

CITY AIRPORT DEVELOPMENT PROGRAMME
(CADP1) S73 APPLICATION

ENVIRONMENTAL STATEMENT

VOLUME 2: APPENDICES

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Pell Frischmann

City Airport Development
Programme (CADP1) S73
Application

Volume 2: Appendices
Appendix 10.1 AADT, AAWT and Annual
Average Weekday Traffic Technical
Note

December 2022

To London City Airport

From Steer

Date 18 December 2022

Project Project Surface

Project No. 23699202

Introduction

1. This Transport Technical Note (TTN) sets out the methodology used to calculate Annual Average Daily Traffic (AADT), Annual Average Weekday Traffic (AAWT), and Annual Average Weekend Traffic flows. These have been produced to support the S73 planning application to increase the cap of the number of passengers passing through the airport from the currently permitted 6.5 million passengers per annum (mppa) to 9.0mppa.
2. Three future scenarios have been considered, as defined by York Aviation Limited (YAL):
 - Development Case (DC) – Core Case. This assumes 9.0 million passengers per annum (mppa) occurs by the end of 2031;
 - Do Minimum (DM). This assumes 6.5 mppa occurs by the end of 2031, representing the situation with CADP1 fully built out; and
 - Development Case (DC) – Faster Growth. This assumes 9.0 mppa occurs by 2029.
3. A summary is provided below of how the base 2016 traffic data has been analysed and converted into AADT, AAWT and Annual Average Weekend Traffic flows for different year scenarios.
4. This TTN is structured into the following sections:
 - Annual Average Daily Traffic (AADT) Methodology;
 - Annual Average Weekday Traffic (AAWT) Methodology; and
 - Annual Average Weekend Traffic Methodology.

Annual Average Daily Traffic (AADT) Methodology

2016 Baseline Traffic Data

5. The TfL LoHAM (London Highway Assignment Model) has been established for 08:00-09:00 in the AM peak and 17:00-18:00 in the PM peak. 2016 baseline traffic flows have been extracted from the HAM model for the outlined road links set out in **Table 1**.

Table 1: Highway Links

Link ID	Road Name	Direction of Travel	Link ID	Road Name	Direction of Travel
1	Royal Docks Road	Northbound	30	Victoria Dock Road	Eastbound
2	Royal Docks Road	Southbound	31	Hartmann Road (west of Albert Road)	Westbound
3	Woolwich Manor Way (north of r/bout)	Northbound	32	Hartmann Road (west of Albert Road)	Eastbound
4	Woolwich Manor Way (north of r/bout)	Southbound	33	Lower Lea Crossing (East of East India Dock Road)	Westbound

Link ID	Road Name	Direction of Travel	Link ID	Road Name	Direction of Travel
5	Royal Albert Way (east of Cyprus DLR)	Westbound	34	Lower Lea Crossing (East of East India Dock Road)	Eastbound
6	Royal Albert Way (east of Cyprus DLR)	Eastbound	35	Aspen Way (West of slip to Lower Lee Crossing)	Westbound
7	Woolwich Manor Way (south of r/bout)	Northbound	36	Aspen Way (West of slip to Lower Lee Crossing)	Eastbound
8	Woolwich Manor Way (south of r/bout)	Southbound	37	A13 East of A102	Westbound
9	Pier Road	Northbound	38	A13 East of A102	Eastbound
10	Pier Road	Southbound	39	Leamouth Road	Northbound
11	Connaught Rd (east of Hartmann Rd)	Westbound	40	Leamouth Road	Southbound
12	Connaught Rd (east of Hartmann Rd)	Eastbound	41	Silvertown Way (slip to Lower Lea Crossing)	Northbound
13	Hartmann Road (east of Connaught Road)	Westbound	42	Silvertown Way (slip from Lower Lea Crossing)	Southbound
14	Hartmann Road (east of Connaught Road)	Eastbound	43	Silvertown Way (Overpass)	Northbound
15	Connaught Rd (east of r/bout)	Westbound	44	Silvertown Way (Overpass)	Southbound
16	Connaught Rd (east of r/bout)	Eastbound	45	Silvertown Way (Between Caxton St and Hallsville Rd)	Northbound
17	Connaught Rd (west of r/bout)	Westbound	46	Silvertown Way (Between Caxton St and Hallsville Rd)	Southbound
18	Connaught Rd (west of r/bout)	Eastbound	47	Blackwall Tunnel Northern Approach A12 (South of Abbott Rd)	Northbound
19	Connaught Bridge (south)	Northbound	48	Blackwall Tunnel Northern Approach A12 (South of Abbott Rd)	Southbound
20	Connaught Bridge (south)	Southbound	49	Limehouse Tunnel	Westbound
21	North Woolwich Road (east of r/bout)	Westbound	50	Limehouse Tunnel	Eastbound
22	North Woolwich Road (east of r/bout)	Eastbound	51	West India Dock Rd (West of Caster Lane)	Westbound
23	North Woolwich Road (west of r/bout)	Westbound	52	West India Dock Rd (West of Caster Lane)	Eastbound
24	North Woolwich Road (west of r/bout)	Eastbound	53	Aspen Way (East of Upper Bank Street)	Westbound
25	Connaught Bridge (north)	Northbound	54	Aspen Way (East of Upper Bank Street)	Eastbound
26	Connaught Bridge (north)	Southbound	55	Blackwall Tunnel Southern Approach A12 (South of Boord St)	Northbound
27	Royal Albert Way (west of Stanfield Rd)	Westbound	56	Blackwall Tunnel Southern Approach A12 (South of Boord St)	Southbound

Link ID	Road Name	Direction of Travel	Link ID	Road Name	Direction of Travel
28	Royal Albert Way (west of Stanfield Rd)	Eastbound	57	Blackwall Tunnel Southern Approach A12 (North of Peartree Way)	Northbound
29	Victoria Dock Road	Westbound	58	Blackwall Tunnel Southern Approach A12 (North of Peartree Way)	Southbound

