

Project NUMBAT

A comprehensive multi-rail demand data set for London

Purpose

Transport for London (TfL) produces the NUMBAT dataset to provide statistics on usage and travel patterns on TfL railway services. It is the most comprehensive multi-rail demand data set available for London. This detailed dataset can be used to assess train service provision, demand profiles and customer experience, as well as service planning and performance measurement.

Coverage

The dataset represents the travel demand on a typical autumn weekday, Saturday and Sunday at all stations and lines of the London Underground, London Overground, Docklands Light Railway, TfL Rail / Elizabeth Line and London Trams. Data covers every 15-minute period throughout the traffic day and assumes a perfect train schedule being operated.

Features

NUMBAT uses ticketing data from smartcards and gateline entry/exit totals for each station, utilising a much larger sample size than previous datasets. It uses timetable-based assignment which enables better coverage of lower-frequency parts of the network, as well as creating more granular outputs.



Outputs

| | |
|------------------------------|--|
| Line Boarders | Number of passengers boarding each line by 15 mins |
| Link Load | Number of passengers travelling along a link between one stations and another by 15min |
| Station Entry / Exit | Number of passengers entering / exiting a station by 15 mins |
| Station Boarders / Alighters | Boarders / Alighters by station, line and direction by 15mins |
| Station Link Flows | The number of passengers moving points within stations by 15 mins |
| Service Frequency | The number of trains going through a line section (between stations) by 15 mins |
| Route Choice | Number of passengers on each route for a given O/D pair by time band |
| Journey Time | The time it takes to travel between stations by time band |
| O/D by network | Number of trips between Origin and Destination station by time band |

NUMBAT 2018 output file specification

Date: 15/08/19

File Location: R:\07 Strategy\24 Data\NUMBAT\16 Technical

Notes\16_OutputSpecifications\190815ASD_NUMBAT_2018_OutputFileSpecifications.docx

List of reports to be outputted from NUMBAT system available in the PTSP SharePoint:

- Line Boarders
- Link Load
- Station Boarders
- Station Alighters
- Station Entry
- Station Exit
- Station Link Flows
- OD by Network
- OD by Mode
- Link Frequency

List of reports to be outputted from NUMBAT system in the PTSP share drive:

- OD by Line
- Journey Time
- Route Choice

Line Boarders

Number of passengers boarding a whole line, by quarter hour.

| Field Name | Data Type | Field Description | Sample Data |
|-------------------|-----------|---|-------------|
| Line Code | Text | Three letter NUMBAT code used for line names (e.g. 'BAK' means Bakerloo line) | BAK |
| Line Name | Text | Full NUMBAT line name (e.g. 'Bakerloo' means Bakerloo line) | Bakerloo |
| Flow by Time Band | Numeric | Number of passengers boarding a whole line, by time band (e.g. AM Peak) | 376,436 |
| Flow by QHr | Numeric | Number of passengers boarding a whole line, by quarter hour (e.g. 0800-0815) | 73 |

Sample data

| Line Code | Line Name | Total | Early | AM peak | Midday | PM Peak | Evening | Late | 0500-0515 | 0515-0530 | 0530-0545 |
|-----------|--------------------------|-----------|--------|---------|---------|---------|---------|--------|-----------|-----------|-----------|
| BAK | Bakerloo | 376,436 | 10,596 | 90,913 | 102,527 | 105,896 | 47,419 | 19,085 | 73 | 192 | |
| CEN | Central | 988,014 | 46,077 | 239,754 | 262,604 | 273,109 | 121,017 | 45,454 | 532 | 1,261 | |
| DIS | District | 827,176 | 37,876 | 212,294 | 220,130 | 227,226 | 94,979 | 34,672 | 478 | 1,037 | |
| HAM | H&C and Circle | 490,056 | 21,013 | 120,077 | 140,918 | 134,825 | 53,936 | 19,289 | 495 | 961 | |
| JUB | Jubilee | 951,913 | 48,544 | 250,037 | 227,774 | 263,784 | 115,571 | 46,202 | 791 | 1,602 | |
| MET | Metropolitan | 341,609 | 16,937 | 93,937 | 77,589 | 103,654 | 38,383 | 11,109 | 186 | 435 | |
| NOR | Northern | 1,087,184 | 39,286 | 273,060 | 274,669 | 295,882 | 142,374 | 61,913 | 384 | 870 | |
| PIC | Piccadilly | 666,032 | 28,723 | 150,140 | 187,219 | 175,828 | 86,373 | 37,749 | 533 | 1,039 | |
| VIC | Victoria | 905,015 | 38,703 | 227,188 | 229,735 | 245,455 | 116,849 | 47,085 | 437 | 978 | |
| WAC | Waterloo & City | 63,731 | 1,763 | 21,875 | 9,537 | 21,460 | 7,481 | 1,615 | 0 | 0 | |
| ELL | LO East London | 224,369 | 9,004 | 61,938 | 51,329 | 58,947 | 31,076 | 12,075 | 47 | 157 | |
| GOB | LO Gospel Oak-Barking | 23,184 | 1,390 | 6,460 | 5,639 | 6,222 | 2,701 | 772 | 0 | 0 | |
| NLL | LO North London | 209,598 | 8,382 | 59,805 | 52,763 | 55,804 | 25,071 | 7,773 | 0 | 54 | |
| URL | LO Romford-Upminster | 1,905 | 149 | 647 | 460 | 489 | 156 | 4 | 0 | 0 | |
| WEL | LO Watford-Euston | 34,781 | 2,545 | 9,904 | 8,168 | 9,059 | 3,831 | 1,275 | 54 | 110 | |
| WAG | LO West Anglia Main Line | 113,059 | 7,107 | 31,720 | 24,826 | 30,134 | 14,398 | 4,875 | 123 | 236 | |
| EZL | Elizabeth Line | 186,166 | 15,031 | 52,197 | 35,379 | 53,581 | 23,127 | 6,850 | 302 | 614 | |
| DLR | DLR | 415,716 | 23,993 | 111,648 | 102,508 | 113,582 | 46,623 | 17,362 | 392 | 799 | |
| TRM | London Trams | 90,725 | 4,434 | 22,999 | 27,693 | 23,979 | 8,777 | 2,843 | 103 | 227 | |

