

THE LONDON RESORT

The London Resort Development Consent Order

BC080001

Environmental Statement Volume 2: Appendices

Appendix 20.2 – Greenhouse Gas Calculations Inputs

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Planning Act 2008

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

Regulation 5(2)(a)

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

Regulation 12(1)

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Appendix 20.2: London Resort Greenhouse Gas Calculation Inputs

General project inputs

Error! Reference source not found. provides an overview of inputs and benchmarks used in order to assess GHG emissions associated with the baseline scenario.

Table 1 Inputs into the baseline scenario GHG emissions calculations

Land use type	Total Area (m ² NIA)	Occupied Area (m ² NIA)	CIBSE TM46 building type	Estimated electricity and fossil usage for assessment year (2020) (kWh/m ² /y)	Estimated GHG emissions for assessment year (2020) (tCO _{2e} /y)
Retail, store or showroom	700	700	General retail	115,500	28
Industrial/manufacturing	11,000	8,200	Workshop	1,763,000	376
Light industrial	7,400	5,500	Workshop	1,182,500	252
Storage	48,600	33,700	Storage facility	6,571,500	1,406
Offices	1,300	1,300	General office	279,500	62
Total	69,100	49,400	N/A	9,912,000	2,124

Table 2 provides an overview of construction of the Proposed Development by year.

Table 2 Calculation area schedule and phase timing

Year built		2022	2023	2024	2025	2026	2027	2028	2029	Total m ²
Visitor Centre and Staff Training Facility	m ²	548.17	548.17	548.17						1644.5
Galley Hill Resource Centre	m ²	912.83	912.83	912.83						2738.5
Staff Accommodation	m ²	22,812.51	22,812.51	22,812.51						68,437.5
London Resort Plaza	m ²	7,486.67	7,486.67	7,486.67						22,460.0
The London Resort Market, Node 1 and Node 2	m ²	12,363.33	12,363.33	12,363.33						37,090.0
eSports Coliseum	m ²	5,974.51	5,974.51	5,974.51						1,7923.5
The Conferention Centre	m ²	3,310.00	3,310.00	3,310.00						9,930.0
The London Resort Passenger Terminal	m ²	137.17	137.17	137.17						411.5
The London Resort Ebbsfleet International Terminal	m ²	1,377.17	1,377.17	1,377.17						4,131.5
The London Resort Ferry Terminal	m ²	2,596.67	2,596.67	2,596.67						7,790.0
The London Resort Tilbury Terminal	m ²	829.51	829.51	829.51						2,488.5
Car park 1: London Resort Visitors	m ²	23,233.33	23,233.33	23,233.33						69,700.0
Car park 2: London Resort Visitors	m ²	23,225.00	23,225.00	23,225.00						69,675.0
Car park 3: London Resort Visitors	m ²	23,225.00	23,225.00	23,225.00						69,675.0
Car park 4: Tilbury	m ²	23,233.33	23,233.33	23,233.33						69,700.0
Car park 5: Staff	m ²	4,645.00	4,645.00	4,645.00						13,935.0
Car park 6: London Resort VIP Car Park	m ²	929.00	929.00	929.00						2,787.0
Car park 7: Ebbsfleet International Station	m ²	9,764.00	9,764.00	9,764.00						29,292.0
The London Resort Hotel	m ²	16,069.24	16,069.24	16,069.24						48,207.7
The Paramount Hotel	m ²	24,613.84	24,613.84	24,613.84						73,841.5
Hotel 3	m ²	16,570.27	16,570.27	16,570.27						49,710.8
Hotel 4: Boutique Hotel	m ²	9,392.31	9,392.31	9,392.31						28,176.9
Administration Offices: BoH1	m ²	1,453.67	1,453.67	1,453.67						4,361.0
Administration Offices: Adjacent Gate 1	m ²	344.00	344.00	344.00						1,032.0
Node 1 Entrance	m ²	3,726.67	3,726.67	3,726.67						11,180.0
Node 2 Food Market	m ²	3,860.00	3,860.00	3,860.00						11,580.0
Gate 1 Payline	m ²	2,593.33	2,593.33	2,593.33						7,780.0
City Hall and Operations Building: Gate 1 Node 3	m ²	923.00	923.00	923.00						2,769.0
Administration Offices: Within Gate 2	m ²						275.00	275.00	275.00	825.0