6. All Vehicle and HGV flows (excluding taxis) were extracted from the HAM model for each of outlined highway links.
7. The Department for Transport (DfT) road traffic statistics database (<https://roadtraffic.dft.gov.uk/#6/55.254/-6.053/basemap-regions-countpoints>) was interrogated to obtain AADT data available for the year 2016 associated to the any available highway links outlined in **Table 1**. 2016 AADT data that was available for the highway links is summarised below:
 - Highway Link 1 – Royal Docks Road (northbound);
 - Highway Link 2 – Royal Docks Road (southbound);
 - Highway Link 7 – Woolwich Manor Way (south of roundabout) (northbound);
 - Highway Link 8 – Woolwich Manor Way (south of roundabout) (southbound);
 - Highway Link 9 – Pier Road (northbound);
 - Highway Link 10 – Pier Road (southbound);
 - Highway Link 13 – Hartmann Road (east of Connaught Road) (westbound);
 - Highway Link 14 – Hartmann Road (west of Connaught Road) (eastbound);
 - Highway Link 25 – Connaught Bridge (North) (northbound);
 - Highway Link 26 – Connaught Bridge (South) (southbound);
 - Highway Link 29 – Victoria Dock Road (westbound); and
 - Highway Link 30 – Victoria Dock Road (eastbound).
8. An individual factor for All Vehicle and HGVs has been created for each of the above highway links with DfT 2016 AADT available using the following formula:

$$DfT\ 2016\ AADT\ Value \div (AM + PM\ 2016\ HAM\ Model\ Peak\ Values)$$
9. An overall factor for All Vehicles and HGVs has then been used to calculate 2016 AADT values for the highway links with no DfT AADT available. The overall factor for All Vehicles and HGVs is shown below:
 - All Vehicles average peak hour to AADT Factor: 9.399; and
 - HGVs average peak hour to AADT Factor: 9.321.
10. A 2016 to 2019 growth factor for the highway links with DfT 2016 AADT has been created, by comparing the difference between 2016 and 2019 AADT data. An average of these factors for All Vehicles and HGVs has been calculated, and then applied to the 2016 AADT values to obtain 2019 AADT values for all highway links.

2026 Data (Core Case)

11. 2026 traffic flows have been extracted from the HAM model for the outlined road links set out in **Table 1**. This section has been split into the following sub-sections to simplify how the overall 2026 AADT figures were calculated for each highway link:
 - 2026 HAM Model Traffic;
 - LCY Flow in HAM Model;
 - 2026 Background Traffic (excluding LCY);

- 2026 Airport Traffic Do Minimum (DM) (CADP1);
- 2026 Total Do Minimum (DM) (CADP1);
- 2026 Airport Traffic Development Case (DC) (Core Case); and
- 2026 Total Development Case (DC) (Core Case).

12. It should be noted that AADT flows for 2026 have not been included in the final summary of AADT flows as these have only been produced to calculate the AADT flows for the years 2025, 2027 and 2029. This is detailed later in this TTN in the “Interim Year Calculations” section.

2026 HAM Model Traffic

13. The 2026 traffic flows have been extracted from the HAM model and been classified as All Vehicles or HGVs (excluding taxi's) for the AM and PM peak periods.

LCY Flow in HAM Model

14. The HAM model includes details on the percentage of traffic flows in the AM and PM peak periods that are associated to LCY for the highway links.

15. An average peak hour flow for LCY traffic has been calculated using the following formula:

$$\frac{(2026 \text{ HAM Model AM Peak} \times \text{LCY \% AM Peak}) + (2026 \text{ HAM Model PM Peak} \times \text{LCY \% PM Peak})}{2}$$

16. An assumed All Day figure has been calculated for the LCY flow in the HAM model by multiplying the average peak hour LCY flow by the 2019 AADT factor previously calculated and explained in this TTN, which is defined as 9.399.

2026 Background Traffic (excluding LCY)

17. The percentage LCY traffic flows have been deducted from the 2026 HAM traffic flows to calculate the 2026 background traffic (excluding LCY) in the AM and PM peak periods, for All Vehicles and HGVs.
18. An All Day Vehicles figure has been calculated for each highway link, by adding the AM and PM peak figures and then multiplying by the 2019 AADT factor previously calculated and explained in this TTN, which has been defined as 9.399.
19. The same method has been replicated for HGVs to calculate an All Day HGV figure. The HGV factor figure has been defined as 9.321.

2026 Airport Traffic Do Minimum (DM) (including CADP1)

20. An All Day Vehicles and HGVs figure has been calculated for the 2026 Airport Traffic DM (including CAPD1).
21. Firstly, the assumed All Day figure for the LCY flow previously calculated for highway links 13, 14, 31 and 32 has been added together, to calculate the assumed airport AADT in HAM model, as these links comprise all initial arrival and departure movements from LCY. This has been calculated to be 4,804.
22. Secondly, the “Total Trips by Scenario” tab of the LCY Trip Generation spreadsheet (dated 10th August 2022, panes 3 and 4) has been used to obtain the 2026 DM scenario trip generation AADT value and percentage HGVs. The spreadsheet outlines an AADT figure of 8,127 and HGV percentage of 10.82%.
23. The All Day Vehicles figure for the 2026 Airport Traffic DM (including CAPD1), has then been calculated using the following formula:

$$(8,127 \div 4,804) \times \text{LCY Flow Assumed All Day in HAM Model}$$

24. The resultant figure has been used to calculate the corresponding All Day HGVs figure for the 2026 Airport Traffic DM (including CAPD1), using the following formula:

$(879 \div 8,127) \times 2026 \text{ Airport Traffic Without Development, Including CADP1 All Day Vehicles}$

25. As previously outlined, the LCY trip generation spreadsheet outlines an AADT figure of 8,127 and HGV percentage of 10.82% for the 2026 DM scenario. The AADT figure of 8,127 and HGV percentage 10.82%, which calculates to a HGV value of 879, has been used in the above formula.
26. A percentage HGV has been also calculated for the 2026 Airport Traffic DM (including CADP1) between All Day Vehicles and HGVs values calculated above.

