

CITY AIRPORT DEVELOPMENT PROGRAMME (CADP)

CADP: TRANSPORT ASSESSMENT VOLUME 1

 London City Airport
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London City Airport

City Airport Development Programme

Transport Assessment Report

July 2013

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EXECUTIVE SUMMARY

Vectos is retained by London City Airport to advise on surface access matters in relation to the City Airport Development Programme (CADP) planning applications. Vectos has prepared this Transport Assessment Report (TAR) to consider the surface access issues associated with the proposed CADP. It should be read alongside the Planning Statement, Need Statement, Environmental Statement (ES), in particular Chapter 11 covering Surface Access aspects, and the Design and Access Statement that accompany the CADP planning submission.

Existing Situation

London City Airport is located between the Royal Albert Dock and King George V (KGV) Dock, adjacent to the Woolwich Reach and Gallions Reach of the River Thames.

Vehicle access to the Airport is provided from Hartmann Road, a private road with an east-west orientation. It forms a signalised junction with the A112 Connaught Road at its western end, which currently functions as the single point of access to the Airport from the wider highway network. At its eastern end, Hartmann Road forms a signalised junction with the A117 Woolwich Manor Way, although this junction is presently closed for access to the Airport.

Existing Travel Patterns

In the calendar year 2012 there were 3,029,013 passengers passing through the airport.

The average passenger mode split for 2012 shows that DLR comprised the greatest proportion of the mode share at 55%, followed by Private Hire Minicab at 16% and Black Taxi at 14%.

Baseline employment data shows that in 2012 there were some 2,470 Full Time Equivalent (FTE) employees dependent on the Airport; broken down between 1,900 direct employees (principally on-site) and 570 indirect and induced employees located in the surrounding areas.

A full staff travel survey was undertaken in 2011 and this showed that the greatest proportion of employees travel by car, with 53% of the total in 2011. This is followed by DLR with 22% and bus with 10%.

Development Proposals

The works proposed in CADP are described in two planning applications. With the exception of the proposed Hotel, detailed planning permission is being sought for CADP and is described in Planning Application CADP1. Outline planning permission is being sought for the Hotel (Planning Application CADP2) to provide a degree of flexibility for the building which is likely to be brought forward separately by a hotel operator.

Vehicle access will continue to be provided from the junction of Hartmann Road / A1011 Connaught Road. In addition, it is proposed to create a further permanent access and vehicle link to the Airport from the junction with the A117 Woolwich Manor Way / Fishguard Way.

A new passenger forecourt area is proposed to the south and east of the extended Terminal. The Forecourt area has been designed to provide sufficient capacity to accommodate the forecast demand of approximately 6 mppa associated with the existing permitted annual number of flights.

It is proposed to replace the main car parking areas with three passenger car parks, a new staff car park and two new car hire areas. Each of the car parks would be accessed from Hartmann Road. It is proposed to increase the parking provision from 974 spaces to 1,251 spaces, i.e. an increase of 277 spaces or a 28% increase. This compares with passenger numbers which will be increasing by 94% and staff numbers which will be increasing by 51%, compared to 2012. The car parking will also serve a Hotel with up to 260 bedrooms, proposed in CADP2.

The Airport's Travel Plan is being updated. Initially the updated Travel Plan will concentrate on staff travel. The Travel Plan will then be updated to consider passenger travel in conjunction with the development of a new Airport surface access strategy.

A Construction Logistics Plan and Delivery and Servicing Plan will be implemented as planning conditions.

Policy Context

CADP has been considered in the context of national, regional and local transport policies. This includes the National Planning Policy Framework and Aviation Policy Framework at national level, the London Plan and Mayor's Transport Strategy at regional level and

Newham's Core Strategy at local level. This has demonstrated that CADP accords with the relevant transport policies.

Trip Attraction

Passenger numbers are predicted to grow incrementally from 3.03 mppa in 2021 to 5.87 mppa in 2023 With Development compared to 4.44 mppa Without Development.

Whilst passenger numbers are not forecast to increase above 5.87 mppa in 2023, a reasonable worst case sensitivity test has been undertaken assuming 6.02 mppa.