Year built		2022	2023	2024	2025	2026	2027	2028	2029	Total m ²
Wardrobe and Employee Services	m ²	1,023.33	1,023.33	1,023.33						3,070.0
Wardrobe and Employee Services: Within Gate 1	m ²	246.67	246.67	246.67						740.0
Wardrobe and Employee Services: Within Gate 2	m ²						123.33	123.33	123.33	370.0
Central Kitchen and Food Warehouse	m ²	800.00	800.00	800.00						2,400.0
Staff Canteen and Kitchen: BoH1	m ²	250.00	250.00	250.00						750.0
Staff Canteen and Kitchen: Gate 1	m ²	250.00	250.00	250.00						750.0
Staff Canteen and Kitchen: Gate 2	m ²	166.67	166.67	166.67						500.0
Entertainment and Costumes: Within Gate 1	m ²						653.33	653.33	653.33	1,960.0
Services	m ²	105.33	105.33	105.33						316.0
Medical Centre	m ²	100.67	100.67	100.67						302.0
Security and Crisis Control Centre (SCCC): Node 3	m ²	60.67	60.67	60.67						182.0
Fire Station	m ²	133.33	133.33	133.33						400.0
Maintenance Building and Vehicle Maintenance: BoH1	m ²	3,798.33	3,798.33	3,798.33						11,395.0
Landscape Services: Within Gate 1	m ²	333.33	333.33	333.33						1,000.0
Landscape Services: Within Gate 2	m ²						166.67	166.67	166.67	500.0
Warehouse and Storage: BoH	m ²	1,661.67	1,661.67	1,661.67						4,985.0
Warehouse and Storage: Park Adjacent	m ²	441.67	441.67	441.67						1,325.0
Main Security Control and Crisis Room	m ²	441.67	441.67	441.67						1,325.0
Warehouse and Storage: Gate 1	m ²	33.33	33.33	33.33						100.0
Warehouse and Storage: Gate 2	m ²						29.33	29.33	29.33	88.0
Waste Recycling Centre	m ²	1,333.33	1,333.33	1,333.33						4,000.0
Tilbury Logistics Centre	m ²	1,333.33	1,333.33	1,333.33						4,000.0
Water Treatment Facility	m ²	39.51	39.51	39.51						118.5
Grey Water Recycling Centre and Pump Room	m ²	566.67	566.67	566.67						1,700.0
RNLI Lifeboat Station	m ²	106.33	106.33	106.33						319.0

Embodied carbon (construction GHG emission) inputs

Table 3 summarises the material embodied carbon benchmarks used for each building associated with the Proposed Development.

Table 3 Material embodied carbon benchmarks and low, med, high scenario assumptions.

Schedule typologies	Embodied carbon benchmarks (RICS, 2012)	Low	Medium	High	Unit
		Buro Happold's past project experience (15% reduction)	RICS (2012) and WRAP (2017) benchmarks		
Visitor Centre and Staff Training Facility	Public Assembly	364.65	429	493.35	kgCO ₂ e/m ²
Galley Hill Resource Centre	Low Rise Offices (1-4 storey offices)	786.25	925	1063.75	kgCO ₂ e/m ²
Staff Accommodation	Low Rise Apartment (3-5 storey building)	467.5	550	632.5	kgCO ₂ e/m ²
London Resort Plaza	Public Assembly	364.65	429	493.35	kgCO ₂ e/m ²
The London Resort Market, Node 1 and Node 2	Leisure Park (cinema, bowling, restaurant, amusements)	799	940	1081	kgCO ₂ e/m ²
eSports Coliseum	Leisure Park (cinema, bowling, restaurant, amusements)	799	940	1081	kgCO ₂ e/m ²