2026 Airport Total Do Minimum (DM) (including CADP1)

27. An All Day Vehicles and HGVs figure has been calculated for the 2026 Airport Total DM (including CAPD1).
28. The All Day Vehicles figure has been calculated by adding the All Day Vehicles figures for 2026 Background Traffic (excluding LCY) and 2026 Airport Traffic DM (including CADP1).
29. The All Day HGVs figure has been calculated by adding the HGVs vehicles figures for 2026 Background Traffic (excluding LCY) and 2026 Airport Traffic DM (including CADP1).
30. A percentage HGV has been also calculated for the 2026 Airport Total DM (including CADP1) between All Day Vehicles and HGVs.

2026 Airport Traffic Development Case (DC) (Core Case)

31. An All Day Vehicles and HGVs figure has been calculated for the 2026 Airport Traffic DC (Core Case).
32. Firstly, the assumed All Day figure for the LCY flow previously calculated for highway links 13, 14, 31 and 32 has been added together, to calculate the assumed airport AADT in HAM model, as these links comprise all initial arrival and departure movements from LCY. This has been calculated to be 4,804.
33. Secondly, the "Total Trips by Scenario" tab of the LCY Trip Generation spreadsheet (dated 10th August 2022, panes 3 and 4) has been used to obtain the 2026 DC scenario trip generation AADT value and percentage HGVs. The spreadsheet outlines an AADT figure of 9,688 and an HGV percentage of 9.27%.
34. The All Day Vehicles figure for the 2026 Airport Traffic DC (Core Case), has then been calculated using the following formula:

$(9,688 \div 4,804) \times \text{LCY Flow Assumed All Day in HAM Model}$

35. The resultant figure has been used to calculate the corresponding All Day HGVs figure for the 2026 Airport Traffic DC (Core Case), using the following formula:

$(898 \div 9,688) \times 2026 \text{ Airport Traffic With Development (Core Case) All Day Vehicles}$

36. As previously outlined, the LCY trip generation spreadsheet outlines an AADT figure of 9,688 and HGV percentage of 9.27% for the 2026 DC scenario. The AADT figure of 9,688 and HGV percentage of 9.27% which calculates to a HGV value of 898, has been used in the above formula.
37. A percentage HGV has been also calculated for the 2026 Airport Traffic DC (Core Case) between All Day Vehicles and HGVs values calculated above.

2026 Total Development Case (DC) (Core Case)

38. An All Day Vehicles and HGVs figure has been calculated for the 2026 Total DC (Core Case).
39. The All Day Vehicles figure has been calculated by adding the All Day Vehicles figures for 2026 Background Traffic (excluding LCY) and 2026 Airport Traffic DC (Core Case).
40. The All Day HGVs figure has been calculated by adding the HGVs vehicles figures for 2026 Background Traffic (excluding LCY) and 2026 Airport Traffic DC (Core Case).

41. A percentage HGV has been also calculated for the 2026 Airport Total DC (Core Case) between All Day Vehicles and HGVs.

2031 Data (Core Case)

42. 2031 traffic flows have been extracted from the HAM model for the outlined road links set out in **Table 1**. This section has been split into the following sub-sections to simplify how the overall 2031 AADT figures were calculated for each highway link:

- 2031 HAM Model Traffic;
- LCY Flow in HAM Model;
- 2031 Background Traffic (excluding LCY);
- 2031 Airport Traffic Do Minimum (DM) (CADP1);
- 2031 Total Do Minimum (DM) (CADP1);
- 2031 Airport Traffic Development Case (DC) (Core Case); and
- 2031 Total Development Case (DC) (Core Case).

2031 HAM Model traffic

43. Two options for 2031 traffic flows have been extracted from the HAM model:
- Option 1: Highway Links 31 and 32 Hartmann Road (West of Albert Road) are opened to vehicles and
 - Option 2: Highway Links 31 and 32 Hartmann Road (West of Albert Road) are closed to vehicles).
44. The 2031 traffic flows have been extracted from the HAM model for the two options and set up in two different spreadsheet tabs and been classified as All Vehicles or HGVs (excluding taxi's) for the AM and PM peak periods.

LCY Flow in HAM Model

45. The HAM model includes details on the percentage of traffic flows in the AM and PM peak periods that are associated to LCY for the highway links.

46. An average peak hour flow for LCY traffic has been calculated using the following formula:

$$\frac{(2026 \text{ HAM Model AM Peak} \times \text{LCY \% AM Peak}) + (2026 \text{ HAM Model PM Peak} \times \text{LCY \% PM Peak})}{2}$$

47. An assumed All Day figure has been calculated for the LCY flow in the HAM model by multiplying the average peak hour LCY flow by the 2019 AADT factor previously calculated and explained in this TTN, which has been defined as 9.399.

2031 Background Traffic (excluding LCY)

48. The percentage LCY traffic flows have been deducted from the 2031 HAM traffic flows to calculate the 2031 background traffic (excluding LCY) in the AM and PM peak periods, for All Vehicles and HGVs.
49. An All Day Vehicles figure has been calculated for each highway link, by adding the AM and PM peak figures and then multiplying by the 2019 AADT factor previously calculated and explained in this TTN, which has been defined as 9.399.
50. The same method has been replicated for HGVs to calculate an All Day HGV figure. The HGV factor figure has been defined as 9.321.

