5	7.7
Eco19_180	180	11.1	7.5	7.6
Eco19_190	190	11.0	7.4	7.6
Eco19_200	200	10.9	7.4	7.5

Table D-2 - Nitrogen Deposition Rate (kg N/ha/yr)

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco5_AW_0	0	10	17.40	14.56	14.58	0.23%
Eco5_AW_5	5	10	17.36	14.54	14.56	0.21%
Eco5_AW_10	10	10	17.33	14.52	14.54	0.19%
Eco5_AW_15	15	10	17.31	14.50	14.52	0.17%
Eco5_AW_20	20	10	17.29	14.49	14.51	0.16%
Eco5_AW_25	25	10	17.27	14.48	14.49	0.14%
Eco5_AW_30	30	10	17.26	14.47	14.48	0.14%
Eco5_AW_35	35	10	17.25	14.46	14.48	0.13%
Eco5_AW_40	40	10	17.24	14.46	14.47	0.12%
Eco5_AW_45	45	10	17.23	14.45	14.46	0.12%
Eco5_AW_50	50	10	17.23	14.45	14.46	0.11%
Eco5_AW_60	60	10	17.22	14.44	14.45	0.11%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco5_AW_70	70	10	17.21	14.44	14.45	0.10%
Eco5_AW_80	80	10	17.20	14.43	14.44	0.10%
Eco5_AW_90	90	10	17.20	14.43	14.44	0.09%
Eco5_AW_100	100	10	17.19	14.43	14.43	0.09%
Eco5_AW_110	110	10	17.19	14.42	14.43	0.10%
Eco5_AW_120	120	10	17.19	14.42	14.43	0.09%
Eco5_AW_130	130	10	17.19	14.42	14.43	0.09%
Eco5_AW_140	140	10	17.19	14.42	14.43	0.09%
Eco5_AW_150	150	10	17.18	14.42	14.43	0.08%
Eco5_AW_160	160	10	17.18	14.42	14.43	0.08%
Eco5_AW_170	170	10	17.18	14.42	14.42	0.09%
Eco5_AW_180	180	10	17.18	14.42	14.42	0.08%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco4_AW_0	0	15	17.24	14.46	14.47	0.09%
Eco4_AW_5	5	15	17.23	14.45	14.47	0.09%
Eco4_AW_10	10	15	17.23	14.45	14.46	0.09%
Eco4_AW_15	15	15	17.23	14.45	14.46	0.09%
Eco4_AW_20	20	15	17.22	14.45	14.46	0.08%
Eco4_AW_25	25	15	17.22	14.44	14.45	0.08%
Eco4_AW_30	30	15	17.22	14.44	14.45	0.08%
Eco4_AW_35	35	15	17.21	14.44	14.45	0.08%
Eco4_AW_40	40	15	17.21	14.44	14.45	0.08%
Eco4_AW_45	45	15	17.21	14.43	14.44	0.07%
Eco4_AW_50	50	15	17.20	14.43	14.44	0.07%
Eco4_AW_60	60	15	17.20	14.43	14.44	0.08%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco4_AW_70	70	15	17.19	14.42	14.44	0.08%
Eco1W_SSSI_0	0	15	24.99	20.96	20.87	-0.56%
Eco1W_SSSI_5	5	15	24.32	20.40	20.41	0.06%
Eco1W_SSSI_10	10	15	23.99	20.12	20.16	0.27%
Eco1W_SSSI_15	15	15	23.79	19.96	20.01	0.36%
Eco1W_SSSI_20	20	15	23.65	19.85	19.91	0.39%
Eco1W_SSSI_25	25	15	23.56	19.77	19.83	0.39%
Eco1W_SSSI_30	30	15	23.49	19.71	19.77	0.38%
Eco1W_SSSI_35	35	15	23.43	19.66	19.72	0.36%
Eco1W_SSSI_40	40	15	23.39	19.63	19.68	0.35%
Eco1W_SSSI_45	45	15	23.35	19.60	19.65	0.33%
Eco1W_SSSI_50	50	15	23.32	19.58	19.62	0.31%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco1W_SSSI_60	60	15	23.28	19.54	19.58	0.29%
Eco1W_SSSI_70	70	15	23.24	19.51	19.55	0.27%
Eco1W_SSSI_80	80	15	23.21	19.48	19.52	0.25%
Eco1W_SSSI_90	90	15	23.19	19.47	19.50	0.24%
Eco1W_SSSI_100	100	15	23.17	19.45	19.48	0.22%
Eco1W_SSSI_110	110	15	23.16	19.44	19.47	0.20%
Eco1W_SSSI_120	120	15	23.14	19.43	19.46	0.19%
Eco1W_SSSI_130	130	15	23.13	19.42	19.45	0.17%
Eco1W_SSSI_140	140	15	23.12	19.41	19.44	0.17%
Eco1W_SSSI_150	150	15	23.12	19.40	19.43	0.16%
Eco1W_SSSI_160	160	15	23.11	19.40	19.42	0.15%
Eco1W_SSSI_170	170	15	23.10	19.39	19.42	0.14%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco1W_SSSI_180	180	15	23.10	19.39	19.41	0.14%
Eco1W_SSSI_190	190	15	23.09	19.38	19.40	0.13%
Eco1W_SSSI_200	200	15	23.09	19.38	19.40	0.13%
Eco1E_SSSI_0	0	15	24.25	20.34	21.83	9.92%
Eco1E_SSSI_5	5	15	24.07	20.19	21.12	6.15%
Eco1E_SSSI_10	10	15	23.94	20.08	20.73	4.35%
Eco1E_SSSI_15	15	15	23.83	19.99	20.49	3.32%
Eco1E_SSSI_20	20	15	23.74	19.92	20.32	2.68%
Eco1E_SSSI_25	25	15	23.67	19.86	20.20	2.22%
Eco1E_SSSI_30	30	15	23.62	19.82	20.10	1.90%
Eco1E_SSSI_35	35	15	23.57	19.78	20.03	1.66%
Eco1E_SSSI_40	40	15	23.53	19.74	19.96	1.48%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco1E_SSSI_45	45	15	23.49	19.71	19.91	1.33%
Eco1E_SSSI_50	50	15	23.46	19.69	19.87	1.20%
Eco1E_SSSI_60	60	15	23.41	19.64	19.80	1.01%
Eco1E_SSSI_70	70	15	23.37	19.61	19.74	0.86%
Eco1E_SSSI_80	80	15	23.34	19.58	19.70	0.75%
Eco1E_SSSI_90	90	15	23.31	19.56	19.66	0.67%
Eco1E_SSSI_100	100	15	23.28	19.54	19.63	0.59%
Eco1E_SSSI_110	110	15	23.26	19.53	19.61	0.54%
Eco1E_SSSI_120	120	15	23.25	19.51	19.59	0.50%
Eco1E_SSSI_130	130	15	23.23	19.50	19.57	0.46%
Eco1E_SSSI_140	140	15	23.22	19.49	19.55	0.43%
Eco1E_SSSI_150	150	15	23.21	19.48	19.54	0.41%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco1E_SSSI_160	160	15	23.20	19.47	19.53	0.38%
Eco1E_SSSI_170	170	15	23.19	19.46	19.52	0.36%
Eco1E_SSSI_180	180	15	23.18	19.45	19.51	0.34%
Eco1E_SSSI_190	190	15	23.17	19.45	19.50	0.32%
Eco1E_SSSI_200	200	15	23.16	19.44	19.49	0.30%
Eco8_AW_0	0	10	19.55	16.46	16.57	1.08%
Eco8_AW_5	5	10	17.92	15.09	15.18	0.86%
Eco8_AW_10	10	10	17.13	14.42	14.49	0.69%
Eco8_AW_15	15	10	16.65	14.01	14.07	0.59%
Eco8_AW_20	20	10	16.32	13.73	13.78	0.51%
Eco8_AW_25	25	10	16.09	13.53	13.58	0.45%