Schedule typologies	Embodied carbon benchmarks (RICS, 2012)	Low	Medium	High	Unit
		Buro Happold's past project experience (15% reduction)	RICS (2012) and WRAP (2017) benchmarks		
The Conferention Centre	Public Assembly	364.65	429	493.35	kgCO ₂ e/m ²
The London Resort Passenger Terminal	Warehousing/ logistics	348.5	410	471.5	kgCO ₂ e/m ²
The London Resort Ebbsfleet International Terminal	Warehousing/ logistics	348.5	410	471.5	kgCO ₂ e/m ²
The London Resort Ferry Terminal	Warehousing/ logistics	348.5	410	471.5	kgCO ₂ e/m ²
The London Resort Tilbury Terminal	Warehousing/ logistics	348.5	410	471.5	kgCO ₂ e/m ²
Car park 1: London Resort Visitors	Parking	232.9	274	315.1	kgCO ₂ e/m ²
Car park 2: London Resort Visitors	Parking	232.9	274	315.1	kgCO ₂ e/m ²
Car park 3: London Resort Visitors	Parking	232.9	274	315.1	kgCO ₂ e/m ²
Car park 4: Tilbury	Parking	232.9	274	315.1	kgCO ₂ e/m ²
Car park 5: Staff	Parking	232.9	274	315.1	kgCO ₂ e/m ²
Car park 6: London Resort VIP Car Park	Parking	232.9	274	315.1	kgCO ₂ e/m ²
Car park 7: Ebbsfleet International Station	Parking	232.9	274	315.1	kgCO ₂ e/m ²
The London Resort Hotel	Resort Hotel	782	920	1058	kgCO ₂ e/m ²
The Paramount Hotel	Resort Hotel	782	920	1058	kgCO ₂ e/m ²
Hotel 3	Resort Hotel	782	920	1058	kgCO ₂ e/m ²
Hotel 4: Boutique Hotel	Resort Hotel	782	920	1058	kgCO ₂ e/m ²
Administration Offices: BoH1	Low Rise Offices (1-4 storey offices)	786.25	925	1063.75	kgCO ₂ e/m ²
Administration Offices: Adjacent Gate 1	Low Rise Offices (1-4 storey offices)	786.25	925	1063.75	kgCO ₂ e/m ²
Node 1 Entrance	Public Assembly	364.65	429	493.35	kgCO ₂ e/m ²
Node 2 Food Market	Food and beverage retail (restaurants, cafes)	556.75	655	753.25	kgCO ₂ e/m ²
Gate 1 Payline	Public Assembly	364.65	429	493.35	kgCO ₂ e/m ²
City Hall and Operations Building: Gate 1 Node 3	Low Rise Offices (1-4 storey offices)	786.25	925	1063.75	kgCO ₂ e/m ²
Administration Offices: Within Gate 2	Low Rise Offices (1-4 storey offices)	786.25	925	1063.75	kgCO ₂ e/m ²
Wardrobe and Employee Services	Gate 1 Payline	Public Assembly	364.65	429	493.35
Wardrobe and Employee Services: Within Gate 1	Public Assembly	364.65	429	493.35	kgCO ₂ e/m ²
Wardrobe and Employee Services: Within Gate 2	Public Assembly	364.65	429	493.35	kgCO ₂ e/m ²
Central Kitchen and Food Warehouse	Large light industrial/ factory units	442	520	598	kgCO ₂ e/m ²
Staff Canteen and Kitchen: BoH1	Food and beverage retail (restaurants, cafes)	556.75	655	753.25	kgCO ₂ e/m ²
Staff Canteen and Kitchen: Gate 1	Food and beverage retail (restaurants, cafes)	556.75	655	753.25	kgCO ₂ e/m ²
Staff Canteen and Kitchen: Gate 2	Food and beverage retail (restaurants, cafes)	556.75	655	753.25	kgCO ₂ e/m ²

Schedule typologies	Embodied carbon benchmarks (RICS, 2012)	Low	Medium	High	Unit
		Buro Happold's past project experience (15% reduction)	RICS (2012) and WRAP (2017) benchmarks		
Entertainment and Costumes: Within Gate 1	Warehousing/ logistics	348.5	410	471.5	kgCO ₂ e/m ²
Services	Warehousing/ logistics	348.5	410	471.5	kgCO ₂ e/m ²
Medical Centre	Health centre/ surgery	522.75	615	707.25	kgCO ₂ e/m ²
Security and Crisis Control Centre (SCCC): Node 3	Low Rise Offices (1-4 storey offices)	786.25	925	1063.75	kgCO ₂ e/m ²
Fire Station	Emergency services	824.5	970	1115.5	kgCO ₂ e/m ²
Maintenance Building and Vehicle Maintenance: BoH1	Other/ industrial/ utilities / specialist uses	463.25	545	626.75	kgCO ₂ e/m ²
Landscape Services: Within Gate 1	Warehousing/ logistics	348.5	410	471.5	kgCO ₂ e/m ²
Landscape Services: Within Gate 2	Warehousing/ logistics	348.5	410	471.5	kgCO ₂ e/m ²
Warehouse and Storage: BoH	Warehousing/ logistics	348.5	410	471.5	kgCO ₂ e/m ²
Warehouse and Storage: Park Adjacent	Warehousing/ logistics	348.5	410	471.5	kgCO ₂ e/m ²
Main Security Control and Crisis Room	Low Rise Offices (1-4 storey offices)	786.25	925	1063.75	kgCO ₂ e/m ²
Warehouse and Storage: Gate 1	Warehousing/ logistics	348.5	410	471.5	kgCO ₂ e/m ²
Warehouse and Storage: Gate 2	Warehousing/ logistics	348.5	410	471.5	kgCO ₂ e/m ²
Waste Recycling Centre	Depot/ open storage	348.5	410	471.5	kgCO ₂ e/m ²
Tilbury Logistics Centre	Warehousing/ logistics	348.5	410	471.5	kgCO ₂ e/m ²
Water Treatment Facility	Other/ industrial/ utilities / specialist uses	463.25	545	626.75	kgCO ₂ e/m ²
Grey Water Recycling Centre and Pump Room	Other/ industrial/ utilities / specialist uses	463.25	545	626.75	kgCO ₂ e/m ²
RNLI Lifeboat Station	Communal dwelling (nursing home, hall of residence)	450.5	530	609.5	kgCO ₂ e/m ²

