

CITY AIRPORT DEVELOPMENT PROGRAMME  
(CADP1) S73 APPLICATION

# ENVIRONMENTAL STATEMENT

VOLUME 2: APPENDICES

DECEMBER 2022



# Pell Frischmann

City Airport Development  
Programme (CADP1) S73  
Application

Volume 2: Appendices  
Appendix 11.2 Detailed GHG  
Assessment Results

December 2022

## **Appendix 11.2: Detailed GHG Assessment Results**

### **LCY S73 Application**

---

December 2022



Experts in air quality  
management & assessment

# 1 Introduction

11.1.1 This appendix sets out the detailed results of the GHG modelling by GHG emissions source.

## 2 Scope 1 Emissions

### *Natural Gas Consumption*

11.2.1 The DM and DC emissions from natural gas consumption for heating is presented in Table 1. These are calculated using the data set out in Appendix 11.1.

**Table 1: GHG Emissions from Natural Gas Consumption (TCO<sub>2</sub>e)**

| Year | DM  | DC  | Year | DM | DC | Year               | DM    | DC    |
|------|-----|-----|------|----|----|--------------------|-------|-------|
| 2019 | 281 | 281 | 2033 | 0  | 0  | 2043               | 0     | 0     |
| 2024 | 281 | 281 | 2034 | 0  | 0  | 2044               | 0     | 0     |
| 2025 | 281 | 281 | 2035 | 0  | 0  | 2045               | 0     | 0     |
| 2026 | 281 | 281 | 2036 | 0  | 0  | 2046               | 0     | 0     |
| 2027 | 281 | 281 | 2037 | 0  | 0  | 2047               | 0     | 0     |
| 2028 | 281 | 281 | 2038 | 0  | 0  | 2048               | 0     | 0     |
| 2029 | 281 | 281 | 2039 | 0  | 0  | 2049               | 0     | 0     |
| 2030 | 0   | 0   | 2040 | 0  | 0  | 2050               | 0     | 0     |
| 2031 | 0   | 0   | 2041 | 0  | 0  | Total<br>2024-2050 | 1,685 | 1,685 |
| 2032 | 0   | 0   | 2042 | 0  | 0  |                    |       |       |

### ***Airport Airside Vehicles and Plant***

11.2.2 The DM and DC emissions from airport airside vehicles and plant is presented in Table 2. These are calculated using the data set out in Appendix 11.1.

**Table 2: GHG Emissions for Airport Airside Vehicles and Plant (TCO<sub>2e</sub>)**

| Year | DM  | DC  | Year | DM | DC | Year               | DM    | DC    |
|------|-----|-----|------|----|----|--------------------|-------|-------|
| 2019 | 510 | 510 | 2033 | 0  | 0  | 2043               | 0     | 0     |
| 2024 | 449 | 450 | 2034 | 0  | 0  | 2044               | 0     | 0     |
| 2025 | 430 | 454 | 2035 | 0  | 0  | 2045               | 0     | 0     |
| 2026 | 427 | 470 | 2036 | 0  | 0  | 2046               | 0     | 0     |
| 2027 | 416 | 479 | 2037 | 0  | 0  | 2047               | 0     | 0     |
| 2028 | 400 | 452 | 2038 | 0  | 0  | 2048               | 0     | 0     |
| 2029 | 375 | 416 | 2039 | 0  | 0  | 2049               | 0     | 0     |
| 2030 | 0   | 0   | 2040 | 0  | 0  | 2050               | 0     | 0     |
| 2031 | 0   | 0   | 2041 | 0  | 0  | Total<br>2024-2050 | 2,498 | 2,722 |
| 2032 | 0   | 0   | 2042 | 0  | 0  |                    |       |       |

### **Fire Training**

11.2.3 The DM and DC emissions from fire training exercises is presented in Table 3. These are calculated using the data set out in Appendix 11.1.

