

**M25 junction 28 improvement scheme
TR010029
6.3 Environmental Statement
Appendix 14.1: Climate carbon tool**

APFP Regulation 5(2)(a)
Planning Act 2008

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



Infrastructure Planning

Planning Act 2008

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

M25 junction 28 scheme Development Consent Order 202[x]

6.3 ENVIRONMENTAL STATEMENT APPENDIX 14.1: CLIMATE CARBON TOOL

Regulation Number:	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference:	TR010029
Application Document Reference:	TR010029/APP/6.3
Author:	M25 junction 28 improvement scheme project team, Highways England

Version	Date	Status of Version
1	May 2020	Application issue

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Appendix 14.1

Climate carbon tool

14. Climate carbon tool

2019 Jun - Bulk Materials

Mark page as complete

Add new row:

Total CO2e	8,161.233	Tonnes
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Converter:		
Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Ready mix concrete	C8/10 (Gen 1, ST 2)	m3	3440.0	0.082	tCO2e/t	2.400	676.992
Ready mix concrete	C32/40	m3	492.0	0.132	tCO2e/t	2.400	155.866
Asphalt	General Asphalt	tonnes	6426.0	0.076	tCO2e/t	1.000	488.376
Fill and aggregate	General fill/aggregate	tonnes	125468.0	0.005	tCO2e/t	1.000	652.434

Assign % of total quantity to categories						
Not Allocated %	Fencing %	Drainage %	Road Pavements %	Civils Structures %	Waste %	
100.00%						
100.00%						
100.00%						
100.00%						
100.00%						

Transport				Forecast
Transport mode	Transport distance value (km)	Carbon Factor (tCO2e/t.km)	This Return tCO2e	Next Return Quantity Forecast
HGV	200.0	0.0001095	361.454	
HGV	200.0	0.0001095	51.696	
HGV	200.0	0.0001095	281.335	
HGV	200.0	0.0001095	5493.081	
HGV		0.0001095		



2019 Jun - Fencing, Barriers & Road Restraint Systems

(excluding bulk materials)

Mark page as complete

Add new row:

Total CO2e	149.435	Tonnes
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Converter:

Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Road Restraint System/ Safety Barrier	Steel RRS barrier single sided	metres	3406.0	1.540	tCO2e/t	0.022	116.916
Road Restraint System/ Safety Barrier	Steel RRS barrier double sided	metres	42.0	1.540	tCO2e/t	0.036	2.299
Road Restraint System/ Safety Barrier	Pre-cast concrete step barrier	metres	96.0	0.199	tCO2e/t	1.150	21.997

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO2e/t.km)	This Return tCO2e
HGV	200.0	0.0001095	3.324
HGV	200.0	0.0001095	0.065
HGV	200.0	0.0001095	4.833



2019 Jun - Drainage

(excluding bulk materials)

Mark page as complete

Add new row:

Total CO2e	852.602	Tonnes
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Converter:

Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Plastic pipework (Polypropylene)	150mm diameter	metres	24.0	4.490	tCO2e/t	0.002	0.248
Plastic pipework (Polypropylene)	225mm diameter	metres	517.0	4.490	tCO2e/t	0.004	9.562
Plastic pipework (Polypropylene)	300mm diameter	metres	1082.0	4.490	tCO2e/t	0.007	35.576

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO2e/t.km)	This Return tCO2e
HGV	200.0	0.0001095	0.002
HGV	200.0	0.0001095	0.093
HGV	200.0	0.0001095	0.347

Plastic pipework (Polypropylene)	450mm diameter	metres	621.0	4.490	tCO2e/t	0.011	30.362	HGV	200.0	0.0001095	0.296
Plastic pipework (Polypropylene)	600mm diameter	metres	452.0	4.490	tCO2e/t	0.020	40.538	HGV	200.0	0.0001095	0.395
Plastic pipework (Polypropylene)	900mm diameter	metres	461.0	4.490	tCO2e/t	0.044	90.158	HGV	200.0	0.0001095	0.879
Plastic pipework (Polypropylene)	1200mm diameter	metres	294.0	4.490	tCO2e/t	0.073	95.725	HGV	200.0	0.0001095	0.933
Precast concrete circular pipework	1200mm diameter	metres	402.0	0.180	tCO2e/t	1.404	101.593	HGV	200.0	0.0001095	24.710
Precast concrete manholes	2400mm diameter, 3m - 6m depth	no.	87.0	0.190	tCO2e/t	18.950	313.244	HGV	200.0	0.0001095	72.179

Gullies	Plastic gully pots - PVC	no.	196.0	2.103	tCO2e/t	0.021	8.738	HGV	200.0	0.0001095	0.182
Channel & slot drains	Precast concrete channel (heavy duty)	metres	488.0	0.180	tCO2e/t	0.150	13.176	HGV	200.0	0.0001095	3.205
Headwalls	In-situ reinforced concrete		34.0								
Plastic pipework (HDPE)	225mm diameter	metres	236.0	2.520	tCO2e/t	0.004	2.512	HGV	200.0	0.0001095	0.044
Plastic pipework (HDPE)	300mm diameter	metres	250.0	2.520	tCO2e/t	0.008	4.730	HGV	200.0	0.0001095	0.082
Plastic pipework (HDPE)	450mm diameter	metres	108.0	2.520	tCO2e/t	0.011	3.039	HGV	200.0	0.0001095	0.053