Table 4 summarises the hard landscaping embodied carbon assumptions made for the Proposed Development.

Table 4 Hard landscaping embodied carbon assumptions

Hard landscaping area (m ²)	Carbon factor (Green Guide - Asphalt (85mm) over prepared sub-base) (kgCO ₂ /m ²)	Carbon (kgCO ₂ e)	Carbon (tCO ₂ e)
344,780	45	15,515,100	15,515

Table 5 provides a summary of assumptions made for the transport, construction, use and demolition embodied carbon stages.

Table 5 Transport, construction, use and demolition embodied carbon benchmarks.

	Year	Low	Medium	High	Unit	Reference
Construction Processes (A5)	0	13,000	14,000	15,000	kgCO ₂ /£M Project Value	BRE SMARTWaste KPI from RICS 2017 draft professional statement
Construction Transport (A4)	0	2,441	2,910	3,379	kgCO ₂ /£M Project Value	BH past project monitored data
In-Use, including maintenance, repair, refurbishment and replacement (B1-B5)	15 onwards	30%	45%	60%	% of Product Stage (A1-A3) embodied carbon	Medium scenario is based on typical whole life carbon split for a commercial office building (LETI Embodied Carbon Primer, 2020).
End-of-life, including demolition (C1-C4)	0 and end of life	3	3.5	4	kgCO ₂ /£m	RICS 2017 draft professional statement

Land use change assumptions and inputs

Table 6 provides a summary of the land use change assumptions made for the baseline scenario.

Table 6 Land use change inputs and assumptions for the baseline scenario

Habitat type	Area (hectares)	Carbon factor (tco2/hectare/yr)	Carbon sequestration (tco2/yr)
Urban - amenity grassland	4	1.025	4.10
Cropland - cereal crops	0.16	-2.47	-0.40
Urban - development land, sealed surface	97.03	0	0
Grassland - floodplain wetland mosaic (CFGM)	13.88	2	27.76
Intertidal sediment - Littoral mud	9.6	2	19.2
Grassland - lowland calcareous grassland	1.03	1.025	1.06
Grassland - lowland calcareous grassland	1.74	1.025	1.78
Grassland - lowland calcareous grassland	3.68	1.025	3.77
Woodland and forest - lowland mixed deciduous woodland	20.27	6	121.62
Heathland and scrub - mixed scrub	96.65	2	193.30
Grassland - modified grassland	12.57	1.025	12.88
Grassland - modified grassland	64.37	1.025	65.98
Grassland - modified grassland	0.45	1.025	0.46
Urban - open mosaic habitats on previously developed land	10.23	2	20.46
Grassland - other neutral grassland	1.97	1.025	2.02
Woodland and forest - other woodland, broadleaf	4.35	6	26.10
Lakes - ponds (non-priority habitat)	1.57	0	0
Lakes - ponds (priority habitat)	6.65	0	0
Wetland - reedbeds	30.86	2	61.72
Sparsely vegetated land - ruderal/ephemeral	0.73	1.025	0.75
Coastal saltmarsh – saltmarshes and saline reedbeds	8.43	2	16.86
Urban - vacant/derelict land/bare ground	7.32	0	0

Table 7 provides a summary of the land use change inputs relating to habitat creation for the Proposed Development.