Eco8_AW_30	30	10	15.91	13.38	13.42	0.41%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco8_AW_35	35	10	15.76	13.26	13.29	0.35%
Eco8_AW_40	40	10	15.65	13.16	13.19	0.33%
Eco8_AW_45	45	10	15.55	13.08	13.11	0.30%
Eco8_AW_50	50	10	15.47	13.01	13.03	0.28%
Eco8_AW_60	60	10	15.34	12.90	12.92	0.24%
Eco8_AW_70	70	10	15.24	12.81	12.84	0.21%
Eco8_AW_80	80	10	15.17	12.75	12.77	0.20%
Eco8_AW_90	90	10	15.10	12.70	12.71	0.18%
Eco8_AW_100	100	10	15.05	12.65	12.67	0.16%
Eco8_AW_110	110	10	15.01	12.62	12.63	0.15%
Eco8_AW_120	120	10	14.97	12.59	12.60	0.14%
Eco8_AW_130	130	10	14.94	12.56	12.57	0.14%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco8_AW_140	140	10	14.92	12.54	12.55	0.13%
Eco8_AW_150	150	10	14.89	12.52	12.53	0.12%
Eco8_AW_160	160	10	14.87	12.50	12.51	0.11%
Eco8_AW_170	170	10	14.85	12.48	12.49	0.11%
Eco8_AW_180	180	10	14.83	12.47	12.48	0.10%
Eco8_AW_190	190	10	14.82	12.46	12.47	0.10%
Eco8_AW_200	200	10	14.80	12.44	12.45	0.09%
Eco3_AW_0	0	10	16.82	14.11	14.13	0.21%
Eco3_AW_5	5	10	16.79	14.09	14.11	0.20%
Eco3_AW_10	10	10	16.77	14.07	14.09	0.19%
Eco3_AW_15	15	10	16.76	14.06	14.08	0.17%
Eco3_AW_20	20	10	16.74	14.05	14.07	0.16%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco3_AW_25	25	10	16.73	14.04	14.05	0.15%
Eco3_AW_30	30	10	16.72	14.03	14.04	0.14%
Eco3_AW_35	35	10	16.71	14.02	14.03	0.14%
Eco3_AW_40	40	10	16.70	14.01	14.03	0.14%
Eco3_AW_45	45	10	16.69	14.01	14.02	0.13%
Eco3_AW_50	50	10	16.68	14.00	14.01	0.13%
Eco3_AW_60	60	10	16.67	13.99	14.00	0.13%
Eco3_AW_70	70	10	16.66	13.98	14.00	0.11%
Eco3_AW_80	80	10	16.65	13.98	13.99	0.11%
Eco3_AW_90	90	10	16.64	13.97	13.98	0.11%
Eco3_AW_100	100	10	16.64	13.97	13.98	0.10%
Eco3_AW_110	110	10	16.63	13.96	13.97	0.09%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco3_AW_120	120	10	16.62	13.96	13.97	0.09%
Eco3_AW_130	130	10	16.62	13.95	13.96	0.09%
Eco3_AW_140	140	10	16.62	13.95	13.96	0.08%
Eco3_AW_150	150	10	16.61	13.95	13.96	0.08%
Eco6_AW_0	0	10	17.15	14.43	14.45	0.17%
Eco7E_AW_0	0	10	20.28	17.37	17.62	2.45%
Eco7E_AW_5	5	10	19.16	16.32	16.49	1.72%
Eco7E_AW_10	10	10	18.63	15.82	15.95	1.33%
Eco7E_AW_15	15	10	18.32	15.52	15.63	1.08%
Eco7E_AW_20	20	10	18.11	15.32	15.41	0.91%
Eco7E_AW_25	25	10	17.95	15.17	15.25	0.80%
Eco7E_AW_30	30	10	17.84	15.06	15.13	0.70%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco7E_AW_35	35	10	17.74	14.98	15.04	0.63%
Eco7E_AW_40	40	10	17.67	14.91	14.97	0.56%
Eco7E_AW_45	45	10	17.61	14.85	14.90	0.52%
Eco7E_AW_50	50	10	17.56	14.80	14.85	0.48%
Eco7E_AW_60	60	10	17.48	14.73	14.77	0.41%
Eco7E_AW_70	70	10	17.42	14.67	14.71	0.37%
Eco7E_AW_80	80	10	17.37	14.63	14.66	0.33%
Eco7E_AW_90	90	10	17.33	14.59	14.62	0.31%
Eco7E_AW_100	100	10	17.30	14.56	14.59	0.28%
Eco7E_AW_110	110	10	17.27	14.54	14.56	0.26%
Eco7E_AW_120	120	10	17.25	14.52	14.54	0.24%
Eco7E_AW_130	130	10	17.23	14.50	14.52	0.23%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco7E_AW_140	140	10	17.21	14.48	14.50	0.22%
Eco7E_AW_150	150	10	17.20	14.47	14.49	0.21%
Eco7E_AW_160	160	10	17.19	14.46	14.48	0.19%
Eco7E_AW_170	170	10	17.18	14.45	14.47	0.18%
Eco7E_AW_180	180	10	17.17	14.44	14.46	0.18%
Eco7E_AW_190	190	10	17.16	14.43	14.45	0.17%
Eco7E_AW_200	200	10	17.15	14.42	14.44	0.17%
Eco7W_AW_0	0	10	19.17	16.31	16.49	1.79%
Eco7W_AW_5	5	10	18.25	15.45	15.55	1.05%
Eco7W_AW_10	10	10	17.89	15.11	15.19	0.75%
Eco7W_AW_15	15	10	17.69	14.93	14.99	0.60%
Eco7W_AW_20	20	10	17.56	14.81	14.85	0.48%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco7W_AW_25	25	10	17.47	14.72	14.76	0.42%
Eco7W_AW_30	30	10	17.40	14.66	14.70	0.36%
Eco7W_AW_35	35	10	17.35	14.61	14.64	0.32%
Eco7W_AW_40	40	10	17.31	14.57	14.60	0.28%
Eco7W_AW_45	45	10	17.27	14.54	14.57	0.26%
Eco7W_AW_50	50	10	17.25	14.51	14.54	0.23%
Eco7W_AW_60	60	10	17.20	14.47	14.49	0.21%
Eco7W_AW_70	70	10	17.17	14.44	14.46	0.19%
Eco7W_AW_80	80	10	17.14	14.42	14.43	0.17%
Eco7W_AW_90	90	10	17.12	14.40	14.41	0.14%
Eco7W_AW_100	100	10	17.10	14.38	14.40	0.14%
Eco7W_AW_110	110	10	17.09	14.37	14.38	0.13%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco7W_AW_120	120	10	17.07	14.36	14.37	0.13%
Eco7W_AW_130	130	10	17.06	14.35	14.36	0.12%
Eco7W_AW_140	140	10	17.05	14.34	14.35	0.11%
Eco7W_AW_150	150	10	17.05	14.33	14.34	0.10%
Eco7W_AW_160	160	10	17.04	14.33	14.34	0.10%
Eco7W_AW_170	170	10	17.03	14.32	14.33	0.10%
Eco7W_AW_180	180	10	17.03	14.32	14.32	0.09%
Eco7W_AW_190	190	10	17.02	14.31	14.32	0.09%
Eco7W_AW_200	200	10	17.02	14.31	14.32	0.09%
Eco2_SSSI_0	0	10	16.28	13.65	13.44	-2.07%
Eco2_SSSI_5	5	10	15.75	13.21	13.12	-0.95%
Eco2_SSSI_10	10	10	15.58	13.07	13.01	-0.60%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco2_SSSI_15	15	10	15.49	13.00	12.96	-0.42%
Eco2_SSSI_20	20	10	15.44	12.96	12.92	-0.33%
Eco2_SSSI_25	25	10	15.40	12.93	12.90	-0.26%
Eco2_SSSI_30	30	10	15.38	12.91	12.89	-0.20%