2031 Airport Traffic Do Minimum (DM) (including CADP1)

51. An All Day Vehicles and HGVs figure has been calculated for the 2031 Airport Traffic DM (including CAPD1).

52. Firstly, the assumed All Day figure for the LCY flow previously calculated for highway links 13, 14, 31 and 32 has been added together, to calculate the assumed airport AADT in HAM model, for both the Hartmann Road (west of Albert Road) open and closed options. This has been calculated to be the following for each option:
- Assumed Airport AADT in HAM model (Highway Links 31 and 32 Hartmann Road, West of Albert Road Open): 6,743; and
 - Assumed Airport AADT in HAM model (Highway Links 31 and 32 Hartmann Road, West of Albert Road Closed): 6,755.
53. Secondly, the “Total Trips by Scenario” tab of the LCY Trip Generation spreadsheet (dated 10th August 2022, panes 3 and 4) has been used to obtain the 2031 DM scenario trip generation AADT value and percentage HGVs. The spreadsheet outlines an AADT figure of 8,059 and HGV percentage of 10.44%.
54. In Option 1 (Highway Links 31 and 32 Hartmann Road, West of Albert Road Open), the All Day Vehicles figure for the 2031 Airport Traffic DM (including CAPD1), has then been calculated using the following formula:
- $$(8,059 \div 6,743) \times \text{LCY Flow Assumed All Day in HAM Model}$$
55. In Option 2 (Highway Links 31 and 32 Hartmann Road, West of Albert Road Closed), the All Day Vehicles figure for the 2031 Airport Traffic DM (including CAPD1), has then been calculated using the following formula:
- $$(8,059 \div 6,755) \times \text{LCY Flow Assumed All Day in HAM Model}$$
56. The resultant All Day Vehicles figure for Options 1 and 2 (Highway Links 31 and 32 Hartmann Road, West of Albert Road Open/Closed), has been used to calculate the corresponding All Day HGVs figure for the 2031 Airport DM (including CAPD1), using the following formula:
- $$(841 \div 8,059) \times \text{2031 Airport Traffic Without Development, including CAPD1 All Day Vehicles}$$
57. As previously outlined, the LCY trip generation spreadsheet outlines an AADT figure of 8,059 and HGV percentage of 10.44% for the 2031 DM scenario. The AADT figure of 8,059 and HGV percentage of 10.44%, which calculates to a HGV value of 841, has been used in the above formula.
58. A percentage HGV factor has been also calculated for the 2031 Airport Traffic DM (including CAPD1) between All Day Vehicles and HGVs values calculated above.
- 2031 Airport Total Do Minimum (DM) (including CAPD1)**
59. An All Day Vehicles and HGVs figure has been calculated for the 2031 Airport Total DM (including CAPD1).
60. The All Day Vehicles figure has been calculated by adding the All Day Vehicles figures for 2031 Background Traffic (excluding LCY) and 2031 Airport Traffic DM (including CAPD1).
61. The All Day HGVs figure has been calculated by adding the HGVs vehicles figures for 2031 Background Traffic (excluding LCY) and 2031 Airport Traffic DM (including CAPD1).
62. A percentage HGV has been also calculated for the 2031 Airport Total DM (including CAPD1) between All Day Vehicles and HGVs.
- 2031 Airport Traffic Development Case (DC) (Core Case)**
63. An All Day Vehicles and HGVs figure has been calculated for the 2031 Airport Traffic DC (Core Case).
64. Firstly, the assumed All Day figure for the LCY flow previously calculated for highway links 13, 14, 31 and 32 has been added together, to calculate the assumed airport AADT in HAM model, for both the Hartmann Road (West of Albert Road) open and closed options. This has been calculated to be the following for each option:

- Assumed Airport AADT in HAM model (Hartmann Road open): 6,743; and
 - Assumed Airport AADT in HAM model (Hartmann Road closed): 6.755.
65. Secondly, the “Total Trips by Scenario” tab of the LCY Trip Generation spreadsheet (dated 10th August 2022, panes 3 and 4) has been used to obtain the 2031 Core Case scenario trip generation AADT value and percentage HGVs. The spreadsheet outlines an AADT figure of 11,026 and HGV percentage of 8.02%.
66. In Option 1 (Highway Links 31 and 32 Hartmann Road, West of Albert Road Open), the All Day Vehicles figure for the 2031 Airport Traffic DC (Core Case), has then been calculated using the following formula:
- $$(11,026 \div 6,743) \times \text{LCY Flow Assumed All Day in HAM Model}$$
67. In Option 2 (Highway Links 31 and 32 Hartmann Road, West of Albert Road Closed), the All Day Vehicles figure for the 2031 Airport Traffic DC (Core Case), has then been calculated using the following formula:
- $$(11,206 \div 6,755) \times \text{LCY Flow Assumed All Day in HAM Model}$$
68. The resultant All Day Vehicles figure for Options 1 and 2 (Highway Links 31 and 32 Hartmann Road, West of Albert Road Open/Closed), has been used to calculate the corresponding HGVs figure for the 2031 Airport Traffic DC (Core Case), using the following formula:
- $$(884 \div 11,026) \times \text{2031 Airport Traffic With Development (Core Case)}$$
69. As previously outlined, the LCY trip generation spreadsheet outlines an AADT figure of 11,206 and HGV percentage of 8.02% for the 2031 DC scenario. The AADT figure of 11,026 and HGV percentage of 8.02%, which calculates to a HGV value of 884, has been used in the above formula.
70. A percentage HGV has been also calculated for the 2031 Airport Traffic DC (Core Case) between All Day Vehicles and HGVs values calculated above.