**Table 3: GHG Emissions Data for Fire Training Exercises (TCO<sub>2e</sub>)**

| Year | DM   | DC   | Year | DM | DC | Year               | DM   | DC   |
|------|------|------|------|----|----|--------------------|------|------|
| 2019 | 0.71 | 0.71 | 2033 | 0  | 0  | 2043               | 0    | 0    |
| 2024 | 0.71 | 0.71 | 2034 | 0  | 0  | 2044               | 0    | 0    |
| 2025 | 0.71 | 0.71 | 2035 | 0  | 0  | 2045               | 0    | 0    |
| 2026 | 0.71 | 0.71 | 2036 | 0  | 0  | 2046               | 0    | 0    |
| 2027 | 0.71 | 0.71 | 2037 | 0  | 0  | 2047               | 0    | 0    |
| 2028 | 0.71 | 0.71 | 2038 | 0  | 0  | 2048               | 0    | 0    |
| 2029 | 0.71 | 0.71 | 2039 | 0  | 0  | 2049               | 0    | 0    |
| 2030 | 0    | 0    | 2040 | 0  | 0  | 2050               | 0    | 0    |
| 2031 | 0    | 0    | 2041 | 0  | 0  | Total<br>2024-2050 | 4.24 | 4.24 |
| 2032 | 0    | 0    | 2042 | 0  | 0  |                    |      |      |

### Refrigerant Use

11.2.4 The DM and DC emissions from refrigerant losses is presented in Table 4. These are calculated using the data set out in Appendix 11.1.

**Table 4: GHG Emissions Data for Refrigerant Losses (TCO<sub>2</sub>e)**

| Year | DM  | DC  | Year | DM | DC | Year               | DM    | DC    |
|------|-----|-----|------|----|----|--------------------|-------|-------|
| 2019 | 216 | 216 | 2033 | 0  | 0  | 2043               | 0     | 0     |
| 2024 | 216 | 216 | 2034 | 0  | 0  | 2044               | 0     | 0     |
| 2025 | 216 | 216 | 2035 | 0  | 0  | 2045               | 0     | 0     |
| 2026 | 216 | 216 | 2036 | 0  | 0  | 2046               | 0     | 0     |
| 2027 | 216 | 216 | 2037 | 0  | 0  | 2047               | 0     | 0     |
| 2028 | 216 | 216 | 2038 | 0  | 0  | 2048               | 0     | 0     |
| 2029 | 216 | 216 | 2039 | 0  | 0  | 2049               | 0     | 0     |
| 2030 | 0   | 0   | 2040 | 0  | 0  | 2050               | 0     | 0     |
| 2031 | 0   | 0   | 2041 | 0  | 0  | Total<br>2024-2050 | 1,296 | 1,296 |
| 2032 | 0   | 0   | 2042 | 0  | 0  |                    |       |       |

### 3 Scope 2 Emissions

#### *Airport Electricity Consumption*

11.3.1 The DM and DC emissions from Airport electricity consumption is presented in Table 5. These are calculated using the data set out in Appendix 11.1.

**Table 5: GHG Emissions Data for Airport Electricity Consumption (TCO<sub>2</sub>e)**

| Year | DM    | DC    | Year | DM | DC | Year               | DM    | DC    |
|------|-------|-------|------|----|----|--------------------|-------|-------|
| 2019 | 2,321 | 2,321 | 2033 | 0  | 0  | 2043               | 0     | 0     |
| 2024 | 1,267 | 1,267 | 2034 | 0  | 0  | 2044               | 0     | 0     |
| 2025 | 1,093 | 1,181 | 2035 | 0  | 0  | 2045               | 0     | 0     |
| 2026 | 854   | 1,015 | 2036 | 0  | 0  | 2046               | 0     | 0     |
| 2027 | 720   | 934   | 2037 | 0  | 0  | 2047               | 0     | 0     |
| 2028 | 740   | 937   | 2038 | 0  | 0  | 2048               | 0     | 0     |
| 2029 | 739   | 912   | 2039 | 0  | 0  | 2049               | 0     | 0     |
| 2030 | 0     | 0     | 2040 | 0  | 0  | 2050               | 0     | 0     |
| 2031 | 0     | 0     | 2041 | 0  | 0  | Total<br>2024-2050 | 5,413 | 6,246 |
| 2032 | 0     | 0     | 2042 | 0  | 0  |                    |       |       |



## 4 Scope 3 Emissions

### *Tenants' Electricity Consumption*

11.4.1 The DM and DC emissions from tenants electricity consumption is presented in Table 6. These are calculated using the data set out in Appendix 11.1.