Eco2_SSSI_35	35	10	15.36	12.89	12.87	-0.17%
Eco2_SSSI_40	40	10	15.34	12.88	12.86	-0.15%
Eco2_SSSI_45	45	10	15.33	12.87	12.86	-0.13%
Eco2_SSSI_50	50	10	15.32	12.86	12.85	-0.12%
Eco2_SSSI_60	60	10	15.30	12.85	12.84	-0.08%
Eco2_SSSI_70	70	10	15.29	12.84	12.83	-0.06%
Eco2_SSSI_80	80	10	15.29	12.83	12.83	-0.05%
Eco2_SSSI_90	90	10	15.28	12.83	12.82	-0.03%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco2_SSSI_100	100	10	15.27	12.82	12.82	-0.03%
Eco2_SSSI_110	110	10	15.27	12.82	12.82	-0.03%
Eco2_SSSI_120	120	10	15.27	12.82	12.82	-0.01%
Eco2_SSSI_130	130	10	15.26	12.82	12.81	-0.02%
Eco2_SSSI_140	140	10	15.26	12.81	12.81	-0.01%
Eco2_SSSI_150	150	10	15.26	12.81	12.81	-0.01%
Eco2_SSSI_160	160	10	15.25	12.81	12.81	0.00%
Eco2_SSSI_170	170	10	15.25	12.81	12.81	0.01%
Eco2_SSSI_180	180	10	15.25	12.81	12.81	0.01%
Eco2_SSSI_190	190	10	15.25	12.81	12.81	0.00%
Eco2_SSSI_200	200	10	15.25	12.80	12.81	0.01%
Eco9E_SSSI_0	0	15	24.64	20.68	20.31	-2.46%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco9E_SSSI_5	5	15	23.93	20.09	19.88	-1.37%
Eco9E_SSSI_10	10	15	23.64	19.85	19.71	-0.92%
Eco9E_SSSI_15	15	15	23.49	19.72	19.61	-0.69%
Eco9E_SSSI_20	20	15	23.39	19.64	19.56	-0.54%
Eco9E_SSSI_25	25	15	23.33	19.58	19.52	-0.45%
Eco9E_SSSI_30	30	15	23.28	19.54	19.48	-0.39%
Eco9E_SSSI_35	35	15	23.24	19.51	19.46	-0.32%
Eco9E_SSSI_40	40	15	23.21	19.49	19.45	-0.29%
Eco9E_SSSI_45	45	15	23.19	19.47	19.43	-0.26%
Eco9E_SSSI_50	50	15	23.17	19.45	19.42	-0.23%
Eco9E_SSSI_55	55	15	23.16	19.44	19.41	-0.21%
Eco9E_SSSI_60	60	15	23.14	19.43	19.40	-0.19%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco9E_SSSI_65	65	15	23.13	19.42	19.39	-0.18%
Eco9E_SSSI_70	70	15	23.12	19.41	19.39	-0.16%
Eco9E_SSSI_75	75	15	23.11	19.40	19.38	-0.15%
Eco9E_SSSI_80	80	15	23.10	19.40	19.38	-0.13%
Eco9E_SSSI_85	85	15	23.10	19.39	19.37	-0.13%
Eco9E_SSSI_90	90	15	23.09	19.39	19.37	-0.12%
Eco9E_SSSI_95	95	15	23.08	19.38	19.36	-0.11%
Eco9E_SSSI_100	100	15	23.08	19.38	19.36	-0.10%
Eco9E_SSSI_110	110	15	23.07	19.37	19.36	-0.10%
Eco9E_SSSI_120	120	15	23.07	19.37	19.36	-0.09%
Eco9E_SSSI_130	130	15	23.06	19.36	19.35	-0.08%
Eco9E_SSSI_140	140	15	23.06	19.36	19.35	-0.08%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco9E_SSSI_150	150	15	23.05	19.36	19.34	-0.07%
Eco9E_SSSI_160	160	15	23.05	19.35	19.34	-0.06%
Eco9E_SSSI_170	170	15	23.04	19.35	19.34	-0.06%
Eco9E_SSSI_180	180	15	23.04	19.35	19.34	-0.05%
Eco9E_SSSI_190	190	15	23.04	19.34	19.34	-0.05%
Eco9W_SSSI_0	0	15	24.01	20.16	19.93	-1.49%
Eco9W_SSSI_5	5	15	23.50	19.73	19.62	-0.70%
Eco9W_SSSI_10	10	15	23.33	19.58	19.52	-0.45%
Eco9W_SSSI_15	15	15	23.24	19.51	19.46	-0.33%
Eco9W_SSSI_20	20	15	23.19	19.47	19.43	-0.25%
Eco9W_SSSI_25	25	15	23.15	19.44	19.41	-0.20%
Eco9W_SSSI_30	30	15	23.13	19.42	19.39	-0.17%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco9W_SSSI_35	35	15	23.11	19.40	19.38	-0.14%
Eco9W_SSSI_40	40	15	23.09	19.39	19.37	-0.13%
Eco9W_SSSI_45	45	15	23.08	19.38	19.36	-0.11%
Eco9W_SSSI_50	50	15	23.07	19.37	19.36	-0.10%
Eco9W_SSSI_55	55	15	23.06	19.36	19.35	-0.09%
Eco9W_SSSI_60	60	15	23.06	19.36	19.35	-0.08%
Eco9W_SSSI_65	65	15	23.05	19.35	19.34	-0.07%
Eco9W_SSSI_70	70	15	23.04	19.35	19.34	-0.06%
Eco9W_SSSI_75	75	15	23.04	19.34	19.34	-0.05%
Eco9W_SSSI_80	80	15	23.04	19.34	19.33	-0.05%
Eco9W_SSSI_85	85	15	23.03	19.34	19.33	-0.05%
Eco9W_SSSI_90	90	15	23.03	19.34	19.33	-0.05%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco9W_SSSI_95	95	15	23.03	19.33	19.33	-0.04%
Eco10_0	0	10	16.94	14.20	13.81	-3.93%
Eco10_5	5	10	16.26	13.63	13.42	-2.12%
Eco10_10	10	10	15.99	13.41	13.26	-1.44%
Eco10_15	15	10	15.85	13.29	13.18	-1.07%
Eco10_20	20	10	15.77	13.21	13.13	-0.86%
Eco10_25	25	10	15.71	13.16	13.09	-0.71%
Eco10_30	30	10	15.66	13.12	13.06	-0.59%
Eco10_35	35	10	15.63	13.09	13.04	-0.50%
Eco10_40	40	10	15.60	13.07	13.03	-0.46%
Eco10_45	45	10	15.58	13.05	13.01	-0.40%
Eco10_50	50	10	15.56	13.04	13.00	-0.35%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco10_55	55	10	15.54	13.02	12.99	-0.32%
Eco10_60	60	10	15.52	13.01	12.98	-0.29%
Eco10_65	65	10	15.51	13.00	12.97	-0.26%
Eco10_70	70	10	15.50	12.99	12.97	-0.24%
Eco10_75	75	10	15.49	12.98	12.96	-0.22%
Eco10_80	80	10	15.48	12.97	12.95	-0.20%
Eco10_85	85	10	15.47	12.97	12.95	-0.18%
Eco10_90	90	10	15.47	12.96	12.95	-0.17%
Eco10_95	95	10	15.46	12.96	12.94	-0.16%
Eco10_100	100	10	15.45	12.95	12.94	-0.15%
Eco10_110	110	10	15.44	12.94	12.93	-0.13%
Eco10_120	120	10	15.44	12.94	12.93	-0.12%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco10_130	130	10	15.43	12.93	12.93	-0.10%
Eco10_140	140	10	15.43	12.93	12.92	-0.09%
Eco10_150	150	10	15.44	12.93	12.92	-0.07%
Eco10_160	160	10	15.44	12.93	12.93	-0.07%
Eco10_170	170	10	15.45	12.94	12.93	-0.06%
Eco10_180	180	10	15.47	12.94	12.94	-0.05%