Link Load

Number of passengers travelling along a link between one station and another, by quarter hour.

| Field Name | Data Type | Field Description | Sample Data |
|---------------------|-----------|---|---------------------------|
| Link Code (Long) | Text | This string uses text codes to outline the origin and destination stations of the link, as well as the line | ELE_BAK_NB>LAM_BAK_NB@BAK |
| Line (Name) | Text | Full NUMBAT line name (e.g. 'Bakerloo' means Bakerloo line) | Bakerloo |
| Direction (Code) | Text | Two letter code denotes the direction of travel | NB |
| Order | Numeric | Link order within the line and direction | 1 |
| From Station (NLC) | Numeric | Three digit 'master' National Location Code (NLC) denotes the origin station in the link | 570 |
| From Station (ASC) | Text | Three letter code denotes the origin station in the link | ELE |
| From Station (Name) | Text | Full name of the origin station in the link | Elephant & Castle LU |
| To Station (NLC) | Numeric | Three digit 'master' National Location Code (NLC) denotes the destination station in the link | 628 |
| To Station (ASC) | Text | Three letter code denotes the destination station in the link | LAM |
| To Station (Name) | Text | Full name of the destination station in the link | Lambeth North |
| Flow by Time Band | Numeric | Number of <u>passengers</u> travelling along a link between one station and another, by time band (e.g. AM Peak) | 18,583 |
| Flow by QHr | Numeric | Number of <u>passengers</u> travelling along a link between one station and another, by quarter hour (e.g. 0800-0815) | 649 |

Sample data

| Link Code (Long) | Line (Name) | Direction (Code) | Order | From Station (NLC) | From Station (ASC) | From Station (Name) | To Station (NLC) | To Station (ASC) | To Station (Name) | Total | Early | AM peak | 0645-0700 | 0700-0715 |
|-----------------------------|-------------|------------------|-------|--------------------|--------------------|----------------------|------------------|------------------|--------------------|--------|-------|---------|-----------|-----------|
| ELE_BAK_NB>LAM_BAK_NB@BAK | Bakerloo | NB | 1 | 570 | ELE | Elephant & Castle LU | 628 | LAM | Lambeth North | 18,583 | 551 | 6,387 | 174 | 235 |
| LAM_BAK_NB>WLO_BAK_NB@BAK | Bakerloo | NB | 2 | 628 | LAM | Lambeth North | 747 | WLO | Waterloo LU | 23,989 | 594 | 7,385 | 185 | 268 |
| WLO_BAK_NB>EMB_BAK_NB@BAK | Bakerloo | NB | 3 | 747 | WLO | Waterloo LU | 542 | EMB | Embankment | 49,464 | 1,401 | 18,143 | 496 | 731 |
| EMB_BAK_NB>CHXu_BAK_NB@BAK | Bakerloo | NB | 4 | 542 | EMB | Embankment | 718 | CHXu | Charing Cross LU | 57,266 | 1,480 | 17,797 | 515 | 705 |
| CHXu_BAK_NB>PIC_BAK_NB@BAK | Bakerloo | NB | 5 | 718 | CHXu | Charing Cross LU | 674 | PIC | Piccadilly Circus | 68,348 | 1,766 | 20,263 | 613 | 827 |
| PIC_BAK_NB>OXc_BAK_NB@BAK | Bakerloo | NB | 6 | 674 | PIC | Piccadilly Circus | 669 | OXc | Oxford Circus | 80,569 | 1,501 | 16,737 | 504 | 694 |
| OXc_BAK_NB>RPK_BAK_NB@BAK | Bakerloo | NB | 7 | 669 | OXc | Oxford Circus | 685 | RPK | Regent's Park | 88,744 | 1,984 | 17,894 | 696 | 960 |
| RPK_BAK_NB>BST_BAK_NB@BAK | Bakerloo | NB | 8 | 685 | RPK | Regent's Park | 511 | BST | Baker Street | 85,878 | 1,845 | 16,133 | 684 | 922 |
| BST_BAK_NB>MYBu_BAK_NB@BAK | Bakerloo | NB | 9 | 511 | BST | Baker Street | 641 | MYBu | Marylebone LU | 88,846 | 2,096 | 18,441 | 780 | 1,042 |
| MYBu_BAK_NB>ERB_BAK_NB@BAK | Bakerloo | NB | 10 | 641 | MYBu | Marylebone LU | 774 | ERB | Edgware Road (Bak) | 75,753 | 1,894 | 16,072 | 701 | 941 |
| ERB_BAK_NB>PADu_BAK_NB@BAK | Bakerloo | NB | 11 | 774 | ERB | Edgware Road (Bak) | 670 | PADu | Paddington Tfl | 69,004 | 1,605 | 13,037 | 582 | 742 |
| PADu_BAK_NB>WARu_BAK_NB@BAK | Bakerloo | NB | 12 | 670 | PADu | Paddington Tfl | 746 | WARu | Warwick Avenue | 37,388 | 751 | 5,555 | 259 | 308 |
| WARu_BAK_NB>MDV_BAK_NB@BAK | Bakerloo | NB | 13 | 746 | WARu | Warwick Avenue | 637 | MDV | Maida Vale | 32,745 | 671 | 4,698 | 219 | 271 |
| MDV_BAK_NB>KPK_BAK_NB@BAK | Bakerloo | NB | 14 | 637 | MDV | Maida Vale | 623 | KPK | Kilburn Park | 23,779 | 620 | 4,058 | 207 | 249 |

Station Boarders

Number of passengers boarding a line at a station, by quarter hour.

| Field Name | Data Type | Field Description | Sample Data |
|-------------------|-----------|---|----------------|
| ID | Numeric | Unique number that identifies a node | 30110 |
| Station NLC | Numeric | Three digit 'master' National Location Code (NLC) denotes the station at which passengers board | 511 |
| Station ASC | Text | Three letter code denotes the station at which passengers board | BST |
| Station Name | Text | Full name of the station at which passengers board | Baker Street |
| Line Code | Text | Three letter NUMBAT code denotes the line in the station at which passengers board (e.g. 'BAK' means Bakerloo line) | BAK |
| Direction (Code) | Text | Two letter code denotes the direction of the line at which passengers board | NB |
| Node Name | Text | Description of the node (platform) in the station at which passengers board | Bakerloo // NB |
| Flow by Time Band | Numeric | Number of passengers boarding a line at a station, by time band (e.g. AM Peak) | 5,137 |
| Flow by QHr | Numeric | Number of passengers boarding a line at a station, by quarter hour (e.g. 0800-0815) | 559 |

