

M3 Junction 9 Improvement

Scheme Number: TR010055

6.3 Environmental Statement Appendix 14.2 - Operational Greenhouse Gas Assessment Calculations (Rev 1) Tracked

APFP Regulations 5(2)(a)

Planning Act 2008

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

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Infrastructure Planning

Planning Act 2008

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

M3 Junction 9 Improvement
Development Consent Order 202[x]

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| 6.3 ENVIRONMENTAL STATEMENT - APPENDIX 14.2: OPERATIONAL GREENHOUSE GAS EMISSIONS CALCULATIONS |
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| Version | Date | Status of Version |
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| Rev 0 | November 2022 | Application Submission |
| <u>Rev 1</u> | <u>6 June 2023</u> | <u>Deadline 1 Submission</u> |

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Appendix 14.2: Operational GHG Emissions Assessment Calculation

Table 14.2.1: B6 Operational Energy Use Calculations Summary

| Item | Total Load (kw) | Annual Usage (hours) | Total Energy Used (kwh) | Carbon Factor Units-kgCO2e/kWh | Conversion Factor | Tonnes CO2e / yr |
|-----------------|-----------------|----------------------|-------------------------|--------------------------------|-------------------|------------------|
| Luminaires | 48.5744 | 4380 | 212755.872 | 0.212 | 0.001 | 45.1 |
| Traffic Signals | 0.5 | 8760 | 4380 | 0.212 | 0.001 | 0.9 |
| CCTV | 0.25 | 8760 | 2190 | 0.212 | 0.001 | 0.5 |
| VMS | 24.3 | 8736 | 212284.8 | 0.212 | 0.001 | 45.0 |
| Total | | | | | | 91.5 |

Table 14.2.2: B9 End User Utilisation of Infrastructure Calculations Summary

| Operation Year | End-user Emissions (tCO ₂ e) – life cycle stage B9 | | | | | |
|----------------|---|-----------------------------------|---------------------------|---|---|----------------|
| | DM Scenario | DS Scenario | Difference | Total (cumulative) over modelled 60-year operation (2027–2087) DM | Total (cumulative) over modelled 60-year operation (2027–2087) DS | Difference |
| 2027 | <u>4,157,875</u> <u>3,214,777</u> | <u>4,161,194</u> <u>3,217,473</u> | <u>3,319</u> <u>2,696</u> | <u>222,088,200</u> | <u>222,349,080</u> | <u>260,880</u> |
| 2042 | <u>3,549,335</u> <u>2,497,839</u> | <u>3,554,026</u> <u>2,500,046</u> | <u>4,691</u> <u>2,207</u> | <u>160,624,429</u> | <u>160,764,188</u> | <u>139,759</u> |

Table 14.2.3: B1 Land Use Change

| Habitat group | ha / length of hedgerow | | | t CO ₂ ha-1 | |
|--|-------------------------|---------------|-----------------|------------------------------------|------------------------------|
| | Existing area | Proposed area | Combined change | Carbon stock in soils & vegetation | Operation Emissions per year |
| Cropland | 33.96 | 13.18 | -20.78 | 88.20 | 0 |
| Grassland | 14.10 | 23.49 | 9.38 | 69.00 | -647.32 |
| Heathland and shrub | 3.02 | 6.56 | 3.54 | 100.00 | -353.76 |
| Lakes | 0.00 | 1.00 | 1.00 | n/a | 0.00 |
| Sparsely vegetated land | 0.28 | 0.28 | 0.00 | n/a | 0.00 |
| Urban | 32.28 | 34.29 | 2.01 | 0.00 | 0 |
| Woodland and forest | 28.80 | 30.18 | 1.38 | 169.00 | -232.81 |
| Native Species Rich Hedgerow with trees | 0.86 | 1.76 | 0.90 | 144.50 | -130.63 |
| Native Species Rich Hedgerow | 0.19 | 0.19 | 0.00 | 144.50 | 0.00 |
| Native Hedgerow | 2.51 | 1.81 | -0.70 | 144.50 | 0.00 |
| Total (t CO₂ ha-1) | | | | | 1,934.05 |