Eco10_190	190	10	15.46	12.94	12.94	-0.05%
Eco10_200	200	10	15.45	12.93	12.93	-0.04%
Eco11_0	0	10	15.90	13.34	13.28	-0.59%
Eco11_5	5	10	15.86	13.31	13.26	-0.51%
Eco11_10	10	10	15.83	13.28	13.24	-0.45%
Eco11_15	15	10	15.81	13.26	13.23	-0.39%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco11_20	20	10	15.79	13.25	13.21	-0.36%
Eco11_25	25	10	15.77	13.23	13.20	-0.32%
Eco11_30	30	10	15.76	13.22	13.19	-0.29%
Eco11_35	35	10	15.75	13.21	13.19	-0.27%
Eco11_40	40	10	15.74	13.20	13.18	-0.24%
Eco11_45	45	10	15.73	13.20	13.17	-0.23%
Eco11_50	50	10	15.72	13.19	13.17	-0.21%
Eco11_55	55	10	15.71	13.18	13.16	-0.20%
Eco11_60	60	10	15.70	13.18	13.16	-0.19%
Eco11_65	65	10	15.70	13.17	13.16	-0.17%
Eco11_70	70	10	15.69	13.17	13.15	-0.16%
Eco11_75	75	10	15.69	13.17	13.15	-0.16%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco11_80	80	10	15.68	13.16	13.15	-0.15%
Eco11_85	85	10	15.68	13.16	13.15	-0.15%
Eco11_90	90	10	15.68	13.16	13.14	-0.12%
Eco11_95	95	10	15.67	13.15	13.14	-0.12%
Eco11_100	100	10	15.67	13.15	13.14	-0.12%
Eco11_110	110	10	15.66	13.15	13.14	-0.10%
Eco11_120	120	10	15.66	13.14	13.13	-0.09%
Eco11_130	130	10	15.66	13.14	13.13	-0.09%
Eco11_140	140	10	15.66	13.14	13.13	-0.08%
Eco11_150	150	10	15.65	13.14	13.13	-0.08%
Eco11_160	160	10	15.65	13.13	13.13	-0.07%
Eco11_170	170	10	15.65	13.13	13.13	-0.06%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco11_180	180	10	15.65	13.13	13.12	-0.06%
Eco11_190	190	10	15.64	13.13	13.12	-0.05%
Eco11_200	200	10	15.64	13.13	13.12	-0.05%
Eco12E_0	0	15	16.84	14.14	13.81	-2.21%
Eco12E_5	5	15	15.96	13.39	13.22	-1.17%
Eco12E_10	10	15	15.60	13.09	12.98	-0.77%
Eco12E_15	15	15	15.40	12.93	12.85	-0.56%
Eco12E_20	20	15	15.28	12.83	12.76	-0.42%
Eco12E_25	25	15	15.20	12.76	12.71	-0.34%
Eco12E_30	30	15	15.14	12.71	12.67	-0.28%
Eco12E_35	35	15	15.10	12.67	12.64	-0.23%
Eco12E_40	40	15	15.06	12.64	12.61	-0.19%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco12E_45	45	15	15.03	12.62	12.60	-0.16%
Eco12E_50	50	15	15.01	12.60	12.58	-0.14%
Eco12E_55	55	15	14.99	12.58	12.57	-0.12%
Eco12E_60	60	15	14.98	12.57	12.55	-0.10%
Eco12E_65	65	15	14.96	12.56	12.55	-0.09%
Eco12E_70	70	15	14.95	12.55	12.54	-0.07%
Eco12E_75	75	15	14.94	12.54	12.53	-0.07%
Eco12E_80	80	15	14.93	12.53	12.52	-0.06%
Eco12E_85	85	15	14.92	12.53	12.52	-0.06%
Eco12E_90	90	15	14.92	12.52	12.51	-0.04%
Eco12E_95	95	15	14.91	12.52	12.51	-0.04%
Eco12E_100	100	15	14.90	12.51	12.51	-0.03%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco12E_110	110	15	14.89	12.50	12.50	-0.02%
Eco12E_120	120	15	14.89	12.49	12.49	-0.01%
Eco12E_130	130	15	14.88	12.49	12.49	-0.01%
Eco12E_140	140	15	14.87	12.48	12.48	0.00%
Eco12E_150	150	15	14.87	12.48	12.48	0.00%
Eco12E_160	160	15	14.86	12.47	12.47	0.01%
Eco12E_170	170	15	14.86	12.47	12.47	0.01%
Eco12E_180	180	15	14.85	12.47	12.47	0.01%
Eco12E_190	190	15	14.85	12.46	12.47	0.02%
Eco12E_200	200	15	14.85	12.46	12.46	0.02%
Eco12W_0	0	15	16.23	13.63	13.40	-1.50%
Eco12W_5	5	15	15.61	13.10	12.98	-0.76%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco12W_10	10	15	15.40	12.92	12.85	-0.51%
Eco12W_15	15	15	15.29	12.83	12.77	-0.39%
Eco12W_20	20	15	15.23	12.78	12.73	-0.31%
Eco12W_25	25	15	15.19	12.74	12.70	-0.26%
Eco12W_30	30	15	15.16	12.72	12.68	-0.22%
Eco12W_35	35	15	15.13	12.70	12.67	-0.20%
Eco12W_40	40	15	15.11	12.68	12.65	-0.18%
Eco12W_45	45	15	15.10	12.67	12.64	-0.16%
Eco12W_50	50	15	15.08	12.65	12.63	-0.14%
Eco12W_55	55	15	15.07	12.64	12.62	-0.13%
Eco12W_60	60	15	15.06	12.63	12.62	-0.11%
Eco12W_65	65	15	15.04	12.62	12.61	-0.10%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco12W_70	70	15	15.03	12.61	12.60	-0.09%
Eco12W_75	75	15	15.02	12.61	12.60	-0.07%
Eco12W_80	80	15	15.01	12.60	12.59	-0.07%
Eco12W_85	85	15	15.00	12.59	12.58	-0.07%
Eco12W_90	90	15	14.99	12.58	12.57	-0.05%
Eco12W_95	95	15	14.98	12.57	12.56	-0.05%
Eco12W_100	100	15	14.97	12.56	12.56	-0.04%
Eco12W_110	110	15	14.95	12.55	12.54	-0.04%
Eco13	0	10	15.42	12.94	12.93	-0.07%
Eco14	0	10	15.61	13.10	13.10	-0.01%
Eco15	0	10	17.34	14.54	14.55	0.10%
Eco16	0	15	15.65	13.13	13.10	-0.18%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco17W_0	0	15	15.53	13.06	13.26	1.30%
Eco17W_5	5	15	14.55	12.22	12.33	0.73%
Eco17W_10	10	15	14.21	11.93	12.01	0.53%
Eco17W_15	15	15	14.04	11.78	11.84	0.42%
Eco17W_20	20	15	13.93	11.69	11.74	0.37%
Eco17W_25	25	15	13.85	11.62	11.67	0.32%
Eco17W_30	30	15	13.80	11.58	11.62	0.29%
Eco17W_35	35	15	13.76	11.54	11.58	0.27%
Eco17W_40	40	15	13.73	11.52	11.56	0.25%
Eco17W_45	45	15	13.70	11.50	11.53	0.24%
Eco17W_50	50	15	13.68	11.48	11.51	0.23%
Eco17W_55	55	15	13.66	11.47	11.50	0.22%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco17W_60	60	15	13.65	11.45	11.48	0.21%