Sample data

| ID | Station NLC | Station ASC | Station Name | Line Code | Direction Code | Node Name | Total | Early | AM peak | 0700-0715 | 0715-0730 |
|--------|-------------|-------------|----------------------|-----------|----------------|-----------------------------|--------|-------|---------|-----------|-----------|
| 30110 | 511 | BST | Baker Street | BAK | NB | Bakerloo // NB | 23,095 | 625 | 5,137 | 292 | 350 |
| 30111 | 511 | BST | Baker Street | BAK | SB | Bakerloo // SB | 19,970 | 542 | 5,462 | 281 | 323 |
| 20610 | 718 | CHXu | Charing Cross LU | BAK | NB | Bakerloo // NB | 12,543 | 315 | 2,926 | 134 | 171 |
| 20611 | 718 | CHXu | Charing Cross LU | BAK | SB | Bakerloo // SB | 1,248 | 7 | 95 | 3 | 4 |
| 350410 | 570 | ELE | Elephant & Castle LU | BAK | NB | Bakerloo // NB | 18,579 | 551 | 6,386 | 235 | 314 |
| 20710 | 542 | EMB | Embankment | BAK | NB | Bakerloo // NB | 13,228 | 290 | 2,038 | 106 | 131 |
| 20711 | 542 | EMB | Embankment | BAK | SB | Bakerloo // SB | 3,702 | 34 | 445 | 19 | 25 |
| 50410 | 774 | ERB | Edgware Road (Bak) | BAK | NB | Bakerloo // NB | 818 | 13 | 71 | 4 | 6 |
| 50411 | 774 | ERB | Edgware Road (Bak) | BAK | SB | Bakerloo // SB | 7,338 | 74 | 856 | 32 | 40 |
| 560772 | 596 | HAR | Harlesden | BAK | NB | Bak+LO Watford-Euston // NB | 1,202 | 58 | 232 | 17 | 20 |
| 560773 | 596 | HAR | Harlesden | BAK | SB | Bak+LO Watford-Euston // SB | 3,122 | 255 | 914 | 67 | 80 |
| 590373 | 597 | HAW | Harrow & Wealdstone | BAK | SB | Bak+LO Watford-Euston // SB | 3,457 | 281 | 1,344 | 117 | 117 |
| 570172 | 620 | KET | Kenton | BAK | NB | Bak+LO Watford-Euston // NB | 266 | 44 | 96 | 8 | 8 |
| 570173 | 620 | KET | Kenton | BAK | SB | Bak+LO Watford-Euston // SB | 2,197 | 314 | 744 | 90 | 86 |
| 580472 | 617 | KGN | Kensal Green | BAK | NB | Bak+LO Watford-Euston // NB | 594 | 31 | 189 | 13 | 17 |
| 580473 | 617 | KGN | Kensal Green | BAK | SB | Bak+LO Watford-Euston // SB | 2,947 | 180 | 1,441 | 64 | 82 |
| 580910 | 623 | KDK | Kilburn Park | BAK | NB | Bakerloo // NB | 852 | 30 | 100 | 13 | 18 |

Station Alighters

Number of passengers alighting a line at a station, by quarter hour.

| Field Name | Data Type | Field Description | Sample Data |
|-------------------|-----------|--|----------------|
| ID | Numeric | Unique number that identifies a node | 30110 |
| Station NLC | Numeric | Three digit 'master' National Location Code (NLC) denotes the station at which passengers alight | 511 |
| Station ASC | Text | Three letter code denotes the station at which passengers alight | BST |
| Station Name | Text | Full name of the station at which passengers alight | Baker Street |
| Line Code | Text | Three letter NUMBAT code denotes the line in the station from which passengers alight (e.g. 'BAK' means Bakerloo line) | BAK |
| Direction (Code) | Text | Two letter code denotes the direction of the line from which passengers alight | NB |
| Node Name | Text | Description of the node (platform) in the station from which passengers alight | Bakerloo // NB |
| Flow by Time Band | Numeric | Number of passengers alighting a line at a station, by time band (e.g. AM Peak) | 2,489 |
| Flow by QHr | Numeric | Number of passengers alighting a line at a station, by quarter hour (e.g. 0800-0815) | 290 |

Sample data

| ID | Station NLC | Station ASC | Station Name | Line Code | Direction Code | Node Name | Total | Early | AM peak | 0700-0715 | 0715-0730 |
|--------|-------------|-------------|----------------------|-----------|----------------|-----------------------------|--------|-------|---------|-----------|-----------|
| 30110 | 511 | BST | Baker Street | BAK | NB | Bakerloo // NB | 20,128 | 315 | 2,849 | 126 | 158 |
| 30111 | 511 | BST | Baker Street | BAK | SB | Bakerloo // SB | 21,852 | 877 | 7,500 | 382 | 464 |
| 20610 | 718 | CHXu | Charing Cross LU | BAK | NB | Bakerloo // NB | 1,462 | 31 | 464 | 12 | 16 |
| 20611 | 718 | CHXu | Charing Cross LU | BAK | SB | Bakerloo // SB | 12,694 | 294 | 2,850 | 132 | 164 |
| 350411 | 570 | ELE | Elephant & Castle LU | BAK | SB | Bakerloo // SB | 14,914 | 250 | 2,654 | 141 | 175 |
| 20710 | 542 | EMB | Embankment | BAK | NB | Bakerloo // NB | 5,425 | 130 | 2,350 | 83 | 120 |
| 20711 | 542 | EMB | Embankment | BAK | SB | Bakerloo // SB | 14,212 | 388 | 4,031 | 179 | 222 |
| 50410 | 774 | ERB | Edgware Road (Bak) | BAK | NB | Bakerloo // NB | 7,569 | 238 | 3,126 | 161 | 218 |
| 50411 | 774 | ERB | Edgware Road (Bak) | BAK | SB | Bakerloo // SB | 751 | 27 | 273 | 14 | 16 |
| 560772 | 596 | HAR | Harlesden | BAK | NB | Bak+LO Watford-Euston // NB | 3,291 | 259 | 959 | 88 | 92 |
| 560773 | 596 | HAR | Harlesden | BAK | SB | Bak+LO Watford-Euston // SB | 1,268 | 164 | 498 | 45 | 51 |
| 590372 | 597 | HAW | Harrow & Wealdstone | BAK | NB | Bak+LO Watford-Euston // NB | 4,037 | 246 | 876 | 67 | 81 |
| 570172 | 620 | KET | Kenton | BAK | NB | Bak+LO Watford-Euston // NB | 2,197 | 109 | 522 | 33 | 40 |
| 570173 | 620 | KET | Kenton | BAK | SB | Bak+LO Watford-Euston // SB | 153 | 7 | 42 | 3 | 3 |
| 580472 | 617 | KGN | Kensal Green | BAK | NB | Bak+LO Watford-Euston // NB | 2,620 | 23 | 248 | 14 | 18 |
| 580473 | 617 | KGN | Kensal Green | BAK | SB | Bak+LO Watford-Euston // SB | 557 | 18 | 215 | 13 | 17 |