2031 Total Development Case (DC) (Core Case)

71. An All Day Vehicles and HGVs figure has been calculated for the 2031 Total DC (Core Case).
72. The All Day Vehicles figure has been calculated by adding the All Day Vehicles figures for 2031 Background Traffic (excluding LCY) and 2031 Airport Traffic DC (Core Case).
73. The All Day HGVs figure has been calculated by adding the HGVs vehicles figures for 2031 Background Traffic (excluding LCY) and 2031 Airport Traffic DC (Core Case).
74. A percentage HGV has been also calculated for the 2031 Airport Total DC (Core Case) between All Day Vehicles and HGVs.

2026 Data (Faster Growth)

75. 2026 traffic flows have been extracted from the HAM model for the outlined road links set out in **Table 1**. Further figures are also provided in the HAM model on traffic flows associated to LCY.
76. This section sets out how the 2026 traffic flows have been extracted from the HAM model to calculate the overall 2026 AADT figures under the Faster Growth scenario, for each highway link. The process follows the same methodology for calculating the 2026 AADT under the Core Case scenario, with slight adjustments as detailed below in the following section.

2026 Airport Traffic Development Case (DC) (Faster Growth)

77. An All Day Vehicles and HGVs figure has been calculated for the 2026 Airport Traffic DC (Faster Growth).
78. Firstly, the assumed All Day figure for the LCY flow previously calculated for highway links 13, 14, 31 and 32 has been added together, to calculate the assumed airport AADT in HAM model. This has been calculated to be 4,804.

79. Secondly, the “Total Trips by Scenario” tab of the LCY Trip Generation spreadsheet (dated 10th August 2022, panes 3 and 4) has been used to obtain the 2026 DC Faster Growth scenario trip generation for AADT and percentage HGVs. The spreadsheet outlines an AADT figure of 10,037 and an HGV percentage of 8.98%.
80. The All Day Vehicles figure for the 2026 Airport Traffic DC (Faster Growth), has then been calculated using the following formula:

$$(10,037 \div 4,804) \times \text{LCY Flow Assumed All Day in HAM Model}$$

81. The resultant All Day Vehicles figure has been used to calculate the corresponding All Day HGVs figure for the 2026 Airport Traffic DC (Faster Growth), using the following formula:

$$(901 \div 10,037) \times 2026 \text{ Airport With Development (Faster Growth) All Day Vehicles}$$

82. As previously outlined, the LCY trip generation spreadsheet outlines an AADT figure of 10,037 and HGV percentage of 8.98% for the 2026 DC Faster Growth scenario. The AADT figure of 10,037 and HGV percentage of 8.98%, which calculates a HGV value of 901, has been used in the above formula.
83. A percentage HGV factor has been also calculated for the 2026 Airport Traffic DC (Faster Growth) between All Day Vehicles and HGVs values calculated above.

2031 Data (Faster Growth)

84. 2031 traffic flows have been extracted from the HAM model for the outlined road links set out in **Table 1**. Further figures are also provided in the HAM model on traffic flows associated to LCY.
85. This section sets out how the 2031 traffic flows have been extracted from the HAM model to calculate the overall 2031 AADT figures under the Faster Growth scenario, for each highway link. The process follows the same methodology for calculating the 2031 AADT under the Faster Growth scenario, with slight adjustments as detailed below in the following section.

2031 Airport Traffic Development Case (DC) (Faster Growth)

86. An All Day Vehicles and HGVs figure has been calculated for the 2031 Airport Traffic DC (Faster Growth).
87. Firstly, the assumed All Day figure for the LCY flow previously calculated for highway links 13, 14, 31 and 32 has been added together, to calculate the assumed airport AADT in HAM model, for both the Hartmann Road (west of Albert Road) Open and Closed options. This has been calculated to be the following for each option:

- Assumed Airport AADT in HAM model (Highway Links 31 and 32 Hartmann Road, West of Albert Road Open): 6,743; and
- Assumed Airport AADT in HAM model (Highway Links 31 and 32 Hartmann Road, West of Albert Road Closed): 6,755.

88. Secondly, the “Total Trips by Scenario” tab of the LCY Trip Generation spreadsheet (dated 10th August 2022, panes 3 and 4) has been used to obtain the 2031 DC Faster Growth scenario trip generation AADT value and percentage HGVs. The spreadsheet outlines an AADT figure 11,658 and an HGV percentage of 7.59%.
89. In Option 1 (Highway Links 31 and 32 Hartmann Road, West of Albert Road Open), the All Day Vehicles figure for the 2031 Airport Traffic DC (Faster Growth), has then been calculated using the following formula:

$$(11,658 \div 6,743) \times \text{LCY Flow Assumed All Day in HAM Model}$$

90. In Option 2 (Highway Links 31 and 32 Hartmann Road, West of Albert Road Closed), the All Day Vehicles figure for the 2031 Airport Traffic DC (Faster Growth), has then been calculated using the following formula:

$$(11,658 \div 6,755) \times \text{LCY Flow Assumed All Day in HAM Model}$$

91. The resultant All Day Vehicles figure for Options 1 and 2 (Highway Links 31 and 32 Hartmann Road, West of Albert Road Open/Closed), has been used to calculate the corresponding HGVs figure for the 2031 Airport Traffic DC (Faster Growth), using the following formula:

$$(885 \div 11,658) \times 2031 \text{ Airport With Development (Faster Growth) All Day Vehicles}$$

92. As previously outlined, the LCY trip generation spreadsheet outlines an AADT figure of 11,658 and HGV percentage of 7.59% for the 2031 DC Faster Growth scenario. The AADT figure of 11,658 and HGV percentage of 7.59%, which calculates a HGV value of 885, has been used in the above formula.
93. A percentage HGV has been also calculated for the 2031 Airport Traffic DC (Faster Growth) between All Day Vehicles and HGVs values calculated above.