Eco17W_65	65	15	13.64	11.44	11.47	0.21%
Eco17W_70	70	15	13.63	11.43	11.46	0.20%
Eco17W_75	75	15	13.62	11.43	11.45	0.19%
Eco17W_80	80	15	13.61	11.42	11.45	0.19%
Eco17W_85	85	15	13.60	11.41	11.44	0.18%
Eco17W_90	90	15	13.59	11.41	11.43	0.18%
Eco17W_95	95	15	13.59	11.40	11.43	0.17%
Eco17W_100	100	15	13.58	11.40	11.42	0.17%
Eco17W_110	110	15	13.57	11.39	11.41	0.17%
Eco17W_120	120	15	13.57	11.38	11.41	0.17%
Eco17W_130	130	15	13.56	11.38	11.40	0.16%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco17W_140	140	15	13.55	11.37	11.40	0.16%
Eco17W_150	150	15	13.55	11.37	11.39	0.16%
Eco17W_160	160	15	13.54	11.37	11.39	0.15%
Eco17W_170	170	15	13.54	11.36	11.39	0.15%
Eco17W_180	180	15	13.54	11.36	11.38	0.15%
Eco17W_190	190	15	13.53	11.36	11.38	0.14%
Eco17W_200	200	15	13.53	11.35	11.38	0.14%
Eco18E_0	0	10	19.24	16.16	16.48	3.20%
Eco18E_5	5	10	18.12	15.22	15.43	2.12%
Eco18E_10	10	10	17.65	14.82	14.99	1.63%
Eco18E_15	15	10	17.38	14.59	14.73	1.35%
Eco18E_20	20	10	17.20	14.44	14.56	1.15%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco18E_25	25	10	17.08	14.33	14.43	1.01%
Eco18E_30	30	10	16.98	14.25	14.34	0.91%
Eco18E_35	35	10	16.90	14.19	14.27	0.82%
Eco18E_40	40	10	16.84	14.14	14.21	0.77%
Eco18E_45	45	10	16.79	14.09	14.17	0.71%
Eco18E_50	50	10	16.75	14.06	14.12	0.66%
Eco18E_55	55	10	16.72	14.03	14.09	0.62%
Eco18E_60	60	10	16.69	14.00	14.06	0.59%
Eco18E_65	65	10	16.66	13.98	14.04	0.56%
Eco18E_70	70	10	16.64	13.96	14.02	0.54%
Eco18E_75	75	10	16.61	13.94	14.00	0.52%
Eco18E_80	80	10	16.60	13.93	13.98	0.50%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco18E_85	85	10	16.58	13.91	13.96	0.48%
Eco18E_90	90	10	16.56	13.90	13.95	0.47%
Eco18E_95	95	10	16.55	13.89	13.94	0.44%
Eco18E_100	100	10	16.54	13.88	13.92	0.43%
Eco18E_110	110	10	16.52	13.86	13.90	0.42%
Eco18E_120	120	10	16.50	13.85	13.89	0.40%
Eco18E_130	130	10	16.48	13.83	13.87	0.39%
Eco18E_140	140	10	16.47	13.82	13.86	0.37%
Eco18E_150	150	10	16.46	13.81	13.85	0.35%
Eco18E_160	160	10	16.45	13.80	13.84	0.34%
Eco18E_170	170	10	16.44	13.79	13.83	0.34%
Eco18E_180	180	10	16.43	13.79	13.82	0.33%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco18E_190	190	10	16.42	13.78	13.81	0.33%
Eco18E_200	200	10	16.41	13.77	13.81	0.31%
Eco18W_0	0	10	19.06	16.02	16.35	3.26%
Eco18W_5	5	10	17.93	15.06	15.26	2.01%
Eco18W_10	10	10	17.48	14.68	14.83	1.49%
Eco18W_15	15	10	17.23	14.47	14.59	1.21%
Eco18W_20	20	10	17.07	14.33	14.43	1.02%
Eco18W_25	25	10	16.95	14.23	14.32	0.89%
Eco18W_30	30	10	16.86	14.15	14.23	0.78%
Eco18W_35	35	10	16.80	14.10	14.17	0.71%
Eco18W_40	40	10	16.74	14.05	14.12	0.66%
Eco18W_45	45	10	16.70	14.01	14.08	0.62%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco18W_50	50	10	16.66	13.98	14.04	0.58%
Eco18W_55	55	10	16.63	13.96	14.01	0.54%
Eco18W_60	60	10	16.61	13.94	13.99	0.51%
Eco18W_65	65	10	16.58	13.92	13.97	0.50%
Eco18W_70	70	10	16.56	13.90	13.95	0.47%
Eco18W_75	75	10	16.54	13.88	13.93	0.46%
Eco18W_80	80	10	16.53	13.87	13.92	0.43%
Eco18W_85	85	10	16.52	13.86	13.90	0.42%
Eco18W_90	90	10	16.50	13.85	13.89	0.40%
Eco18W_95	95	10	16.49	13.84	13.88	0.39%
Eco18W_100	100	10	16.48	13.83	13.87	0.38%
Eco18W_110	110	10	16.46	13.82	13.85	0.37%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco18W_120	120	10	16.45	13.80	13.84	0.35%
Eco18W_130	130	10	16.43	13.79	13.83	0.34%
Eco18W_140	140	10	16.42	13.78	13.82	0.32%
Eco18W_150	150	10	16.41	13.77	13.81	0.32%
Eco18W_160	160	10	16.40	13.77	13.80	0.30%
Eco18W_170	170	10	16.40	13.76	13.79	0.30%
Eco18W_180	180	10	16.39	13.76	13.79	0.29%
Eco18W_190	190	10	16.38	13.75	13.78	0.29%
Eco18W_200	200	10	16.38	13.75	13.77	0.28%
Eco19_0	0	5	19.09	15.94	16.13	3.87%
Eco19_5	5	5	17.85	14.95	15.05	2.02%
Eco19_10	10	5	17.44	14.61	14.68	1.42%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco19_15	15	5	17.22	14.43	14.49	1.07%
Eco19_20	20	5	17.08	14.32	14.37	0.88%
Eco19_25	25	5	16.99	14.25	14.29	0.73%
Eco19_30	30	5	16.92	14.20	14.23	0.62%
Eco19_35	35	5	16.87	14.16	14.18	0.57%
Eco19_40	40	5	16.83	14.12	14.15	0.50%
Eco19_45	45	5	16.80	14.10	14.12	0.45%
Eco19_50	50	5	16.78	14.08	14.10	0.42%
Eco19_55	55	5	16.75	14.06	14.08	0.40%
Eco19_60	60	5	16.74	14.04	14.06	0.38%
Eco19_65	65	5	16.72	14.03	14.05	0.35%
Eco19_70	70	5	16.71	14.02	14.04	0.33%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco19_75	75	5	16.69	14.01	14.03	0.33%
Eco19_80	80	5	16.68	14.00	14.02	0.30%
Eco19_85	85	5	16.67	13.99	14.01	0.30%
Eco19_90	90	5	16.66	13.99	14.00	0.28%
Eco19_95	95	5	16.66	13.98	14.00	0.26%
Eco19_100	100	5	16.65	13.98	13.99	0.26%
Eco19_110	110	5	16.64	13.97	13.98	0.26%
Eco19_120	120	5	16.63	13.96	13.97	0.23%
Eco19_130	130	5	16.62	13.95	13.96	0.23%
Eco19_140	140	5	16.61	13.95	13.96	0.21%
Eco19_150	150	5	16.60	13.94	13.95	0.19%
Eco19_160	160	5	16.60	13.94	13.95	0.21%