Station Entry

Number of passengers entering a station, by quarter hour.

| Field Name | Data Type | Field Description | Sample Data |
|----------------------|-----------|---|-------------|
| Station NLC | Numeric | Three digit 'master' National Location Code (NLC) denotes the station at which passengers enter | 750 |
| Station ASC | Text | Three letter code denotes the station at which passengers enter | ABR |
| Station Name | Text | Full name of the station at which passengers enter | Abbey Road |
| Entries by Time Band | Numeric | Number of <u>passengers entering</u> a station, by time band (e.g. AM Peak) | 637 |
| Entries by QHr | Numeric | Number of <u>passengers entering</u> a station, by quarter hour (e.g. 0800-0815) | 66 |

Sample data

| Station NLC | Station ASC | Station Name | Total | Early | AM Peak | Inter Peak | PM Peak | Evening | Late | 0500-0515 | 0515-0530 | 0530-0545 | 0545-0600 | 0600-0615 |
|-------------|-------------|-----------------|--------|-------|---------|------------|---------|---------|-------|-----------|-----------|-----------|-----------|-----------|
| 750 | ABR | Abbey Road | 2,114 | 200 | 637 | 638 | 415 | 166 | 57 | 4 | 8 | 14 | 21 | 29 |
| 1404 | ACC | Acton Central | 3,728 | 320 | 1,374 | 861 | 877 | 238 | 58 | 0 | 0 | 10 | 17 | 43 |
| 3000 | AML | Acton Main Line | 776 | 80 | 356 | 192 | 107 | 29 | 12 | 0 | 2 | 3 | 7 | 9 |
| 500 | ACT | Acton Town | 9,889 | 676 | 3,528 | 2,725 | 2,158 | 608 | 195 | 16 | 28 | 44 | 64 | 85 |
| 502 | ALD | Aldgate | 17,014 | 331 | 2,919 | 3,635 | 7,838 | 1,905 | 386 | 5 | 6 | 13 | 20 | 38 |
| 503 | ALE | Aldgate East | 23,843 | 345 | 3,377 | 6,612 | 9,077 | 3,368 | 1,063 | 8 | 14 | 22 | 33 | 45 |
| 850 | ALS | All Saints | 3,036 | 130 | 773 | 1,103 | 662 | 273 | 95 | 3 | 6 | 9 | 13 | 17 |
| 505 | ALP | Alperton | 4,597 | 604 | 1,623 | 1,119 | 841 | 310 | 100 | 10 | 22 | 36 | 63 | 80 |
| 506 | AME | Amersham | 3,890 | 650 | 1,916 | 719 | 490 | 92 | 23 | 16 | 16 | 37 | 55 | 80 |
| 5397 | ANY | Anerley | 1,523 | 194 | 747 | 316 | 181 | 68 | 16 | 4 | 9 | 15 | 20 | 27 |
| 507 | ANG | Angel | 29,681 | 404 | 4,412 | 7,707 | 10,175 | 4,702 | 2,281 | 0 | 7 | 16 | 28 | 47 |
| 508 | ARC | Archway | 15,169 | 711 | 6,016 | 4,277 | 2,848 | 1,022 | 294 | 6 | 17 | 33 | 55 | 84 |
| 509 | AGRu | Amos Grove | 7,390 | 778 | 3,097 | 1,878 | 1,179 | 371 | 88 | 20 | 33 | 53 | 84 | 102 |
| 510 | ARL | Arsenal | 4,579 | 212 | 2,239 | 1,179 | 669 | 218 | 62 | 3 | 6 | 10 | 16 | 25 |
| 511 | BST | Baker Street | 47,518 | 802 | 7,951 | 14,054 | 15,615 | 6,829 | 2,268 | 19 | 29 | 41 | 66 | 90 |
| 512 | BALu | Balham LU | 26,595 | 1,876 | 12,396 | 5,488 | 4,610 | 1,713 | 512 | 15 | 47 | 72 | 146 | 225 |

Station Exit

Number of passengers exiting a station, by quarter hour.

| Field Name | Data Type | Field Description | Sample Data |
|--------------------|-----------|--|-------------|
| Station NLC | Numeric | Three digit 'master' National Location Code (NLC) denotes the station at which passengers exit | 750 |
| Station ASC | Text | Three letter code denotes the station at which passengers exit | ABR |
| Station Name | Text | Full name of the station at which passengers exit | Abbey Road |
| Exits by Time Band | Numeric | Number of passengers exiting a station, by time band (e.g. AM Peak) | 637 |
| Exits by QHr | Numeric | Number of passengers exiting a station, by quarter hour (e.g. 0800-0815) | 66 |