Table 7 Land use change inputs relating to habitat creation for the Proposed Development

Habitat type	Area (hectares)	Carbon factor (tco2/hectare/yr)	Carbon sequestration (tco2/yr)
Urban - brown roof	1.33	1.025	1.36
Urban - developed land; sealed surface	82.73	0	0
Urban - extensive green roof	2.06	1.025	2.11
Urban - amenity grassland	40	1.025	41
Heathland and shrub - mixed scrub	8.14	2	16.28
Grassland - modified grassland	0.03	1.025	0.03
Urban - open mosaic habitats on previously developed land	1	2	2
Grassland - other neutral grassland	14.38	1.025	14.74
Woodland and forest - other woodland; broadleaved	3.88	6	23.28
Lakes - ponds (non-priority habitat)	1.02	0	0
Wetland - reedbeds	7.53	2	15.06
Coastal saltmarshes and saline reedbeds	3	2	6
Lakes - temporary lakes, ponds and pools	0.35	0	0
Urban - vacant/ derelict land/ bare ground	0.79	0	0

Table 8 provides a summary of the land use change inputs relating to habitat enhancement for the Proposed Development.

Table 8 Land use change inputs relating to habitat enhancement for the Proposed Development

Habitat type	Area (hectares)	Carbon factor (tco2/hectare/yr)	Carbon sequestration (tco2/yr)
Grassland - lowland calcareous grassland	0.06	1.025	0.06
Grassland - lowland calcareous grassland	0.02	1.025	0.02
Heathland and scrub - mixed scrub	28.26	2	56.52
Grassland - modified grassland	2.81	1.025	2.88
Grassland - modified grassland	13.77	1.025	14.11
Urban - open mosaic habitats on previously developed land	0.03	2	0.06
Lakes - ponds (priority habitat)	0.07	0	0
Wetland - reedbeds	17.01	2	34.02
Coastal saltmarsh - marshes and saline reedbeds	7.07	5.54	39.17

Operational energy GHG emission calculation inputs

For operational energy calculations, refer to the Energy Strategy (Appendix 20.3).

Operational transport emissions assumptions and inputs

Table 9 provides a summary of the inputs and assumptions that were made when calculating GHG emissions from baseline car journeys. The ‘average car’ ‘petrol’ carbon factor was selected as the worst-case scenario from the BEIS carbon factors. A distance of 31.87km was used as this is the average distance for business trips by car according to the Department for Transport National Travel Survey 2019.

Table 9 Inputs for baseline transport emissions associated with car journeys

	Trips	Distance (km)	Total distance (km)	GHG emissions factor (kg co2e/km)	GHG emissions (kg co2e)	GHG emissions (t co2e)
Arrivals	777,632	31.87	24,783,138	0.1734	4,297,396	4,297
Departures	759,467	31.87	24,204,222	0.1734	4,197,012	4,197

Table 10 provides a summary of the inputs and assumptions that were made when calculating GHG emissions from baseline OVG journeys. The 50% laden diesel truck carbon factor was selected from the BEIS carbon factors. A distance of 180km was used as this is the furthest distance for the south east region, therefore representing a reasonable average distance travelled.

Table 10 Inputs for baseline transport emissions associated with OGV journeys

	Trips	Distance (km)	Total distance (km)	GHG emissions factor (kg co2e/km)	GHG emissions (kg co2e)	GHG emissions (t co2e)
Arrivals	65,524	180	11,794,232	0.8302	9,791,572	9,792
Departures	61,631	180	11,093,585	0.8302	9,209,894	9,210

Table 11 provides a summary of the inputs and assumptions that were made when calculating GHG emissions from car journeys for the Proposed Development. The ‘average car’ ‘petrol’ carbon factor was selected as the worst-case scenario from the BEIS carbon factors. Distances and trip numbers were provided by the transport consultants.