Transect Receptor	Distance from Road Edge (m)	Lower Critical Load for Most Sensitive Feature KgN/ha/yr	Baseline 2015	Do-minimum 2023	Do-Something Scheme 2023	% Change in total N Deposition compared to Lower Critical Load Scheme
Eco19_170	170	5	16.59	13.93	13.94	0.19%
Eco19_180	180	5	16.59	13.93	13.94	0.19%
Eco19_190	190	5	16.58	13.92	13.93	0.19%
Eco19_200	200	5	16.58	13.92	13.93	0.17%

Appendix E

MODEL RESULTS PCM COMPLIANCE

MODEL RESULTS - PCM COMPLIANCE

Table E-1 - EU Limit Value Compliance Risk Assessment for Annual Mean NO_2

Defra's PCM Data				Compliance Information		NO_2 Concentration (Nearest Receptor to PCM Link)			Change with Scheme >0.4 µg/m³?	Equivalent PCM Do-something Concentration (µg/m³)
Defra Link Census ID	Zone / Agglomeration	Is it a Compliant Zone?	Opening Year PCM Roadside NO_2 Concentration	Maximum Modelled Concentration in Zone 2020	Projected Compliance Year	Annual Mean DM NO_2	Annual Mean DS NO_2	Change in NO_2 with Scheme		
Cumulative Scenario										
77645	North East	Yes	14.5	40.3	2022	21.8	22.8	1.04	Yes	15.6

Where:

High Risk = Not compliant with the Directive

Neutral / Low Risk = Compliant with the Directive

Appendix F

DMRB SENSITIVITY - SCHEME AIR QUALITY

1 AIR QUALITY

1.1 INTRODUCTION

1.1.1. This appendix identifies the key changes in the assessment methodology and presents the assessment of the potential for additional likely significant environmental effects of the Scheme on air quality, as a result of the updated DMRB guidance LA 105 Air Quality (**Ref. F-1**) released November 2019.

1.1.2. A full description of the Scheme is provided in Chapter 2: The Scheme, Volume 1 of this ES (Application Document Reference: TR010041/APP/6.1).

1.2 ASSESSMENT METHODOLOGY

SCOPE OF ASSESSMENT

1.2.1. Both the DMRB HA 207/07 (**Ref. F-2**) and LA 105 (**Ref. F-1**) define scoping criteria to determine if air quality impacts are scoped in or out of the assessment. The criteria for changes in total and heavy-duty vehicle AADT flows and carriageway alignment are unchanged. LA 105 (**Ref. F-1)** replaces the criteria for changes in average and peak hour speeds with a criterion for change in speed band. When defining the ARN using the DMRB HA 207/07 (**Ref. F-2**) scoping criteria, changes in speed that met one or more of the criteria also tended to occur where changes in total AADT flow exceeded 1,000. With LA 105 (**Ref. F-1**), change in speed band is also most likely where there is a change in AADT of 1,000 or more. The change to scoping criteria is unlikely to increase the extent of the ARN for the Scheme.

1.2.2. While both the DMRB HA 207/07 (**Ref. F-2**) and LA 105 (**Ref. F-1**) stipulate the assessment of air quality effects on ecological receptors, the term ‘designated sites’ has been replaced with ‘designated habitats’, and updated to include Local Nature Reserves (LNRs), Local Wildlife Sites (LWS), Nature Improvement Areas, ancient woodland and veteran trees. At the request of the Inspectorate, LNRs, LWSs and ancient woodlands were included in the original assessment. There are no Nature Improvement Areas within the Study Area.

1.2.3. The Woodland Trust classifies trees of special interest as ‘ancient’, ‘veteran’ and ‘notable’ (**Ref. F-3).** Both ancient and veteran trees are considered of similar and high ecological importance and are irreplaceable (much the same as ancient woodland). As such, both ancient and veteran trees are scoped into the assessment under LA 105 (**Ref. F-1**).

1.2.4. LA 105 (**Ref. F-1**) provides refined guidance on the level of assessment required (simple or detailed) based on project risk potential and the receiving environment sensitivity. In the case of the Scheme, the project risk potential is ‘high’ due to the size of the Scheme and receiving environment sensitivity is ‘medium’ due to receptors close to the ARN. According to LA 105 (**Ref. F-1**) the need for a detailed level of assessment as undertaken for the original assessment reported in this appendix is supported.

1.2.5. LA 105 (**Ref. F-1**) also provides refined guidance on assessing compliance with the Air Quality Directive (**Ref. F-7**). The original Scheme assessment determined 'low risk' of affecting compliance according to IAN 175/13 (**Ref. F-5**). The PCM model links that coincide with the ARN have annual mean NO_2 concentrations at roadside that are less than 20 µg/m^3. The modelled contribution from the Scheme would be less than 2 µg/m^3. Therefore, there is no material change to the finding as a result of the updated guidance.