2019 Jun - Street Furniture & Electrical Equipment

(excluding bulk materials)

Mark page as complete

Add new row:

Total CO2e	132.295	Tonnes
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Converter:

Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Road lighting and columns	LED light	no.	95.0	9.160	tCO2e/t	0.012	10.442
Road lighting and columns	Steel columns 10m	no.	53.0	1.540	tCO2e/t	0.189	15.426
Road lighting and columns	Steel columns 12m	no.	25.0	1.540	tCO2e/t	0.288	11.088

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO2e/t.km)	This Return tCO2e
HGV	200.0	0.0001095	0.050
HGV	200.0	0.0001095	0.439
HGV	200.0	0.0001095	0.315

Road lighting and columns	Steel columns 8m	no.	4.0	1.540	tCO2e/t	0.132	0.813	HGV	200.0	0.0001095	0.023
Road lighting and columns	Aluminium columns 12m	no.	5.0	9.160	tCO2e/t	0.205	9.389	HGV	200.0	0.0001095	0.045
Cable	Miscellaneous cable	metres	1034.0	2.493	tCO2e/t	0.000	1.096	HGV	200.0	0.0001095	0.019
Cable	Armoured cable / Power cable	metres	13200.0	2.493	tCO2e/t	0.001	24.355	HGV	200.0	0.0001095	0.428
Plastic cable ducting	150mm diameter	metres	9350.0	2.520	tCO2e/t	0.002	55.646	HGV	200.0	0.0001095	0.967
Plastic cable ducting	50mm diameter	metres	166.0	2.520	tCO2e/t	0.000	0.167	HGV	200.0	0.0001095	0.003

Cabinets	Any type	no.	5.0	1.540	tCO2e/t	0.200	1.540
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HGV	200.0	0.0001095	0.044
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2019 Jun - Civils Structures & Retaining Walls

(excluding bulk materials)

 Mark page as complete

Add new row:

Total CO2e	10,027.481	Tonnes
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Converter:

Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Formwork / Shuttering	Plywood	m3	3840.0	1.100	tCO2e/t	0.540	2280.960
Piling	Pre-cast concrete piles	tonnes	17547.7	0.180	tCO2e/t	1.000	3158.593
Retaining walls	Steel sheet piles	tonnes	319.9	1.460	tCO2e/t	1.000	467.083

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO2e/t.km)	This Return tCO2e
HGV	200.0	0.0001095	90.784
HGV	200.0	0.0001095	768.253
HGV	200.0	0.0001095	14.006

Retaining walls	Gabion wall (stone and wire mesh)	tonnes	1346.0	0.083	tCO2e/t	1.003	112.229	HGV	200.0	0.0001095	59.106
Gantries	14m ADS Tubular Cantilever	no.	1.0	1.540	tCO2e/t	11.500	17.710	HGV	200.0	0.0001095	0.503
Gantries	33m to 45m Portal	no.	1.0	1.540	tCO2e/t	25.000	38.500	HGV	200.0	0.0001095	1.095
Gantries	57m plus Portal	no.	1.0	1.540	tCO2e/t	85.000	130.900	HGV	200.0	0.0001095	3.721
Steelwork	General steel	tonnes	165.0	1.460	tCO2e/t	1.000	240.900	HGV	200.0	0.0001095	7.224
Pre-cast Concrete	High strength concrete	tonnes	11779.0	0.180	tCO2e/t	1.000	2120.220	HGV	200.0	0.0001095	515.693



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2019 Jun - Fuel, Energy & Water

(excluding bulk materials)

Mark page as complete

Add new row:

Total CO2e	14,609.809	Tonnes
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Converter:

Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Water	Mains	Litres	#####	0.000	kgCO2e/l	0.001	17.205
Site offices, site vehicles and plant energy	Diesel	Litres	1258149.0	3.802	kgCO2e/kg	0.001	4002.298
Site offices, site vehicles and plant energy	Electricity	kWh	#####	0.494	kgCO2e/kWh	0.001	10544.213

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO2e/t.km)	This Return tCO2e
HGV	200.0	0.0001095	46.093



2019 Jun - Business and Employee Transport

(excluding bulk materials)

Mark page as complete

Add new row:

Total CO2e	1,262.444	Tonnes
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Converter:

Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Employee commuting	Private vehicle (any type)	km	6656000.0	0.190	kgCO2e/km	0.001	1262.444

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO ₂ e/t.km)	This Return tCO2e



2019 Jun - Waste

(excluding bulk materials)

Mark page as complete

Add new row:

Total CO2e	1,759.071	Tonnes
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Converter:

Miles	=	km
1.00	=	1.61

Material / Product							
Item	Type	Unit	This Return Quantity	Carbon Factor Value	Carbon Factor Unit	Conversion Factor	This Return tCO2e
Aggregate and soil exported off-site	Recycled	tonnes	147262.0	0.001	tCO2e/t	1.000	147.262

Transport			
Transport mode	Transport distance value (km)	Carbon Factor (tCO ₂ e/t.km)	This Return tCO2e
HGV	50.0	0.0001095	1611.809

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