Sample data

| Station NLC | Station ASC | Station Name | Total | Early | AM Peak | Inter Peak | PM Peak | Evening | Late | 0500-0515 | 0515-0530 | 0530-0545 | 0545-0600 | 0600-0615 |
|-------------|-------------|-----------------|--------|-------|---------|------------|---------|---------|-------|-----------|-----------|-----------|-----------|-----------|
| 750 | ABR | Abbey Road | 2,230 | 130 | 414 | 524 | 663 | 352 | 148 | 2 | 4 | 8 | 15 | 21 |
| 1404 | ACC | Acton Central | 3,745 | 48 | 1,021 | 659 | 1,200 | 620 | 197 | 0 | 0 | 0 | 0 | 1 |
| 3000 | AML | Acton Main Line | 634 | 25 | 75 | 116 | 235 | 147 | 36 | 1 | 1 | 3 | 3 | 5 |
| 500 | ACT | Acton Town | 10,174 | 317 | 2,589 | 1,799 | 2,741 | 1,811 | 916 | 2 | 6 | 11 | 20 | 34 |
| 502 | ALD | Aldgate | 18,145 | 485 | 7,393 | 4,706 | 3,819 | 1,298 | 445 | 3 | 7 | 20 | 29 | 51 |
| 503 | ALE | Aldgate East | 22,327 | 574 | 7,935 | 6,545 | 4,153 | 2,161 | 959 | 4 | 15 | 27 | 43 | 68 |
| 850 | ALS | All Saints | 3,164 | 52 | 510 | 963 | 975 | 455 | 210 | 0 | 1 | 2 | 4 | 6 |
| 505 | ALP | Alperton | 4,989 | 206 | 803 | 1,106 | 1,744 | 824 | 306 | 8 | 12 | 16 | 21 | 29 |
| 506 | AME | Amersham | 3,535 | 26 | 420 | 499 | 1,098 | 1,076 | 417 | 0 | 0 | 0 | 2 | 2 |
| 5397 | ANY | Anerley | 1,474 | 16 | 189 | 246 | 550 | 330 | 144 | 0 | 0 | 1 | 1 | 2 |
| 507 | ANG | Angel | 28,772 | 406 | 8,398 | 9,169 | 6,415 | 3,386 | 999 | 0 | 0 | 4 | 12 | 35 |
| 508 | ARC | Archway | 14,067 | 169 | 2,333 | 3,019 | 4,499 | 2,795 | 1,251 | 0 | 1 | 3 | 7 | 14 |
| 509 | AGRu | Arnos Grove | 6,690 | 123 | 951 | 1,232 | 2,270 | 1,413 | 701 | 2 | 2 | 2 | 8 | 14 |
| 510 | ARL | Arsenal | 3,894 | 49 | 430 | 830 | 1,169 | 959 | 457 | 2 | 3 | 4 | 6 | 7 |
| 511 | BST | Baker Street | 46,650 | 1,464 | 14,587 | 15,487 | 10,273 | 3,530 | 1,309 | 16 | 39 | 71 | 118 | 187 |
| 512 | BALu | Balham LU | 26,647 | 451 | 4,423 | 4,174 | 9,227 | 6,050 | 2,321 | 4 | 5 | 11 | 26 | 41 |

Station Link Flows

Number of passengers undertaking a certain movement (e.g. 'interchange') within a station or station complex, by quarter hour.

| Field Name | Data Type | Field Description | Sample Data |
|-----------------------|-----------|--|--|
| ID | Numeric | Unique string that identifies the two nodes between which the movement occurs | 11516_ 11490 |
| Station Complex NLC | Numeric | Three digit 'master' National Location Code (NLC) denotes the station complex where each individual station belongs (see note 1) | 502 |
| Start Station NLC | Numeric | Three digit 'master' National Location Code (NLC) denotes the station from which the movement originates | 731 |
| Start Station ASC | Text | Three letter code denotes the station from which the movement originates | THL |
| Start Station Name | Text | Full name of the station from which the movement originates | Tower Hill |
| Start Node Name | Text | Description of the node (platform) in the station from which the movement originates | Cir+Dis // EB |
| End Station NLC | Numeric | Three digit 'master' National Location Code (NLC) denotes the station at which the movement terminates | 864 |
| End Station ASC | Text | Three letter code denotes the station at which the movement terminates | TOG |
| End Station Name | Text | Full name of the station at which the movement terminates | Tower Gateway |
| End Node Name | Text | Description of the node (platform) in the station at which the movement terminates | DLR // OB |
| Movement Name | Text | Description of the movement (see note 2) | Alight- Exit- Interchange- Enter- Board |
| Journeys by Time Band | Numeric | The number of passengers undertaking the described movement, by time band (e.g. AM Peak) | 295 |
| Journeys by QHr | Numeric | The number of passengers undertaking the described movement, by quarter hour(e.g. 0800-0815) | 34 |