Interim Year Data (2025, 2027 and 2029)

94. Additional assessment year AADTs for All Vehicles and HGVs have been calculated and comprise the following under the Core Case scenario:
- 2025 Do Minimum (DM);
 - 2025 Development Case (DC) Core Case;
 - 2027 Do Minimum (DM);
 - 2027 Development Case (DC) Core Case;
 - 2029 Do Minimum (DM); and
 - 2029 Development Case (DC) Core Case.
95. The same assessment year AADTs have been replicated and calculated under the Faster Growth scenario.
96. The following methodology has been used to calculate the 2025, 2027 and 2029 year AADTs. The same methodology has been used for both the Core Case and Faster Growth Scenarios. The methodology for the Core Case is outlined below.

2025 Do Minimum (DM)

97. The 2026 and 2031 Total DM (including CADP1) AADT figures have been used in the initial stage of the calculations.
98. The subsequent formula has been used to calculate the 2025 DM AADT:
- $$2026 \text{ AADT} - (2031 \text{ AADT} - 2026 \text{ AADT}) \times (1 \div 5)$$
99. An adjustment has been made for Highway Links 13 and 14 Hartmann Road (east of Connaught Road), by performing the following calculation:

$$(2025 \text{ Actual Airport AADT} \div 2025 \text{ Assumed Airport AADT}) \times \text{Unadjusted 2025 AADT}$$

100. The Unadjusted 2025 AADT refers to the figure calculated using the formula in paragraph 98.
101. The Actual Airport AADT has been obtained from the "Total Trips by Scenario" tab of the LCY Trip Generation spreadsheet (dated 10th August 2022, panes 3 and 4). The Assumed Airport AADT has been calculated by adding Highway Links 13 and 14 Hartmann Road (East of Connaught Road) together. Highway Links 31 and 32 Hartmann Road (West of Albert Road) are closed in the year 2025 and therefore are not included.

2025 Development Case (DC) (Core Case)

102. The 2026 and 2031 Total DC (Core Case) AADT figures have been used in the initial stage of the calculations.
103. The subsequent formula has been used to calculate the 2025 DC (Core Case) AADT:

$$2026 \text{ AADT} - (2031 \text{ AADT} - 2026 \text{ AADT}) \times (1 \div 5)$$

104. An adjustment has been made for Highway Links 13 and 14 Hartmann Road (east of Connaught Road), by performing the following calculation:

$$(2025 \text{ Actual Airport AADT} \div 2025 \text{ Assumed Airport AADT}) \times \text{Unadjusted 2025 AADT}$$

105. The Unadjusted 2025 AADT refers to the figure calculated using the formula in paragraph 103.
106. The Actual Airport AADT has been obtained from the “Total Trips by Scenario” tab of the LCY Trip Generation spreadsheet (dated 10th August 2022, panes 3 and 4). The Assumed Airport AADT has been calculated by adding Highway Links 13 and 14 Hartmann Road (East of Connaught Road) together. Highway Links 31 and 32 Hartmann Road (West of Albert Road) are closed in the year 2025 and therefore not included.

2027 Do Minimum (DM)

107. The 2026 and 2031 Total DM (including CADP1) AADT figures have been used in the initial stage of the calculations.
108. The subsequent formula has been used to calculate the 2027 DM AADT:

$$2026 \text{ AADT} + (2031 \text{ AADT} - 2026 \text{ AADT}) \times (1 \div 5)$$

109. An adjustment has been made for Highway Links 13 and 14 Hartmann Road (East of Connaught Road), by performing the following calculation:

$$(2027 \text{ Actual Airport AADT} \div 2027 \text{ Assumed Airport AADT}) \times \text{Unadjusted 2027 AADT}$$

110. The Unadjusted 2027 AADT refers to the figure calculated using the formula in paragraph 108.
111. The Actual Airport AADT has been obtained from the “Total Trips by Scenario” tab of the LCY Trip Generation spreadsheet (dated 10th August 2022, panes 3 and 4). The Assumed Airport AADT has been calculated by adding Highway Links 13 and 14 Hartmann Road (East of Connaught Road) together. Highway Links 31 and 32 Hartmann Road (West of Albert Road) are closed in the year 2027 and therefore not included.

2027 Development Case (DC) (Core Case)

112. The 2026 and 2031 Total DC (Core Case) AADT figures have been used in the initial stage of the calculations.
113. The subsequent formula has been used to calculate the 2027 DC AADT (Core Case):

$$2026 \text{ AADT} + (2031 \text{ AADT} - 2026 \text{ AADT}) \times (1 \div 5)$$

114. An adjustment has been made for Highway Links 13 and 14 Hartmann Road (East of Connaught Road), by performing the following calculation:

$$(2027 \text{ Actual Airport AADT} \div 2027 \text{ Assumed Airport AADT}) \times \text{Unadjusted 2027 AADT}$$

115. The Unadjusted 2027 AADT refers to the figure calculated using the formula in paragraph 113.
116. The Actual Airport AADT has been obtained from the “Total Trips by Scenario” tab of the LCY Trip Generation spreadsheet (dated 10th August 2022, panes 3 and 4). The Assumed Airport AADT has been calculated by adding Highway Links 13 and 14 Hartmann Road (East of Connaught Road) together. Highway Links 31 and 32 Hartmann Road (West of Albert Road) are closed in the year 2027 and therefore not included.

2029 Do Minimum (DM)

117. The 2026 and 2031 Total DM (including CADP1) AADT figures have been used in the initial stage of the calculations.
118. The subsequent formula has been used to calculate the 2029 DM AADT:

$$2026 \text{ AADT} + (2031 \text{ AADT} - 2026 \text{ AADT}) \times (3 \div 5)$$

119. An adjustment has been made for Highway Links 13 and 14 Hartmann Road (East of Connaught Road), by performing the following calculation:

$$(2029 \text{ Actual Airport AADT} \div 2029 \text{ Airport AADT}) \times \text{Unadjusted 2029 AADT}$$

120. The Unadjusted 2029 AADT refers to the figure calculated using the formula in paragraph 118.
121. The Actual Airport AADT has been obtained from the “Total Trips by Scenario” tab of the LCY Trip Generation spreadsheet (dated 10th August 2022, panes 3 and 4). The Assumed Airport AADT has been calculated by adding Highway Links 13 and 14 Hartmann Road (east of Connaught Road) together. Highway Links 31 and 32 Hartmann Road (West of Albert Road) are closed in the year 2029 and therefore not included.