Staff numbers are expected to increase from 1,900 employees in 2012 to a maximum of 2,860 employees in 2023.

Impact on Public Transport Networks

The assessment of the public transport networks considers DLR, Crossrail and bus services.

DLR crowding factors have been calculated for each link in both directions on the Airport route between Canning Town and Woolwich Arsenal. The results show that with CADP in place, planning capacity is not exceeded on any link. The maximum increase in passengers is just 12 passengers per train or 4 per train carriage (since there are three carriages per train).

It concludes that the additional Airport-related passengers can be accommodated on the Airport branch of the DLR network.

Crossrail will have a broadly neutral impact on passenger numbers and the mode split at the Airport.

The Airport benefits from bus services serving the Airport Forecourt and providing connections to a range of local destinations. These facilities will be enhanced and modernised through CADP.

There are existing bus services giving access to potential future connections to river services.

Impact on Walking and Cycling Networks

The proposals enhance the attractiveness of walking and cycling to the Airport, potentially increasing the demand for both modes, particularly for staff. The proposals include additional cycle parking and facilitate an additional cycle route to / from Woolwich Manor Way

An audit of pedestrian routes has demonstrated that for pedestrians the Airport is well-connected to the surrounding area.

Impact on the Road Network

A highway link flow and junction capacity assessment has been undertaken in order to assess the impact on the highway network. The assessment has taken account of the planned and committed development in the vicinity of the Airport.

The assessment of the road network shows that the proposals result in a reassignment of traffic on the local highway network, resulting in a reduction in traffic on certain links and an increase on others.

It has been demonstrated that the development contributes to a minor increase in traffic flows at each of the junctions assessed; namely the existing Airport access junction of Hartmann Road / Connaught Road the proposed Airport access junction of Hartmann Road / Woolwich Manor Way / Fishguard Way and the roundabout junction of Connaught Road / Connaught Bridge Road which is in close proximity to the Airport.

Conclusion

It is concluded that the proposed CADP is appropriate and acceptable in sustainable traffic and transport terms.

1 INTRODUCTION

- 1.1 Vectos is retained by London City Airport ("the Airport") to advise on surface access matters in relation to the proposed City Airport Development Programme (CADP).
- 1.2 The CADP chiefly comprises a full application for new passenger facilities and infrastructure that are required to enable the Airport to respond to forecast growth in passenger numbers and accommodate the new generation aircraft which are physically larger, more fuel efficient and quieter than the current fleet. There is a separate but related outline application for a hotel.
- 1.3 Since 2007, there has been continued growth in the size of aircraft using the Airport, which has resulted in changes in the demand for airport infrastructure in the critical morning and early evening peak periods.
- 1.4 London City Airport is an international Airport primarily serving the business community. After many years of growth at the Airport, the recession contributed to a decline in passenger numbers between 2008 and 2010. Annual passenger numbers are now increasing again and in 2012 approximately 3.03 million passengers per annum (mppa) used the Airport, compared to 3.01 mppa in 2011 and 2.79 mppa in 2010.
- 1.5 In January 2013, the Department for Transport (DfT) published its latest Aviation Forecasts. In respect of the Airport, the DfT anticipate it reaching 104,000 Air Transport Movements (ATMs) and handling some 4.9 mppa by 2020, rising to 120,000 ATMs and handling some 6.2 mppa by 2030.
- 1.6 The proposed CADP would enable the Airport to accommodate forecast demand of 5.87 mppa on 107,119 scheduled movements by 2023, compared to 4.44 mppa on 87,713 scheduled movements without the proposed CADP.
- 1.7 The Airport currently operates within the terms of a July 2009 planning permission (ref 07/01510/VAR) which allows up to 120,000 aircraft movements per annum. It is important to note that no increase in the permitted number of aircraft movements is being sought.
- 1.8 In preparing the planning applications, discussions have been held with key stakeholders including the highway authorities (London Borough of Newham (LBN) and Transport for London (TfL)), DLR and the Cab Rank Committee. A Transport Scoping Report was prepared

in December 2012 in advance of a pre-application meeting with representatives from these stakeholders which was held on 19th December 2012. A copy of the Transport Scoping Report along with TfL's subsequent advice letter of 17th January 2013 is included at **Appendix A**. Further meetings have subsequently taken place to update the authorities as the scheme design has progressed.