METHODOLOGY - CONSTRUCTION

1.2.6. The construction assessment in LA 105 (**Ref. F-1**) introduces a 'dust risk potential' and 'sensitivity to construction dust' to assess required mitigation measures. This would not affect the findings of the original assessment including mitigation measures that are reported in this appendix.

1.2.7. For construction traffic, LA 105 (**Ref. F-1**) advises that construction periods over two years duration should be considered for a quantitative assessment. The approach detailed in **Appendix A - Construction Traffic Assessment** of this appendix details the simple level assessment of the worse two construction years quantitatively, and therefore the outcomes of the original assessment do not change.

METHODOLOGY - OPERATION

1.2.8. In assessing the impacts at designated habitats, unlike DMRB HA 207/07 (**Ref. F-2**), LA 105 (**Ref. F-1**) does not require initial consideration of impacts in relation to the critical level for NOx. Consequently, the impacts on nitrogen deposition at all designated habitats within 200 m of the ARN with nutrient nitrogen sensitive features must be assessed. In this case, all 24 designated habitats identified in the Scheme Study Area (as detailed in this appendix) were assessed.

1.2.9. The assumption regarding nitrogen deposition rate has changed for the calculation of nitrogen deposition when applying LA 105. Instead of assuming 1 µg/m^3 of nitrogen dioxide (NO_2) equates to a deposition rate of 0.1 kg N/ha/Yr for all habitats, LA 105 applies different rates dependant on whether the habitat has low or tall vegetation. Whilst the assumption for 'grassland and similar habitats' (low vegetation) is a little different (1 µg/m^3 of NO_2 = 0.14 kg N/ha/Yr) the assumption for 'forests and similar habitats' (tall vegetation) is almost three times higher (1 µg/m^3 of NO_2 = 0.29 kg N/ha/Yr). The consequence of this change is that the calculated nitrogen deposition rates are higher and the impacts more pronounced, particularly in the case of woodland.

1.2.10. Apart from the changes identified above, the remainder of the methodology set out in LA 105 (**Ref. F-1**) is as detailed in **Section 5.4** of Part A **Chapter 5: Air Quality, Volume 2** of this ES (**Application Document Reference:TR010041/APP/6.2**).

Selection of Ecological Receptors

1.2.11. In addition to the 24 designated habitats identified, a further 26 ancient and veteran trees were identified using the Woodland Trusts Ancient tree inventory (**Ref. F-4**) as well as

baseline information collected for Part A presented in **Appendix 7.5: Arboricultural Report, Volume 7** of this ES (**Application Document Reference: TR010041/APP/6.7**) and for Part B presented in **Appendix 7.1: Arboricultural Report, Volume 8** of this ES (**Application Document Reference: TR010041/APP/6.8**).

1.3 ASSUMPTIONS AND LIMITATIONS

1.3.1. The assumptions and limitations presented in Section 5.5 of Part A Chapter 5: Air Quality, Volume 2 of this ES (Application Document Reference: TR010041/APP/6.2) and Section 5.5 of Part B Chapter 5: Air Quality, Volume 3 of this ES (Application Document Reference: TR010041/APP/6.3) apply to this sensitivity test.

1.3.2. In addition to the updated guidance, the latest set of emission factors from Defra (EFT v9.0) (**Ref. F-6**) have been issued. EFT v9.0 does not enable calculations of emission prior to 2017, and therefore it is not possible to update the 2015 baseline scenario for which the air quality model has been verified. The speed banded emissions factors used are considered to provide robust estimates of future emissions and in addition in predicting annual mean NO_2 concentrations a precautionary approach has been used by employing GAP analysed results.

1.4 STUDY AREA

1.4.1. The Study Area is defined as 200 m from the ARN as required under LA 105 (**Ref. F-1**) and presented in **Figure 16.2: Scheme Air Quality Affected Road Network** of this ES.

1.5 POTENTIAL IMPACTS

OPERATIONAL ASSESSMENT – DESIGNATED HABITATS

1.5.1. Based on LA 105 methodology (**Ref. F-1),** the impacts on nitrogen deposition at each designated habitat are summarised in **Table F-1**.

1.5.2. There are 50 designated habitats with impacts. Of these there are 25 designated habitats, including the River Coquet and Coquet Valley Woodland SSSI, with a change in nitrogen deposition greater than 1% of the lower critical load for the most sensitive feature.

1.5.3. For the 26 veteran and ancient trees included in the sensitivity test, nine experience a change of greater than 1% of the lower critical load, and the remaining 17 do not experience a change in nitrogen deposition of greater than 1% of the lower critical load.

Table F-1 – Summary of Potential Impacts on Nitrogen Deposition at Designated Habitats due to the Scheme (LA 105 guidance)

Site ID	Transect	Distance of Habitat from road (m)	Lower Critical Load for Most Sensitive Feature	Nitrogen Deposition (kgN/ha/yr) at Closest Point within Site to Road			
				Do-Minimum **	Do-Some-thing (Scheme) **	Change with Do-Something (Scheme) **	Distance (m) from road beyond which change <1%
Designated Habitats							
River Coquet and Coquet Valley Woodland SSSI (west of A1)	Eco1W	DM - 0 DS - 10	15	27.9 at 0 m 25.5 at 10 m	25.6 at 10 m	0.1 at 10 m	80***
River Coquet and Coquet Valley Woodland SSSI (east of A1)	Eco1E	DM - 0 DS - 25	15	26.1 at 0 m 24.7at 25 m	25.9 at 25 m	1.2 at 25 m	200
River Coquet and Coquet Valley Woodland SSSI (west of A697)	Eco9W	0	15	25.6	24.8	-0.8	0
River Coquet and Coquet Valley Woodland SSSI (east of A697)	Eco9E	0	15	27.1	25.9	-1.2	0
River Coquet and Coquet Valley Woodland SSSI (west of A1 Felton)	Eco12W	0	15	18.5	17.7	-0.8	0
River Coquet and Coquet Valley Woodland SSSI (east of A1 Felton)	Eco12E	0	15	19.9	18.9	-1.0	0
Longhorsley Moor SSSI	Eco2	0	10	16.5	16.1	-0.4	0
Ancient Woodland							
Dukes Bank Wood (west of road)	Eco1W	DM - 0 DS - 10	15	27.9 at 0 m 25.5 at 10 m	25.6 at 10 m	0.1 at 10 m	80***
Dukes Bank Wood (east of road)	Eco1E	DM - 0 DS - 25	15	26.1 at 0 m 24.7at 25 m	25.9 at 25 m	1.2 at 25 m	200
Park Wood/Bothal Bank	Eco3	45	10	17.3	17.4	0.1	<45
Cotting Wood	Eco4	125	15	17.4	17.5	0.1	<125
Davies Wood	Eco5	10	10	17.7	17.8	0.1	<10
Scotch Gill Wood	Eco6	170	10	17.7	17.7	0.0	<170
Borough Wood (west of road)	Eco7W	0	10	23.2	23.8	0.6	50
Borough Wood (east of road)	Eco7E	0	10	26.3	27.1	0.8	120
Well Wood	Eco8	0	10	27.2	27.7	0.5	60
Weldon Wood	Eco11	25	10	16.4	16.2	-0.2	<25
Stobswood	Eco13	150	10	15.6	15.6	0.0	<150
Dukes Bank Wood	Eco16	25	15	16.2	16.1	-0.1	<25