2029 Development Case (DC) (Core Case)

122. The 2026 and 2031 Total DC (Core Case) AADT figures have been used in the initial stage of the calculations.
123. The subsequent formula has been used to calculate the 2029 DC AADT (Core Case):
- $$2026 \text{ AADT} + (2031 \text{ AADT} - 2026 \text{ AADT}) \times (3 \div 5)$$
124. An adjustment has been made for Highway Links 13 and 14 Hartmann Road (East of Connaught Road), by performing the following calculation:

$$(2029 \text{ Actual Airport AADT} \div 2029 \text{ Airport AADT}) \times \text{Unadjusted 2029 AADT}$$

125. The Unadjusted 2029 AADT refers to the figure calculated using the formula in paragraph 123.
126. The Actual Airport AADT has been obtained from the “Total Trips by Scenario” tab of the LCY Trip Generation spreadsheet (dated 10th August 2022, panes 3 and 4). The Assumed Airport AADT has been calculated by adding Highway Links 13 and 14 Hartmann Road (east of Connaught Road) together. Highway Links 31 and 32 Hartmann Road (West of Albert Road) are closed in the year 2029 and therefore not included.

AADT Summary

127. The above methodology and calculations resulted in the following AADT assessment scenarios for both the Core Case and Faster Growth scenarios:
- 2019 AADT;
 - 2025 Do Minimum (DC) AADT;
 - 2025 Development Case (DC) AADT;
 - 2027 Do Minimum (DC) AADT;
 - 2027 Development Case (DC) AADT;
 - 2029 Do Minimum (DC) AADT;
 - 2029 Development Case (DC) t AADT;
 - 2031 Do Minimum (DC) AADT; and
 - 2031 Development Case (DC) AADT.
128. It should be noted that AADT flows for 2026 have not been included in the final summary of AADT flows as these have only been produced to calculate the AADT flows for the years 2025, 2027 and 2029.

Annual Average Weekday Traffic (AAWT) Methodology

159. The Department for Transport (DfT) database for motor vehicle traffic distribution by time of day and day of the week on all roads in Great Britain (2019), has been extracted to obtain suitable AADT to AAWT conversion factors for the highway links in **Table 1**. The database can be accessed from the following link: Traffic (www.gov.uk/government/organisations/department-for-transport/series/road-traffic-statistics)

160. All highway links, excluding highway links 13, 14, 31 and 32, have had the following AADT to AAWT conversion factor applied:
- 24hr AADT to 18hr AAWT: 1.03
161. The DfT data used to obtain AADT to AAWT conversion factors are included in **Appendix A** for reference.
162. Passenger Flow (by day of the week) data supplied by York Aviation (16 August 2022) has been used to convert the AADT flows on the Hartmann Road highway links 13, 14, 31 and 32 to AAWT flows. The following AAWT to AADT conversion factors are used for these highway links and is separated by year:
- 2019: 1.20;
 - 2025: 1.18;
 - 2026: 1.16;
 - 2027: 1.14;
 - 2029: 1.14; and
 - 2031: 1.14.
163. A copy of Passenger Flow (by day of week) data used to obtain AADT to AAWT conversion factors are included in **Appendix B** for reference.

Annual Average Weekend Traffic Methodology

164. The Department for Transport (DfT) database for motor vehicle traffic distribution by time of day and day of the week on all roads in Great Britain (2019) has been extracted in order to obtain suitable AADT to Annual Average Weekend Traffic conversion factors for the highway links. The database can be accessed from the following link: Traffic (www.gov.uk/government/organisations/departments-for-transport/series/road-traffic-statistics)
165. All highway links, excluding highway links 13, 14, 31 and 32, have had the following AADT to Annual Average Weekend Traffic conversion factor applied:
- 24hr AADT to 18hr Annual Average Weekend Traffic: 0.80
166. The DfT data used to obtain AADT to Annual Average Weekend Traffic conversion factors are included in **Appendix A** for reference.
167. Passenger Flow (by day of the week) data supplied by York Aviation (16 August 2022) has been used to convert the AADT flows on the Hartmann Road highway links 13, 14, 31 and 32 to AAWT flows. The following AAWT to AADT conversion factors are used for these highway links and are separated by year:
- 2019: 0.50;
 - 2025: 0.54;
 - 2026: 0.60;
 - 2027: 0.65;
 - 2029: 0.66; and
 - 2031: 0.66.d
168. A copy of Passenger Flow (by day of week) data used to obtain AADT to Annual Average Weekend Traffic conversion factors are included in **Appendix B** for reference.