**Table 6: GHG Emissions Data for Tenants' Electricity Consumption (TCO<sub>2e</sub>)**

| Year | DM  | DC  | Year | DM | DC | Year               | DM    | DC    |
|------|-----|-----|------|----|----|--------------------|-------|-------|
| 2019 | 245 | 245 | 2033 | 37 | 52 | 2043               | 14    | 20    |
| 2024 | 134 | 134 | 2034 | 34 | 47 | 2044               | 14    | 19    |
| 2025 | 115 | 125 | 2035 | 30 | 42 | 2045               | 11    | 16    |
| 2026 | 90  | 107 | 2036 | 25 | 35 | 2046               | 10    | 14    |
| 2027 | 76  | 99  | 2037 | 22 | 31 | 2047               | 10    | 13    |
| 2028 | 78  | 99  | 2038 | 22 | 30 | 2048               | 9     | 13    |
| 2029 | 78  | 96  | 2039 | 21 | 29 | 2049               | 8     | 12    |
| 2030 | 63  | 83  | 2040 | 19 | 26 | 2050               | 8     | 12    |
| 2031 | 50  | 69  | 2041 | 15 | 21 | Total<br>2024-2050 | 1,052 | 1,321 |
| 2032 | 43  | 60  | 2042 | 15 | 20 |                    |       |       |

### 3<sup>rd</sup> Party Airside Vehicles and Plant

11.4.2 The DM and DC emissions from airport airside vehicles and plant is presented in Table 7. These are calculated using the data set out in Appendix 11.1.

**Table 7: GHG Emissions for 3<sup>rd</sup> Party Airside Vehicles and Plant (TCO<sub>2e</sub>)**

| Year | DM  | DC  | Year | DM | DC  | Year               | DM    | DC    |
|------|-----|-----|------|----|-----|--------------------|-------|-------|
| 2019 | 175 | 175 | 2033 | 84 | 100 | 2043               | 29    | 35    |
| 2024 | 154 | 154 | 2034 | 76 | 90  | 2044               | 26    | 31    |
| 2025 | 147 | 156 | 2035 | 68 | 81  | 2045               | 24    | 28    |
| 2026 | 146 | 161 | 2036 | 62 | 73  | 2046               | 21    | 25    |
| 2027 | 143 | 164 | 2037 | 55 | 65  | 2047               | 19    | 23    |
| 2028 | 137 | 155 | 2038 | 50 | 59  | 2048               | 17    | 21    |
| 2029 | 129 | 143 | 2039 | 45 | 53  | 2049               | 16    | 18    |
| 2030 | 116 | 137 | 2040 | 40 | 48  | 2050               | 14    | 17    |
| 2031 | 104 | 123 | 2041 | 36 | 43  | Total<br>2024-2050 | 1,887 | 2,150 |
| 2032 | 94  | 111 | 2042 | 33 | 39  |                    |       |       |

## Waste

11.4.3 The DM and DC emissions from waste treatment and disposal is presented in Table 8. These are calculated using the data set out in Appendix 11.1.

**Table 8: GHG Emissions for Waste (TCO<sub>2</sub>e)**

| Year | DM | DC | Year | DM | DC | Year               | DM  | DC    |
|------|----|----|------|----|----|--------------------|-----|-------|
| 2019 | 28 | 28 | 2033 | 36 | 50 | 2043               | 36  | 50    |
| 2024 | 27 | 27 | 2034 | 36 | 50 | 2044               | 36  | 50    |
| 2025 | 28 | 30 | 2035 | 36 | 50 | 2045               | 36  | 50    |
| 2026 | 29 | 35 | 2036 | 36 | 50 | 2046               | 36  | 50    |
| 2027 | 30 | 39 | 2037 | 36 | 50 | 2047               | 36  | 50    |
| 2028 | 33 | 42 | 2038 | 36 | 50 | 2048               | 36  | 50    |
| 2029 | 35 | 44 | 2039 | 36 | 50 | 2049               | 36  | 50    |
| 2030 | 36 | 48 | 2040 | 36 | 50 | 2050               | 36  | 50    |
| 2031 | 36 | 50 | 2041 | 36 | 50 | Total<br>2024-2050 | 939 | 1,261 |
| 2032 | 36 | 50 | 2042 | 36 | 50 |                    |     |       |

### *Passenger Transport*

11.4.4 The DM and DC emissions from passenger transport is presented in Table 9. These are calculated using the data set out in Appendix 11.1.