Site ID	Transect	Distance of Habitat from road (m)	Lower Critical Load for Most Sensitive Feature	Nitrogen Deposition (kgN/ha/yr) at Closest Point within Site to Road			
				Do-Minimum **	Do-Some-thing (Scheme) **	Change with Do-Something (Scheme) **	Distance (m) from road beyond which change <1%
Burnie House Dean Wood	Eco14	195	10	15.7	15.7	0.0	<195
Local Nature Reserve							
Carlisle Park	Eco15	135	10	17.7	17.7	0.0	<135
Ulgham Meadow	Eco10	0	10	19.4	18.1	-1.3	0
Borough Wood (east of road)	Eco7E	0	10	26.3	27.1	0.8	120
Local Wildlife Sites							
Bothal Burn and River Wansbeck	Eco3	45	10	17.3	17.4	0.1	<45
Wansbeck & Hartburn Woods (west of road)	Eco7W	0	10	23.2	23.8	0.6	50
Wansbeck & Hartburn Woods (east of road)	Eco7E	0	10	26.3	27.1	0.8	120
Coquet River Felton Park (west of road)	Eco1W	DM - 0 DS - 10	15	27.9 at 0 m 25.5 at 10 m	25.6 at 10 m	0.1 at 10 m	80***
Coquet River Felton Park (east of road)	Eco1E	DM - 0 DS - 15	15	26.1 at 0 m 25.1 at 15 m	26.8 at 15 m	1.7 at 15 m	200
Cocklaw Dene (west of road)	Eco17W	0	10	15.9	16.2	0.3	30
Cawledge Burn (west of road)	Eco18W	0	10	23.3	24.3	1.0	85
Cawledge Burn (east of road)	Eco18E	0	10	23.7	24.7	1.0	110
Coney Garth Pond	Eco19	0	5	19.5	19.8	0.3	35
Longhorsley Moor	Eco2	0	10	16.5	16.1	-0.4	0
Cotting Wood	Eco4	125	15	17.4	17.5	0.1	<125
Ancient and Veteran Trees							
Eco_VT1	-	185	10	21.2	21.3	0.1	-
Eco_VT2	-	168	10	21.3	21.4	0.1	-
Eco_VT3	-	11	10	23.5	23.4	-0.1	-
Eco_VT4	-	136	10	21.1	21.0	-0.1	-
Eco_VT5	-	195	10	23.2	23.3	0.1	-
Eco_VT6	-	191	10	22.4	22.5	0.1	-
Eco_VT7	-	58	10	21.0	21.0	0.0	-
Eco_VT8	-	142	10	24.3	24.3	0.0	-
Eco_VT9	-	5	10	23.8	23.6	-0.2	-

Site ID	Transect	Distance of Habitat from road (m)	Lower Critical Load for Most Sensitive Feature	Nitrogen Deposition (kgN/ha/yr) at Closest Point within Site to Road			
				Do-Minimum **	Do-Some-thing (Scheme) **	Change with Do-Something (Scheme) **	Distance (m) from road beyond which change <1%
Eco_VT10	-	126	10	21.0	21.1	0.1	-
Eco_VT11	-	91	10	23.3	23.2	-0.1	-
Eco_VT12	-	72	10	21.0	21.0	0.0	-
Eco_VT13	-	50	10	21.0	21.1	0.1	-
Eco_VT14	-	31	10	23.3	23.3	0.0	-
Eco_VT15	-	124	10	22.1	22.0	-0.1	-
Eco_VT16	-	68	10	24.1	24.6	0.5	68*
Eco_VT17	-	66	10	21.0	21.0	0.0	-
Eco_VT18	-	97	10	23.8	24.2	0.4	97*
Eco_VT19	-	10	10	26.2	26.2	0.0	-
Eco_VT20	-	101	10	24.7	24.9	0.2	101*
Eco_VT23	-	196	10	22.7	23.0	0.3	196*
Eco_VT24	-	99	10	23.0	23.4	0.4	99*
Eco_VT25	-	169	10	22.7	23.1	0.4	169*
Eco_VT27	-	52	10	23.7	24.2	0.5	52*
Eco_VT28	-	98	10	21.3	21.4	0.1	-
Eco_VT29	-	58	10	21.5	21.6	0.1	-

Notes:
* value if impact at this single point is greater than 1% of the critical load
** Due to vegetation clearance as a result of construction, the closest point on the transect differs between the Do-minimum and Do-Something scenario. Nitrogen deposition rates are shown at the first point within the habitat for the relevant scenario.
*** From the roadside to 10 m predicted deposition rates are lower with the Scheme. This is because of the movement of southbound traffic to the new southbound carriageway further to the east. Beyond 10 m deposition rates are higher with the Scheme. This is because the overall increase in traffic on both north and southbound carriageways overrides the effect of the shifting of the southbound carriageway to the east.

1.6 ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

CONSTRUCTION

1.6.1. The changes in LA 105 (**Ref. F-1**) would not affect the findings of the original assessment including mitigation measures that are reported in this appendix.

OPERATION

1.6.2. There are 50 designated habitats that would experience impacts. Of these, there are 25 designated habitats, including the River Coquet and Coquet Valley Woodland SSSI, with change in nitrogen deposition greater than 1% of the lower critical load for the most sensitive feature.

1.6.3. With reference to **Appendix 16.7: Biodiversity DMRB Sensitivity Test: The Scheme** of this ES, the impacts on nitrogen deposition would result in no significant effect at any of the designated habitats.

SUMMARY

1.6.4. Overall, following the guidance on the evaluation of significant effects in LA 105 (**Ref. F-1**), the effects of the Scheme are **not significant** and therefore the conclusions of the original assessment remain unchanged.

REFERENCES

Ref. F-1 - Highways Agency, Air Quality, Design Manual for Roads and Bridges LA 105 Air Quality, Revision 0, Sustainability & Environment Appraisal. Available at: http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/LA%20105%20Air%20quality-web.pdf

Ref. F-2 - Highways Agency, Air Quality, Design Manual for Roads and Bridges HA 207/07, Volume 11, Section 3, Part 1 (May 2007). Available at: http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf

Ref. F-3 - Woodland Trust (2008). *Ancient tree guide 4: What are ancient, veteran and other trees of special interests*. November 2008. Woodland Trust.

Ref. F-4 - Woodland Trust. Ancient Tree Inventory. https://ati.woodlandtrust.org.uk/tree-search/ [Accessed March 2020].

Ref. F-5 - Highways England (2013). Interim Advice Note 175/13. Updated air quality advice on risk assessment related to compliance with the ES Directive on ambient air quality and on the project of Scheme air quality action plans for user of DMRB Volume 11, Section 3, Part 1 Air Quality. Available at: http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian175.pdf

Ref. F-6 - Department for Environment Food and Rural Affairs, Emission Factor Toolkit (v9) Available at: https://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html [Accessed May 2020]

Ref. F-7 - European Union (2008) Ambient Air Quality Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe. [online]. Available at: https://eur-lex.europa.eu/eli/dir/2008/50/oj [Accessed October 2019].

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