Sample data

| ID | Station Complex NLC | Start Station NLC | Start Station ASC | Start Station Name | Start Node Name | End Station NLC | End Station ASC | End Station Name | End Node Name | Movement Name | Total | Early | AM peak | 0700-0715 | 0715-0730 |
|-------------|---------------------|-------------------|-------------------|--------------------|-----------------|-----------------|-----------------|------------------|--------------------|-------------------------------------|--------|-------|---------|-----------|-----------|
| 11491_11516 | 502 | 864 | TOG | Tower Gateway | DLR // IB | 731 | THL | Tower Hill | Cir+Dis // EB | Alight-Exit-Interchange-Enter-Board | 628 | 40 | 221 | 13 | 13 |
| 11491_11517 | 502 | 864 | TOG | Tower Gateway | DLR // IB | 731 | THL | Tower Hill | Cir+Dis // WB | Alight-Exit-Interchange-Enter-Board | 1,030 | 75 | 490 | 32 | 40 |
| 11491_10778 | 502 | 864 | TOG | Tower Gateway | DLR // IB | 7490 | FST | Fenchurch Street | ET Main Line // DN | Alight-Exit-Interchange-Enter-Board | 15 | 0 | 1 | 0 | 0 |
| 11501_11516 | 502 | 731 | THL | Tower Hill | EntEx | 731 | THL | Tower Hill | Cir+Dis // EB | Enter-Board | 9,511 | 221 | 1,560 | 89 | 104 |
| 11501_11517 | 502 | 731 | THL | Tower Hill | EntEx | 731 | THL | Tower Hill | Cir+Dis // WB | Enter-Board | 24,693 | 1,131 | 6,531 | 419 | 483 |
| 11516_11501 | 502 | 731 | THL | Tower Hill | Cir+Dis // EB | 731 | THL | Tower Hill | EntEx | Alight-Exit | 25,743 | 316 | 5,639 | 162 | 216 |
| 11517_11501 | 502 | 731 | THL | Tower Hill | Cir+Dis // WB | 731 | THL | Tower Hill | EntEx | Alight-Exit | 9,439 | 260 | 2,627 | 95 | 115 |
| 11516_11516 | 502 | 731 | THL | Tower Hill | Cir+Dis // EB | 731 | THL | Tower Hill | Cir+Dis // EB | Alight-Interchange-Board | 281 | 2 | 57 | 2 | 3 |
| 11516_11517 | 502 | 731 | THL | Tower Hill | Cir+Dis // EB | 731 | THL | Tower Hill | Cir+Dis // WB | Alight-Interchange-Board | 10 | 1 | 2 | 0 | 0 |
| 11517_11516 | 502 | 731 | THL | Tower Hill | Cir+Dis // WB | 731 | THL | Tower Hill | Cir+Dis // EB | Alight-Interchange-Board | 246 | 4 | 24 | 1 | 2 |
| 11517_11517 | 502 | 731 | THL | Tower Hill | Cir+Dis // WB | 731 | THL | Tower Hill | Cir+Dis // WB | Alight-Interchange-Board | 362 | 38 | 162 | 17 | 16 |
| 11516_11490 | 502 | 731 | THL | Tower Hill | Cir+Dis // EB | 864 | TOG | Tower Gateway | DLR // OB | Alight-Exit-Interchange-Enter-Board | 1,150 | 20 | 235 | 11 | 15 |
| 11517_11490 | 502 | 731 | THL | Tower Hill | Cir+Dis // WB | 864 | TOG | Tower Gateway | DLR // OB | Alight-Exit-Interchange-Enter-Board | 463 | 11 | 62 | 4 | 5 |
| 11516_10778 | 502 | 731 | THL | Tower Hill | Cir+Dis // EB | 7490 | FST | Fenchurch Street | ET Main Line // DN | Alight-Exit-Interchange-Enter-Board | 56 | 0 | 1 | 0 | 0 |
| 11517_10778 | 502 | 731 | THL | Tower Hill | Cir+Dis // WB | 7490 | FST | Fenchurch Street | ET Main Line // DN | Alight-Exit-Interchange-Enter-Board | 7 | 0 | 0 | 0 | 0 |

Note 1: Where a station is part of an 'out-of-station' interchange (OSI), the station complex denotes the 'master' station to which 'component' station is assigned. A full list of OSIs and 'component' stations is available in the NUMBAT 'definitions' spreadsheet on the SharePoint. Where a station does not form part of an OSI, the station complex NLC is the same as the station's NLC.

Note 2: Every stage of the movement is separated by a hyphen in the order it takes place:

- 'Enter-Board' means a passenger enters a station and boards a service at that station.
- 'Alight-Exit' means a passenger alights from a service at a station and then exits the same station.
- 'Alight-Interchange-Board' means a passenger alights from a service at a station and boards another service in the same station, i.e. a 'same station' interchange.
- 'Alight-Exit-Interchange-Enter-Board' means an a passengers alights from a service at a station, then exits the station and interchanges to a different station within the same 'complex', i.e. an 'out-of-station interchange' because the movement involves an 'Exit' and an 'Entry', therefore the station where the movement terminates is different to where it originated.

OD by Network

Origin/destination figures between two stations on a network level.

| Field Name | Data Type | Field Description | Sample Data |
|-------------------------|-----------|--|-----------------|
| Origin Station NLC | Numeric | Three digit 'master' National Location Code (NLC) of the origin station | 522 |
| Origin Station ASC | Text | Three letter code of the origin station | BHR |
| Origin StationName | Text | Full name of the origin station | Blackhorse Road |
| Destination Station NLC | Numeric | Three digit 'master' National Location Code (NLC) of the destination station | 1524 |
| Destination Station ASC | Text | Three letter code of the destination station | UHL |
| Destination StationName | Text | Full name of the destination station | Upper Holloway |
| Flow by Time Band | Numeric | The number of journeys between an O/D pair, by time band (e.g. AM Peak) | 138 |

Sample Data:

| Start Station NLC | Start Station ASC | Start Station Name | End Station NLC | End Station ASC | End Station Name | Total | Morning (0500-0700) | AM Peak (0700-1000) | Inter Peak (1000-1600) | PM Peak (1600-1900) |
|-------------------|-------------------|--------------------|-----------------|-----------------|------------------|-------|---------------------|---------------------|------------------------|---------------------|
| 626 | KNB | Knightsbridge | 679 | QBY | Queensbury | 61 | 0 | 1 | 5 | 38 |
| 626 | KNB | Knightsbridge | 680 | QPK | Queen's Park | 35 | 0 | 1 | 9 | 12 |
| 626 | KNB | Knightsbridge | 681 | QWY | Queensway | 37 | 0 | 0 | 12 | 14 |
| 626 | KNB | Knightsbridge | 682 | RCP | Ravenscourt Park | 28 | 0 | 2 | 7 | 10 |
| 626 | KNB | Knightsbridge | 683 | RAYu | Rayners Lane | 37 | 0 | 1 | 6 | 17 |
| 626 | KNB | Knightsbridge | 684 | RED | Redbridge | 27 | 0 | 0 | 5 | 12 |
| 626 | KNB | Knightsbridge | 685 | RPK | Regent's Park | 51 | 0 | 5 | 22 | 16 |
| 626 | KNB | Knightsbridge | 686 | RMD | Richmond | 115 | 0 | 2 | 35 | 48 |
| 626 | KNB | Knightsbridge | 687 | RKY | Rickmansworth | 9 | 0 | 0 | 1 | 4 |
| 626 | KNB | Knightsbridge | 688 | ROD | Roding Valley | 6 | 0 | 1 | 1 | 1 |
| 626 | KNB | Knightsbridge | 690 | ROY | Royal Oak | 3 | 0 | 0 | 1 | 1 |

OD by Mode

Origin/destination figures between two stations on a modal level.