**Table 9: GHG Emissions for Passenger Transport (TCO<sub>2e</sub>)**

| Year        | DM     | DC     | Year        | DM    | DC     | Year                       | DM      | DC      |
|-------------|--------|--------|-------------|-------|--------|----------------------------|---------|---------|
| <b>2019</b> | 18,157 | 18,157 | <b>2033</b> | 8,765 | 11,697 | <b>2043</b>                | 5,718   | 7,611   |
| <b>2024</b> | 15,695 | 15,695 | <b>2034</b> | 8,253 | 11,008 | <b>2044</b>                | 5,581   | 7,430   |
| <b>2025</b> | 15,177 | 15,177 | <b>2035</b> | 7,804 | 10,404 | <b>2045</b>                | 5,442   | 7,245   |
| <b>2026</b> | 14,640 | 14,640 | <b>2036</b> | 7,412 | 9,877  | <b>2046</b>                | 5,328   | 7,093   |
| <b>2027</b> | 11,781 | 14,918 | <b>2037</b> | 7,065 | 9,411  | <b>2047</b>                | 5,223   | 6,954   |
| <b>2028</b> | 11,278 | 14,276 | <b>2038</b> | 6,763 | 9,007  | <b>2048</b>                | 5,130   | 6,830   |
| <b>2029</b> | 10,763 | 13,619 | <b>2039</b> | 6,503 | 8,657  | <b>2049</b>                | 5,041   | 6,711   |
| <b>2030</b> | 10,128 | 12,811 | <b>2040</b> | 6,251 | 8,321  | <b>2050</b>                | 4,962   | 6,607   |
| <b>2031</b> | 10,007 | 13,375 | <b>2041</b> | 6,017 | 8,008  | <b>Total<br/>2024-2050</b> | 221,928 | 277,657 |
| <b>2032</b> | 9,345  | 12,481 | <b>2042</b> | 5,856 | 7,795  |                            |         |         |

### ***Airport Staff Travel***

11.4.5 The DM and DC emissions from airport staff travel is presented in Table 10. These are calculated using the data set out Appendix 11.1.

**Table 10: GHG Emissions for Airport Staff Transport (TCO<sub>2</sub>e)**

| Year        | DM    | DC    | Year        | DM  | DC    | Year                       | DM     | DC     |
|-------------|-------|-------|-------------|-----|-------|----------------------------|--------|--------|
| <b>2019</b> | 1,336 | 1,336 | <b>2033</b> | 541 | 1,039 | <b>2043</b>                | 403    | 734    |
| <b>2024</b> | 1,168 | 1,168 | <b>2034</b> | 518 | 991   | <b>2044</b>                | 397    | 719    |
| <b>2025</b> | 1,133 | 1,133 | <b>2035</b> | 498 | 948   | <b>2045</b>                | 392    | 704    |
| <b>2026</b> | 1,097 | 1,097 | <b>2036</b> | 480 | 910   | <b>2046</b>                | 387    | 692    |
| <b>2027</b> | 816   | 933   | <b>2037</b> | 465 | 876   | <b>2047</b>                | 383    | 680    |
| <b>2028</b> | 787   | 900   | <b>2038</b> | 451 | 846   | <b>2048</b>                | 380    | 670    |
| <b>2029</b> | 759   | 867   | <b>2039</b> | 439 | 819   | <b>2049</b>                | 377    | 660    |
| <b>2030</b> | 721   | 825   | <b>2040</b> | 428 | 793   | <b>2050</b>                | 374    | 651    |
| <b>2031</b> | 597   | 1,151 | <b>2041</b> | 417 | 768   | <b>Total<br/>2024-2050</b> | 15,385 | 23,418 |
| <b>2032</b> | 567   | 1,092 | <b>2042</b> | 409 | 750   |                            |        |        |