Table 11 Inputs for operational transport emissions associated with car journeys for the Proposed Development

2025					
Arrivals	Departures	Average distance per trip (km)	Total distance (km)	GHG emissions factor (kg co2e/km)	GHG emissions (kg CO2e)
1,683,141	1,683,141	211	235,590,596	0.1743	41,063,441
2029					
Arrivals	Departures	Average distance per trip (km)	Total distance (km)	GHG emissions factor (kg co2e/km)	GHG emissions (kg CO2e)
2,363,383	2,363,383	211	368,073,037	0.1743	64,155,130
2038					
Arrivals	Departures	Average distance per trip (km)	Total distance (km)	GHG emissions factor (kg co2e/km)	GHG emissions (kg CO2e)
3,333,627	3,333,627	211	496,256,431	0.1743	86,497,496

Table 12 provides a summary of the inputs and assumptions that were made when calculating GHG emissions from baseline coach journeys for the Proposed Development. The ‘coach’ carbon factor was selected from the BEIS carbon factors. The number of passengers is based on the typical size of a coach, taken from Johnsons Coaches.

Table 12 Inputs for operational transport emissions associated with coach journeys for the Proposed Development

2025						
	Trips	Total distance (km)	GHG emissions factor (passenger.km)	Coach typical capacity	Emissions factor (by vehicle)	GHG emissions (kg CO2e)
Arrivals	36,500	7,701,500	0.02732	49	1.33868	10,309,844
Departures	36,500	7,701,500	0.02732	49	1.33868	10,309,844
2029						
	Trips	Total distance (km)	GHG emissions factor (passenger.km)	Coach typical capacity	Emissions factor (by vehicle)	GHG emissions (kg CO2e)
Arrivals	36,500	7,701,500	0.02732	49	1.33868	10,309,844
Departures	36,500	7,701,500	0.02732	49	1.33868	10,309,844
2038						
	Trips	Total distance (km)	GHG emissions factor (passenger.km)	Coach typical capacity	Emissions factor (by vehicle)	GHG emissions (kg CO2e)
Arrivals	36,500	7,701,500	0.02732	49	1.33868	10,309,844
Departures	36,500	7,701,500	0.02732	49	1.33868	10,309,844

15.1.1 Table 13 provides a summary of the inputs and assumptions that were made when calculating GHG emissions from the electric shuttle bus for the Proposed Development. Due to the fact that there isn’t a BEIS emissions factor available for electric buses, the emissions factor for electric van ‘class III (1.74 to 3.5 tonnes)’ has been used as the closest alternative.

Table 13 Inputs for operational transport emissions associated with the electric shuttle bus for the Proposed Development

2025							
	Frequency/ hour (85th percentile day)	Operating hours (8am- 11pm)	Total journeys	Distance per journey (km)	Total distance (km)	Emissions Factor for Class III Electric Van (kg CO ₂ e/ passenger.km)	GHG emissions (kgCO ₂ e)
Ebbsfleet station	9	15	135	1.5	203	0.07755	15.70
Ferry terminal (south of river)	6	15	90	0.8	72	0.07755	5.58
Total							21
2029							
	Frequency/ hour (85th percentile day)	Operating hours (8am- 11pm)	Total journeys	Distance per journey (km)	Total distance (km)	Emissions Factor for Class III Electric Van (kg CO ₂ e/ passenger.km)	GHG emissions (kgCO ₂ e)
Ebbsfleet station	11	15	165	1.5	248	0.07755	19.19
Ferry terminal (south of river)	8	15	120	0.8	96	0.07755	7.44
Total							27
2038							
	Frequency/ hour (85th percentile day)	Operating hours (8am- 11pm)	Total journeys	Distance per journey (km)	Total distance (km)	Emissions Factor for Class III Electric Van (kg CO ₂ e/ passenger.km)	GHG emissions (kgCO ₂ e)
Ebbsfleet station	16	15	240	1.5	360	0.07755	27.92
Ferry terminal (south of river)	12	15	180	0.8	144	0.07755	11.17
Total							39

15.1.2 Table 14 provides a summary of the inputs and assumptions that were made when calculating GHG emissions from bus journeys for the Proposed Development. The relevant BEIS emissions factor has been applied to the number of trips expected ('average local bus').