Appendices

Appendix A – DfT AADT to AAWT and Annual Average Weekend Traffic Conversion Factors

Department for Transport statistics

Traffic (www.gov.uk/government/organisations/department-for-transport/series/road-traffic-statistics)

Table TRA0307

Motor vehicle traffic distribution by time of day and day of the week on all roads, Great Britain: 2019 ¹

Index: Average hourly traffic flow over year = 100

Time of day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday		
00:00-01:00	11.7	11.4	12.0	12.6	14.3	21.3	24.9		
01:00-02:00	7.2	7.5	7.6	7.9	9.0	13.3	15.2		
02:00-03:00	5.9	6.3	6.4	6.7	7.4	9.6	10.3		
03:00-04:00	7.5	7.5	7.5	7.9	8.4	8.9	8.6		
04:00-05:00	14.7	13.1	13.0	13.3	13.4	10.5	8.6		
05:00-06:00	41.8	38.0	37.7	37.6	36.0	19.5	13.0		
06:00-07:00	99.5	97.2	96.7	96.0	88.7	35.0	22.0		
07:00-08:00	181.2	180.8	180.8	179.4	166.6	60.5	35.3		
08:00-09:00	198.2	200.4	201.1	201.4	189.8	98.1	54.6		
09:00-10:00	150.0	151.6	152.9	154.5	152.5	134.4	94.8		
10:00-11:00	143.4	138.0	139.6	143.2	153.0	162.7	135.0		
11:00-12:00	148.0	140.9	143.3	147.3	163.3	177.7	157.7		
12:00-13:00	150.6	145.4	147.9	152.2	173.4	180.0	168.1		
13:00-14:00	150.5	146.7	149.1	153.3	176.2	171.4	161.9		
14:00-15:00	159.4	158.2	161.2	164.8	187.7	160.4	155.3		
15:00-16:00	179.7	181.6	185.3	189.1	207.4	151.9	152.7		
16:00-17:00	202.1	205.0	207.7	210.5	213.0	150.1	149.8		
17:00-18:00	206.8	210.0	212.8	214.9	205.5	143.9	133.5		
18:00-19:00	152.8	160.1	164.1	168.6	165.2	122.5	114.1		
19:00-20:00	101.3	107.1	111.2	117.7	121.4	94.4	92.9		
20:00-21:00	69.3	72.6	76.4	82.6	84.1	67.7	71.6		
21:00-22:00	50.7	54.3	56.7	61.1	61.6	52.7	50.6		
22:00-23:00	34.4	38.5	40.8	43.5	48.3	45.7	33.7		
23:00-00:00	19.2	21.3	22.8	25.3	33.5	35.7	20.5		
Total 1 hr (08:00-09:00)	198	200	201	201	190	98	55		
Total 1 hr (17:00-18:00)	207	210	213	215	206	144	134		
Total pk hr (AM + PM)	405	410	414	416	395	242	188		
Total 6 hr (00:00-06:00)	89	84	84	86	89	83	81		
Total 8 hr (23:00-07:00)	208	202	204	207	211	154	123	weekday ave	7day ave
Total 12hr (07:00-19:00)	2023	2019	2046	2079	2154	1714	1513	2064	1935
Total 18 hr (06:00-00:00)	2397	2410	2450	2505	2591	2045	1804	2471	2315
Total Daily	2486	2494	2535	2591	2680	2128	1885	2557	2400

1. Indices show the average hourly traffic flow in each combination of weekday and hour, relative to the average hour across the whole year. The mean of all indices may not be exactly 100, due to the differing number of occurrences of each weekday in one year.

Source: DfT Automatic Traffic Counters
Last updated: September 2020

Telephone: 020 7944 3095

Email: roadtraff.stats@df.gov.uk

Notes & definitions:

<https://www.gov.uk/government/publications/road-traffic-statistics-guidance>

The figures in this table are not National Statistics.

Factors to be used

1 hr (0800 to 0900) AADT to 24 hr AADT

14.69 6.8%

1 hr (1700 to 1800) AADT to 24 hr AADT

12.65 7.9%

Pk hr (0800 to 0900 + 1700 to 1800) AADT to 24 hr AADT

6.80

24 hr AADT to be converted to 24hr AAWT

1.07

24 hr AADT to be converted to 18hr (0600 to 0000) AADT

0.96

24 hr AADT to be converted to 18hr (0600 to 0000) AAWT

1.03

24 hr AADT to be converted to 8hr (23:00 to 0700) AADT

0.08

24 hr AADT to be converted to 8hr (2300 to 0700) AAWT

0.09

24 hr AADT to be converted to 6hr (0000 to 0600) AAWT

0.04

12hr AAWT to 18hr AAWT

1.20

24hr AADT to be converted to 18hr (0600 to 0000) weekend flow

0.80

24hr AADT to be converted to 18hr (0600 to 0000) Saturday flow

0.85

24hr AADT to be converted to 18hr (0600 to 0000) Sunday flow

0.75

Appendix B – Passenger Flow (by day of week) AADT to AAWT and Annual Average Weekend Traffic Conversion Factors

Applies to all cases

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Average Weekday	Average Weekend	Average Day	Average Day to Average Weekday - all passengers	Average Day to Average Weekend - all passengers
2019	17.4%	16.4%	16.8%	17.7%	17.4%	4.4%	10.0%	17.1%	7.2%	14.3%	1.20	0.50
2024	17.3%	16.4%	16.8%	17.6%	17.3%	4.7%	9.9%	17.1%	7.3%	14.3%	1.19	0.51
2025	17.2%	16.2%	16.6%	17.4%	17.1%	5.6%	9.8%	16.9%	7.7%	14.3%	1.18	0.54
2026	16.8%	15.9%	16.3%	17.1%	16.8%	7.4%	9.7%	16.6%	8.5%	14.3%	1.16	0.60
2027	16.5%	15.6%	16.0%	16.8%	16.5%	9.2%	9.5%	16.3%	9.3%	14.3%	1.14	0.65
2028	16.5%	15.6%	15.9%	16.7%	16.4%	9.4%	9.5%	16.2%	9.4%	14.3%	1.14	0.66
2029	16.5%	15.6%	15.9%	16.7%	16.4%	9.4%	9.5%	16.2%	9.4%	14.3%	1.14	0.66
2030	16.5%	15.6%	15.9%	16.7%	16.4%	9.3%	9.5%	16.2%	9.4%	14.3%	1.14	0.66
2031	16.5%	15.6%	15.9%	16.7%	16.4%	9.5%	9.4%	16.2%	9.5%	14.3%	1.14	0.66

Source: York Aviation - 16 August 2022

To be applied to Hartmann Road only