### ***Airport Staff Business Travel***

11.4.6 The DM and DC emissions from airport business travel is presented in Table 11.

**Table 11: GHG Emissions for Airport Staff Business Travel (TCO<sub>2</sub>e)**

| Year | DM | DC | Year | DM | DC | Year               | DM  | DC  |
|------|----|----|------|----|----|--------------------|-----|-----|
| 2019 | 16 | 16 | 2033 | 17 | 23 | 2043               | 16  | 22  |
| 2024 | 15 | 15 | 2034 | 17 | 23 | 2044               | 16  | 22  |
| 2025 | 15 | 15 | 2035 | 17 | 23 | 2045               | 16  | 22  |
| 2026 | 15 | 15 | 2036 | 17 | 22 | 2046               | 16  | 22  |
| 2027 | 15 | 19 | 2037 | 17 | 22 | 2047               | 16  | 22  |
| 2028 | 15 | 19 | 2038 | 16 | 22 | 2048               | 16  | 22  |
| 2029 | 15 | 19 | 2039 | 16 | 22 | 2049               | 16  | 22  |
| 2030 | 15 | 19 | 2040 | 16 | 22 | 2050               | 16  | 22  |
| 2031 | 17 | 23 | 2041 | 16 | 22 | Total<br>2024-2050 | 433 | 564 |
| 2032 | 17 | 23 | 2042 | 16 | 22 |                    |     |     |

### *Aircraft Landing and Take Off Cycle (LTO)*

11.4.7 The DM and DC emissions from aircraft in the LTO is presented in Table 12. These are calculated using the data set out in **Error! Reference source not found..**

**Table 12: GHG Emissions for Aircraft in the LTO Cycle (TCO<sub>2</sub>e)**

| Year | DM     | DC     | Year | DM     | DC     | Year                       | DM        | DC        |
|------|--------|--------|------|--------|--------|----------------------------|-----------|-----------|
| 2019 | 70,709 | 70,709 | 2033 | 64,727 | 79,659 | 2043                       | 25,659    | 32,191    |
| 2024 | 70,475 | 70,618 | 2034 | 62,844 | 77,341 | 2044                       | 22,089    | 27,842    |
| 2025 | 70,643 | 73,657 | 2035 | 61,010 | 75,084 | 2045                       | 18,773    | 23,801    |
| 2026 | 73,453 | 76,979 | 2036 | 55,949 | 68,954 | 2046                       | 15,699    | 20,054    |
| 2027 | 74,466 | 79,458 | 2037 | 51,128 | 63,114 | 2047                       | 12,858    | 16,587    |
| 2028 | 77,843 | 82,772 | 2038 | 46,538 | 57,551 | 2048                       | 10,239    | 13,389    |
| 2029 | 79,174 | 84,898 | 2039 | 42,169 | 52,257 | 2049                       | 7,832     | 10,446    |
| 2030 | 72,174 | 84,643 | 2040 | 38,014 | 47,220 | 2050                       | 5,627     | 7,748     |
| 2031 | 68,647 | 84,483 | 2041 | 33,610 | 41,865 | <b>Total<br/>2024-2050</b> | 1,257,798 | 1,471,512 |
| 2032 | 66,661 | 82,039 | 2042 | 29,496 | 36,860 |                            |           |           |

### *Aircraft Climb, Cruise and Descent (CCD)*

11.4.8 The DM and DC emissions from aircraft in CCD is presented in Table 13. These are calculated using the data set out in Appendix 11.1.

**Table 13: GHG Emissions for Aircraft During Climb, Cruise and Descent (TCO<sub>2e</sub>)**

| Year | DM      | DC      | Year | DM      | DC      | Year               | DM        | DC        |
|------|---------|---------|------|---------|---------|--------------------|-----------|-----------|
| 2019 | 216,521 | 216,521 | 2033 | 216,743 | 270,101 | 2043               | 85,922    | 109,150   |
| 2024 | 218,476 | 218,909 | 2034 | 210,436 | 262,242 | 2044               | 73,966    | 94,406    |
| 2025 | 220,674 | 233,315 | 2035 | 204,295 | 254,589 | 2045               | 62,861    | 80,704    |
| 2026 | 232,487 | 251,458 | 2036 | 187,350 | 233,806 | 2046               | 52,570    | 67,997    |
| 2027 | 236,715 | 261,011 | 2037 | 171,206 | 214,002 | 2047               | 43,057    | 56,243    |
| 2028 | 253,546 | 279,362 | 2038 | 155,834 | 195,141 | 2048               | 34,287    | 45,397    |
| 2029 | 261,865 | 287,236 | 2039 | 141,206 | 177,189 | 2049               | 26,226    | 35,420    |
| 2030 | 240,220 | 289,009 | 2040 | 127,293 | 160,112 | 2050               | 18,843    | 26,271    |
| 2031 | 229,870 | 286,460 | 2041 | 112,545 | 141,953 | Total<br>2024-2050 | 4,140,483 | 4,934,637 |
| 2032 | 223,220 | 278,172 | 2042 | 98,768  | 124,982 |                    |           |           |