Table 14 Inputs for operational transport emissions associated with bus journeys for the Proposed Development

2025							
	Visitor journeys (85th percentile day)	Staff journeys (85th percentile day)	Total journeys (85th percentile day)	Distance to furthest point in region (km)	Total distance (km)	Average Local Bus carbon factor (kg CO ₂ e/ passenger.km)	GHG emissions (kgCO ₂ e)
Thurrock	87	531	618	45	27,810	0.10312	2,867.77
Bexley	191	171	362	22	7,964	0.10312	821.25
Medway	22	87	109	35	3,815	0.10312	393.40
Dartford	186	1,212	1,398	17	23,766	0.10312	2,450.75
Gravesham	150	1,626	1,776	17	30,192	0.10312	3,113.40
Sevenoaks	23	28	51	65	3,315	0.10312	341.84
Total							9,988
2029							
	Visitor journeys (85th percentile day)	Staff journeys (85th percentile day)	Total journeys (85th percentile day)	Distance to furthest point in region (km)	Total distance (km)	Average Local Bus carbon factor (kg CO ₂ e/ passenger.km)	GHG emissions (kgCO ₂ e)
Thurrock	115	762	877	45	39,465	0.10312	4,069.63
Bexley	251	245	496	22	10,912	0.10312	1,125.25
Medway	29	125	154	35	5,390	0.10312	555.82
Dartford	245	1,739	1,984	17	33,728	0.10312	3,478.03
Gravesham	198	2,332	2,530	17	43,010	0.10312	4,435.19
Sevenoaks	31	40	71	65	4,615	0.10312	475.90
Total							14,140
2038							
	Visitor journeys (85th percentile day)	Staff journeys (85th percentile day)	Total journeys (85th percentile day)	Distance to furthest point in region (km)	Total distance (km)	Average Local Bus carbon factor (kg CO ₂ e/ passenger.km)	GHG emissions (kgCO ₂ e)
Thurrock	173	800	973	45	43,785	0.10312	4,515.11
Bexley	379	257	636	22	13,992	0.10312	1,442.86
Medway	44	131	175	35	6,125	0.10312	631.61
Dartford	370	1,826	2,196	17	37,332	0.10312	3,849.68

Gravesham	298	2,448	2,746	17	46,682	0.10312	4,813.85
Sevenoaks	46	42	88	65	5,720	0.10312	589.85
Total							15,843

Table 15 provides a summary of the inputs and assumptions that were made when calculating GHG emissions from baseline ferry journeys for the Proposed Development. The 'average (all passenger)' ferry carbon factor was selected from the BEIS carbon factors. The number of passengers is based on the typical size of a coach, taken from Thames Clipper website.

Table 15 Inputs for operational transport emissions associated with ferry journeys for the Proposed Development

2025							
		Trips	Total distance (km)	GHG emissions factor (passenger.km)	Capacity	Emissions factor (by vehicle)	GHG emissions (kg CO2e)
London route	Arrivals	9,855	364,635	0.01874	400	7.49600	2,733,304
	Departures	9,855	364,635	0.01874	400	7.49600	2,733,304
Ride and glide	Arrivals	15,330	85,848	0.01874	400	7.49600	643,517
	Departures	15,330	85,848	0.01874	400	7.49600	643,517
2029							
		Trips	Total distance (km)	GHG emissions factor (passenger.km)	Capacity	Emissions factor (by vehicle)	GHG emissions (kg CO2e)
London route	Arrivals	9,855	364,635	0.01874	400	7.49600	2,733,304
	Departures	9,855	364,635	0.01874	400	7.49600	2,733,304
Ride and glide	Arrivals	15,330	85,848	0.01874	400	7.49600	643,517
	Departures	15,330	85,848	0.01874	400	7.49600	643,517
2038							
		Trips	Total distance (km)	GHG emissions factor (passenger.km)	Capacity	Emissions factor (by vehicle)	GHG emissions (kg CO2e)
London route	Arrivals	9,855	364,635	0.01874	400	7.49600	2,733,304
	Departures	9,855	364,635	0.01874	400	7.49600	2,733,304
Ride and glide	Arrivals	15,330	85,848	0.01874	400	7.49600	643,517
	Departures	15,330	85,848	0.01874	400	7.49600	643,517

Table 16 provides a summary of the inputs and assumptions that were made when calculating GHG emissions from delivery vehicle journeys for the Proposed Development. The 'average (up to 3.5 tonnes)' van carbon factor was selected from the BEIS carbon factors. The assumed distance for each journey was 180km, the furthest distance from the Proposed Development in the south east region.

Table 16 Inputs for operational transport emissions associated with delivery vehicle journeys for the Proposed Development

Year	Trips	Total distance travelled	Emissions factor	GHG Emissions (kgco2e)	GHG Emissions (tco2e)
2025	9,447	1,700,400	0.24710	420,169	420
2029	9,447	1,700,400	0.24710	420,169	420
2039	9,447	1,700,400	0.24710	420,169	420