| Field Name | Data Type | Field Description | Sample Data |
|-------------------------|-----------|--|-----------------|
| Mode | Text | Mode abbreviation (DLR, EZL, LO or LU) | LO |
| Origin Station NLC | Numeric | Three digit 'master' National Location Code (NLC) of the origin station | 522 |
| Origin Station ASC | Text | Three letter code of the origin station | BHR |
| Origin StationName | Text | Full name of the origin station | Blackhorse Road |
| Destination Station NLC | Numeric | Three digit 'master' National Location Code (NLC) of the destination station | 1524 |
| Destination Station ASC | Text | Three letter code of the destination station | UHL |
| Destination StationName | Text | Full name of the destination station | Upper Holloway |
| Flow by Time Band | Numeric | The number of journeys between an O/D pair, by time band (e.g. AM Peak) | 138 |

Sample Data:

| Mode | Origin Station NLC | Origin Station ASC | Origin Station Name | Destination Station NLC | Destination Station ASC | Destination Station Name | Total | Morning (0500-0700) | AM Peak (0700-1000) | Inter Peak (1000-1600) | PM Peak (1600-1900) |
|------|--------------------|--------------------|---------------------|-------------------------|-------------------------|--------------------------|-------|---------------------|---------------------|------------------------|---------------------|
| LO | 514 | BKGu | Barking | 7403 | LER | Leytonstone High Road | 193 | 10 | 54 | 48 | 56 |
| LO | 514 | BKGu | Barking | 7404 | STO | South Tottenham | 532 | 75 | 215 | 92 | 103 |
| LO | 514 | BKGu | Barking | 7406 | CRH | Crouch Hill | 147 | 6 | 68 | 33 | 25 |
| LO | 514 | BKGu | Barking | 7407 | WMW | Walthamstow Queen's Road | 420 | 69 | 154 | 92 | 65 |
| LO | 514 | BKGu | Barking | 7408 | WNP | Wanstead Park | 236 | 6 | 72 | 54 | 74 |
| LO | 514 | BKGu | Barking | 7467 | WGR | Woodgrange Park | 158 | 4 | 38 | 40 | 45 |
| LO | 514 | BKGu | Barking | 9586 | IMW | Imperial Wharf | 0 | 0 | 0 | 0 | 0 |
| LO | 514 | BKGu | Barking | 9587 | SPB | Shepherd's Bush NR | 1 | 0 | 0 | 0 | 0 |
| LO | 522 | BHR | Blackhorse Road | 514 | BKGu | Barking | 793 | 34 | 183 | 162 | 263 |
| LO | 522 | BHR | Blackhorse Road | 591 | GUNu | Gunnersbury | 2 | 0 | 1 | 0 | 0 |
| LO | 522 | BHR | Blackhorse Road | 506 | HAR | Harlesden | 0 | 0 | 0 | 0 | 0 |

Link Frequency

Number of trains going through a line section (between stations), by quarter hour.

| Field Name | Data Type | Field Description | Sample Data |
|------------------------|-----------|---|-----------------------|
| Link Code (short) | Text | This string uses text codes to outline the origin and destination stations of the link | ABR>SHS |
| From Station (NLC) | Numeric | Three digit 'master' National Location Code (NLC) denotes the origin station in the link | 750 |
| From Station (ASC) | Text | Three letter code denotes the origin station in the link | ABR |
| From Station (Name) | Text | Full name of the origin station in the link | Abbey Road |
| To Station (NLC) | Numeric | Three digit 'master' National Location Code (NLC) denotes the destination station in the link | 749 |
| To Station (ASC) | Text | Three letter code denotes the destination station in the link | SHS |
| To Station (Name) | Text | Full name of the destination station in the link | Stratford High Street |
| Frequency by Time Band | Numeric | Number of trains going through a line section (between stations), by time band (e.g. AM Peak) | 22 |
| Frequency by QHr | Numeric | Number of trains going through a line section (between stations), by quarter hour (e.g. 0800-0815) | 2 |

Sample Data:

| Link Code (Short) | From Station (NLC) | From Station (ASC) | From Station (Name) | To Station (NLC) | To Station (ASC) | To Station (Name) | Total | Early | AM peak | 0700-0715 | 0715-0730 |
|-------------------|--------------------|--------------------|---------------------|------------------|------------------|-----------------------|-------|-------|---------|-----------|-----------|
| AAP>BOP | 6025 | AAP | Alexandra Palace | 6027 | BOP | Bowes Park | 92 | 4 | 18 | 2 | 1 |
| AAP>HRN | 6025 | AAP | Alexandra Palace | 6015 | HRN | Hornsey | 276 | 23 | 52 | 5 | 3 |
| AAP>NSG | 6025 | AAP | Alexandra Palace | 6019 | NSG | New Southgate | 186 | 14 | 32 | 2 | 3 |
| ABR>SHS | 750 | ABR | Abbey Road | 749 | SHS | Stratford High Street | 125 | 10 | 22 | 2 | 2 |
| ABR>WHM | 750 | ABR | Abbey Road | 757 | WHM | West Ham | 125 | 9 | 22 | 2 | 2 |
| ABW>BVD | 5131 | ABW | Abbey Wood | 5092 | BVD | Belvedere | 145 | 8 | 24 | 1 | 3 |
| ABW>PLU | 5131 | ABW | Abbey Wood | 5208 | PLU | Plumstead | 142 | 13 | 25 | 1 | 3 |
| ACC>SAT | 1404 | ACC | Acton Central | 1452 | SAT | South Acton | 71 | 3 | 13 | 1 | 1 |
| ACC>WJN | 1404 | ACC | Acton Central | 766 | WJN | Willesden Junction | 71 | 4 | 12 | 1 | 1 |
| ACT>CHPu | 500 | ACT | Acton Town | 545 | CHPu | Chiswick Park | 278 | 22 | 46 | 4 | 4 |
| ACT>ECM | 500 | ACT | Acton Town | 561 | ECM | Ealing Common | 139 | 10 | 25 | 2 | 3 |
| ACT>SFI | 500 | ACT | Acton Town | 704 | SFI | South Faling | 268 | 15 | 42 | 4 | 3 |

OD by Line (DLR, EZL, LO, LU)

Origin/destination figures between two stations on a line level.