### ***Aircraft Auxiliary Power Units (APU)***

11.4.9 The DM and DC emissions from aircraft APU is presented in Table 14.

**Table 14: GHG Emissions for Aircraft Auxiliary Power Units (TCO<sub>2e</sub>)**

| Year        | DM    | DC    | Year        | DM    | DC    | Year                       | DM     | DC     |
|-------------|-------|-------|-------------|-------|-------|----------------------------|--------|--------|
| <b>2019</b> | 2,878 | 2,878 | <b>2033</b> | 2,795 | 3,335 | <b>2043</b>                | 1,108  | 1,348  |
| <b>2024</b> | 2,730 | 2,736 | <b>2034</b> | 2,714 | 3,238 | <b>2044</b>                | 954    | 1,166  |
| <b>2025</b> | 2,749 | 2,908 | <b>2035</b> | 2,635 | 3,144 | <b>2045</b>                | 811    | 997    |
| <b>2026</b> | 2,879 | 3,174 | <b>2036</b> | 2,416 | 2,887 | <b>2046</b>                | 678    | 840    |
| <b>2027</b> | 2,950 | 3,411 | <b>2037</b> | 2,208 | 2,643 | <b>2047</b>                | 555    | 694    |
| <b>2028</b> | 3,153 | 3,579 | <b>2038</b> | 2,010 | 2,410 | <b>2048</b>                | 442    | 561    |
| <b>2029</b> | 3,282 | 3,661 | <b>2039</b> | 1,821 | 2,188 | <b>2049</b>                | 338    | 437    |
| <b>2030</b> | 3,053 | 3,628 | <b>2040</b> | 1,642 | 1,977 | <b>2050</b>                | 243    | 324    |
| <b>2031</b> | 2,964 | 3,537 | <b>2041</b> | 1,451 | 1,753 | <b>Total<br/>2024-2050</b> | 52,733 | 61,553 |
| <b>2031</b> | 2,879 | 3,435 | <b>2042</b> | 1,274 | 1,543 |                            |        |        |

### *Aircraft Ground Running*

11.4.10 The DM and DC emissions from aircraft ground running presented in Table 15.

**Table 15: GHG Emissions for Aircraft Ground Running (TCO<sub>2e</sub>)**

| Year | DM  | DC  | Year | DM  | DC  | Year               | DM    | DC    |
|------|-----|-----|------|-----|-----|--------------------|-------|-------|
| 2019 | 186 | 186 | 2033 | 186 | 224 | 2043               | 111   | 115   |
| 2024 | 185 | 185 | 2034 | 178 | 213 | 2044               | 104   | 104   |
| 2025 | 185 | 193 | 2035 | 171 | 202 | 2045               | 97    | 93    |
| 2026 | 193 | 203 | 2036 | 163 | 192 | 2046               | 89    | 82    |
| 2027 | 196 | 209 | 2037 | 156 | 181 | 2047               | 82    | 71    |
| 2028 | 205 | 218 | 2038 | 148 | 170 | 2048               | 74    | 60    |
| 2029 | 208 | 224 | 2039 | 141 | 159 | 2049               | 67    | 49    |
| 2030 | 204 | 240 | 2040 | 134 | 148 | 2050               | 59    | 38    |
| 2031 | 200 | 246 | 2041 | 126 | 137 | Total<br>2024-2050 | 3,974 | 4,318 |
| 2032 | 193 | 203 | 2042 | 119 | 126 |                    |       |       |

### *Construction*

11.4.11 The emissions from construction works (embedded carbon, construction transport and construction site activities) are summarised in Table 16.

**Table 16: GHG Emissions for Construction Works (TCO<sub>2e</sub>)**

| Year         | Embodied Carbon | Construction Transport | Construction Site Activities | Total         |
|--------------|-----------------|------------------------|------------------------------|---------------|
| 2025         | 13,465          | 1,391                  | 859                          | 15,716        |
| 2026         | 13,465          | 1,391                  | 859                          | 15,716        |
| 2027         | 13,465          | 1,391                  | 859                          | 15,716        |
| 2028         | 13,465          | 1,391                  | 859                          | 15,716        |
| 2029         | 13,465          | 1,391                  | 859                          | 15,716        |
| 2030         | 13,465          | 1,391                  | 859                          | 15,716        |
| <b>TOTAL</b> | <b>80,791</b>   | <b>5,156</b>           | <b>8,348</b>                 | <b>94,295</b> |

### Sensitivity Tests

11.4.12 The aircraft emissions associated with the faster and slower growth sensitivity tests are summarised in Table 17.

**Table 17: GHG Emissions for Aircraft Ground Running (TCO<sub>2e</sub>)**

| Year | Faster Growth | Slower Growth | Year                       | Faster Growth    | Slower Growth    |
|------|---------------|---------------|----------------------------|------------------|------------------|
| 2024 | 292,449       | 292,449       | 2038                       | 254,568          | 247,274          |
| 2025 | 319,084       | 300,556       | 2039                       | 231,153          | 224,530          |
| 2026 | 344,953       | 320,082       | 2040                       | 208,879          | 202,894          |
| 2027 | 368,641       | 330,799       | 2041                       | 185,195          | 179,889          |
| 2028 | 391,739       | 343,522       | 2042                       | 163,061          | 158,389          |
| 2029 | 413,732       | 362,667       | 2043                       | 142,410          | 138,330          |
| 2030 | 384,788       | 365,758       | 2044                       | 123,178          | 119,649          |
| 2031 | 373,694       | 362,956       | 2045                       | 105,304          | 102,287          |
| 2032 | 362,878       | 352,466       | 2046                       | 88,728           | 86,186           |
| 2032 | 352,345       | 342,249       | 2047                       | 73,392           | 71,289           |
| 2033 | 342,088       | 332,286       | 2048                       | 59,242           | 57,544           |
| 2034 | 332,100       | 322,583       | 2049                       | 46,224           | 44,899           |
| 2035 | 304,995       | 296,255       | 2050                       | 34,286           | 33,302           |
| 2036 | 279,167       | 271,167       | <b>Total<br/>2024-2050</b> | <b>6,285,825</b> | <b>5,969,810</b> |
| 2037 | 292,449       | 292,449       |                            |                  |                  |

## Operational Emissions Summary

11.4.13 A summary of the total operational DM and DC emissions, by year, including the net change in emissions between the scenarios is presented in Table 18.

**Table 18: Total GHG Emissions Summary (kTCO<sub>2</sub>e)**

| Year | Airport: Operation |     | Airport: Ground Transport |      | Airport: Other |     | Aircraft |       | TOTAL |       |        |
|------|--------------------|-----|---------------------------|------|----------------|-----|----------|-------|-------|-------|--------|
|      | DM                 | DC  | DM                        | DC   | DM             | DC  | DM       | DC    | DM    | DC    | Change |
| 2019 | 3.3                | 3.3 | 19.5                      | 19.5 | 0.5            | 0.5 | 290.3    | 290.3 | 313.6 | 313.6 | 0.0    |
| 2024 | 2.2                | 2.2 | 16.9                      | 16.9 | 0.3            | 0.3 | 291.9    | 292.4 | 311.3 | 311.9 | 0.6    |
| 2025 | 2.0                | 2.1 | 16.3                      | 16.3 | 0.3            | 0.3 | 294.3    | 310.1 | 312.9 | 328.8 | 16.0   |
| 2026 | 1.8                | 2.0 | 15.7                      | 15.7 | 0.3            | 0.3 | 309.0    | 331.8 | 326.8 | 349.9 | 23.0   |
| 2027 | 1.6                | 1.9 | 12.6                      | 15.9 | 0.3            | 0.3 | 314.3    | 344.1 | 328.8 | 362.2 | 33.4   |
| 2028 | 1.6                | 1.9 | 12.1                      | 15.2 | 0.3            | 0.3 | 334.7    | 365.9 | 348.7 | 383.3 | 34.6   |
| 2029 | 1.6                | 1.8 | 11.5                      | 14.5 | 0.3            | 0.3 | 344.5    | 376.0 | 357.9 | 392.6 | 34.7   |
| 2030 | 0.0                | 0.0 | 10.8                      | 13.6 | 0.2            | 0.3 | 315.7    | 377.5 | 326.7 | 391.4 | 64.7   |
| 2031 | 0.0                | 0.0 | 10.6                      | 14.5 | 0.2            | 0.3 | 301.7    | 374.7 | 312.5 | 389.5 | 77.0   |
| 2032 | 0.0                | 0.0 | 9.9                       | 13.6 | 0.2            | 0.2 | 293.0    | 363.9 | 303.1 | 377.7 | 74.6   |
| 2033 | 0.0                | 0.0 | 9.3                       | 12.7 | 0.2            | 0.2 | 284.5    | 353.3 | 293.9 | 366.3 | 72.3   |
| 2034 | 0.0                | 0.0 | 8.8                       | 12.0 | 0.2            | 0.2 | 276.2    | 343.0 | 285.1 | 355.2 | 70.1   |
| 2035 | 0.0                | 0.0 | 8.3                       | 11.4 | 0.2            | 0.2 | 268.1    | 333.0 | 276.6 | 344.6 | 68.0   |
| 2036 | 0.0                | 0.0 | 7.9                       | 10.8 | 0.1            | 0.2 | 245.9    | 305.8 | 253.9 | 316.8 | 62.9   |
| 2037 | 0.0                | 0.0 | 7.5                       | 10.3 | 0.1            | 0.2 | 224.7    | 279.9 | 232.4 | 290.4 | 58.0   |
| 2038 | 0.0                | 0.0 | 7.2                       | 9.9  | 0.1            | 0.2 | 204.5    | 255.3 | 211.9 | 265.3 | 53.4   |
| 2039 | 0.0                | 0.0 | 6.9                       | 9.5  | 0.1            | 0.2 | 185.3    | 231.8 | 192.4 | 241.4 | 49.0   |
| 2040 | 0.0                | 0.0 | 6.7                       | 9.1  | 0.1            | 0.1 | 167.1    | 209.5 | 173.9 | 218.7 | 44.8   |
| 2041 | 0.0                | 0.0 | 6.4                       | 8.8  | 0.1            | 0.1 | 147.7    | 185.7 | 154.3 | 194.6 | 40.4   |
| 2042 | 0.0                | 0.0 | 6.3                       | 8.5  | 0.1            | 0.1 | 129.7    | 163.5 | 136.0 | 172.2 | 36.2   |