| Field Name | Data Type | Field Description | Sample Data |
|--------------------|-----------|--|-----------------|
| line_MNLC_o | Numeric | Three digit 'master' National Location Code (NLC) of the origin station | 511 |
| line_MASC_o | Text | Three letter code of the origin station | BST |
| line_StationName_o | Text | Full name of the origin station | Blackhorse Road |
| line_MNLC_d | Numeric | Three digit 'master' National Location Code (NLC) of the destination station | 542 |
| line_MASC_d | Text | Three letter code of the destination station | EMB |
| line_StationName_d | Text | Full name of the destination station | Embankment |
| Flow by Time Band | Numeric | The number of passenger journeys between an O/D pair, by time band (e.g. AM Peak) | 587 |

Sample Data:

| line_MNLC_o | line_MASC_o | line_StationName_o | line_MNLC_d | line_MASC_d | line_StationName_d | Morning | AM peak |
|-------------|-------------|--------------------|-------------|-------------|----------------------|---------|---------|
| 511 | BST | Baker Street | 542 | EMB | Embankment | 29.057 | 587.061 |
| 511 | BST | Baker Street | 570 | ELE | Elephant & Castle LU | 25.87 | 312.448 |
| 511 | BST | Baker Street | 596 | HAR | Harlesden | 47.04 | 153.264 |
| 511 | BST | Baker Street | 597 | HAW | Harrow & Wealdstone | 14.927 | 31.473 |
| 511 | BST | Baker Street | 617 | KGN | Kensal Green | 4.018 | 37.132 |
| 511 | BST | Baker Street | 620 | KET | Kenton | 2.384 | 3.381 |
| 511 | BST | Baker Street | 623 | KPK | Kilburn Park | 13.209 | 111.448 |
| 511 | BST | Baker Street | 628 | LAM | Lambeth North | 10.627 | 101.883 |
| 511 | BST | Baker Street | 637 | MDV | Maida Vale | 6.147 | 140.085 |

Journey Time

Length of time taken by passengers travelling between two stations, by given time band.

| Field Name | Data Type | Field Description | Sample Data |
|---------------------------|-----------|---|-----------------|
| line_MNLC_o | Numeric | Three digit 'master' National Location Code (NLC) of the origin station | 511 |
| line_MASC_o | Text | Three letter code of the origin station | BST |
| line_StationName_o | Text | Full name of the origin station | Blackhorse Road |
| line_MNLC_d | Numeric | Three digit 'master' National Location Code (NLC) of the destination station | 542 |
| line_MASC_d | Text | Three letter code of the destination station | EMB |
| line_StationName_d | Text | Full name of the destination station | Embankment |
| Journey Time by Time Band | Numeric | Time taken travelling between the two nodes during, by time band (e.g. AM Peak) | 2770 |

Sample Data:

| MNLC_o | MASC_o | StationName_o | MNLC_d | MASC_d | StationName_d | Morning | AM peak |
|--------|--------|---------------|--------|--------|-----------------------------|----------|----------|
| 500 | ACT | Acton Town | 501 | BAR | Barbican | 2820.831 | 2775.176 |
| 500 | ACT | Acton Town | 502 | ALD | Aldgate | 3056.161 | 2797.859 |
| 500 | ACT | Acton Town | 503 | ALE | Aldgate East | 2827.388 | 2898.639 |
| 500 | ACT | Acton Town | 504 | STI | Stratford International DLR | 0 | 0 |
| 500 | ACT | Acton Town | 505 | ALP | Alperton | 799 | 799 |
| 500 | ACT | Acton Town | 506 | AME | Amersham | 5173.316 | 4426.604 |
| 500 | ACT | Acton Town | 507 | ANG | Angel | 2625.31 | 2600.237 |
| 500 | ACT | Acton Town | 508 | ARC | Archway | 2926.674 | 2853.621 |
| 500 | ACT | Acton Town | 509 | AGB | Arnos Grove | 3466.244 | 3452.006 |

Route Choice

Number of passengers on each route for a given O/D pair, by time band.

| Field Name | Data Type | Field Description | Sample Data |
|---------------------------|-----------|---|--|
| od | Text | String denotes the origin and destination stations | AAP>ABR |
| route | Text | String denotes the route choice | AAP>ABR// AAP>HBY@ GNM HBY>S FD@LON SF D>ABR@DL R |
| Legs | Numeric | Number of legs involved a route choice | 3 |
| Journey Time by Time Band | Numeric | Number of passengers on each route for a given O/D pair, by time band (e.g. AM Peak) | 0.86 |

Sample Data:

| od | route | legs | Early | Morning | AM peak |
|---------|---|------|-------|---------|---------|
| AAP>ABW | AAP>FPKr@GNM FPKr>LBG@THM LBG>ABW@SEM | 3 | 0 | 0 | 0 |
| AAP>ABW | AAP>MGT@GNM MGT>FAR@HAM FAR>ABW@THM | 3 | 0 | 0 | 0 |
| AAP>ABW | AAP>MGT@GNM MGT>FAR@MET FAR>ABW@THM | 3 | 0 | 0 | 0 |
| AAP>ABW | AAP>MGT@GNM MGT>LON@NOR LBG>ABW@SEM | 3 | 0 | 0 | 0 |
| AAP>ABW | AAP>OLD@GNM OLD>BNK@NOR BNK>WOA@DLR WOA>ABW@SEM | 4 | 0 | 0 | 0 |
| AAP>ABW | AAP>OLD@GNM OLD>LON@NOR LBG>ABW@SEM | 3 | 0 | 0 | 0 |
| AAP>ACC | AAP>HBY@GNM HBY>ACC@LON | 2 | 0 | 0.421 | 0.308 |
| AAP>ACT | AAP>FPKr@GNM FPKu>ACT@PIC | 2 | 0 | 0 | 0.047 |
| AAP>ACT | AAP>HBY@GNM HBY>GPKu@VIC GPKu>ACT@PIC | 3 | 0 | 0 | 0 |
| AAP>ACT | AAP>HBY@GNM HBY>KXX@VIC KXX>ACT@PIC | 3 | 0 | 0 | 0.024 |
| AAP>ACT | AAP>HBY@GNM HBY>VICu@VIC VICu>ACT@DIS | 3 | 0 | 0 | 0.012 |
| AAP>ACT | AAP>HBY@GNM HBY>VICu@VIC VICu>HMD@DIS HMD>ACT@PIC | 4 | 0 | 0 | 0 |