| Year                   | Airport: Operation |      | Airport: Ground Transport |       | Airport: Other |     | Aircraft |         | TOTAL   |         |         |
|------------------------|--------------------|------|---------------------------|-------|----------------|-----|----------|---------|---------|---------|---------|
|                        | DM                 | DC   | DM                        | DC    | DM             | DC  | DM       | DC      | DM      | DC      | Change  |
| 2043                   | 0.0                | 0.0  | 6.1                       | 8.3   | 0.1            | 0.1 | 112.8    | 142.8   | 119.0   | 151.3   | 32.3    |
| 2044                   | 0.0                | 0.0  | 6.0                       | 8.1   | 0.1            | 0.1 | 97.1     | 123.5   | 103.2   | 131.8   | 28.6    |
| 2045                   | 0.0                | 0.0  | 5.8                       | 7.9   | 0.1            | 0.1 | 82.5     | 105.6   | 88.5    | 113.7   | 25.2    |
| 2046                   | 0.0                | 0.0  | 5.7                       | 7.8   | 0.1            | 0.1 | 69.0     | 89.0    | 74.8    | 96.9    | 22.0    |
| 2047                   | 0.0                | 0.0  | 5.6                       | 7.6   | 0.1            | 0.1 | 56.6     | 73.6    | 62.2    | 81.3    | 19.1    |
| 2048                   | 0.0                | 0.0  | 5.5                       | 7.5   | 0.1            | 0.1 | 45.0     | 59.4    | 50.6    | 67.0    | 16.4    |
| 2049                   | 0.0                | 0.0  | 5.4                       | 7.4   | 0.1            | 0.1 | 34.5     | 46.4    | 40.0    | 53.8    | 13.9    |
| 2050                   | 0.0                | 0.0  | 5.3                       | 7.3   | 0.1            | 0.1 | 24.8     | 34.4    | 30.2    | 41.7    | 11.6    |
| <b>Total 2024-2050</b> | 14.2               | 15.3 | 256.8                     | 320.6 | 4.8            | 5.8 | 5,745.3  | 6,762.3 | 6,021.1 | 7,103.9 | 1,082.8 |

11.4.14 The data in Table 18 shows:

- that the peak year for emissions is 2029 for both the DM and DC scenario;
- the peak year for aircraft emissions is 2029 for the DM and 2030 for the DC scenario; and
- the largest net change in emissions occurs in 2031.