1.9 The proposed CADP have also been the subject of a two stage consultation; between November 2012 to January 2013 and March 2013 to April 2013. Further details are provided in the proposed CADP's Statement of Community Involvement accompanying the planning submission. The main comments in respect of surface access have been considered in the preparation of the proposals.

1.10 The remainder of this Transport Assessment Report is set out as follows:

Section 2 – sets out a description of the existing conditions and transport characteristics of the Airport;

Section 3 – describes the existing passenger and staff travel patterns;

Section 4 - describes the proposed CADP in detail;

Section 5 - describes the relevant transport policy;

Section 6 - considers the trip attraction;

Section 7 – provides an assessment of effects on the public transport networks including DLR;

Section 8 – provides an assessment of effects on the walking and cycling networks;

Section 9 – provides an assessment of effects on the highway network;

Section 10 – provides a summary and conclusion.

1.11 This TAR should be read alongside the Planning Statement, Need Statement, Environmental Statement (ES), in particular Chapter 11 covering Surface Access aspects, and the Design and Access Statement that accompany the CADP planning submission.

2 EXISTING SITUATION

2.1 This section describes the existing conditions and transport characteristics at the Airport.

Site Location

2.2 London City Airport is located within the London Borough of Newham, between the Royal Albert Dock and King George V (KGV) Dock, adjacent to the Woolwich Reach and Gallions Reach of the River Thames.

2.3 There are two elements to the Airport; firstly the main Airport building and secondly the Jet Centre that serves corporate clients. Vehicle access to the Airport is provided from Hartmann Road, which is accessed from a signalised junction with the A112 Connaught Road.

2.4 **Figure 1** shows the strategic location of the Airport and the surrounding transport system.

Surrounding Area

2.5 The surrounding area is comprised of a mix of residential, industrial and commercial uses. There is a significant amount of planned development and regeneration in the vicinity of the Airport.

2.6 The location of the Airport is adjacent to a designated Air Quality Management Area (AQMA). The impact of the increase in flights on both air and noise is considered in the CADP Environmental Statement accompanying the planning submission.

2.7 **Figure 2** shows that location of the Airport in relation to the surrounding area.

Local Road Network

2.8 Vehicle access to the Airport is provided from Hartmann Road, a private road with an east-west orientation. It forms a signalised junction with the A112 Connaught Road at its western end, which currently functions as the single point of access to the Airport from the wider highway network. At its eastern end, Hartmann Road forms a signalised junction with the A117 Woolwich Manor Way, although this junction is presently closed for access to the Airport.

- 2.9 The A112 Connaught Road has an east-west orientation to the south of the Airport, parallel with Hartmann Road. It continues to the A112 Albert Road, which links with the Woolwich Ferry river crossing via Pier Road.
- 2.10 The A1020 Royal Albert Way is a two-lane dual carriageway that links the Airport, via the A1020 Connaught Bridge and A112 Connaught Road, to the A406 / A13 intersection, approximately five kilometres north-east of the Airport.
- 2.11 The main strategic road connections to the Airport are the east-west A13 and the A406 North Circular that connects with the M11 and M25 motorways. The Airport is approximately 1.5 kilometres from the A13 (Prince Regent's Lane junction), five kilometres from the A406 and 25 kilometres from the M25. In addition, the A102(M) passes beneath the Thames north-south via the Blackwall Tunnel approximately five kilometres from the Airport. This is the nearest road river crossing point to the Airport.

Car Parking

- 2.12 There are two main car parking areas within the Airport, shared between passengers and staff. The short stay car park is located closest to the Terminal; and the main stay car park adjacent to east of this.
- 2.13 Staff parking is available within both the short and main stay car parks. Further staff parking is provided at the locations known as the 'western' and 'triangle' staff car parks' which are both located west of the existing Terminal. Staff are required to apply for and display a parking permit. As of December 2012, 832 staff have been issued with parking permits which are free for Airport staff, but charged for third party employees.
- 2.14 Both short stay and main stay car parks have a pay at the barrier controlled exit to Hartmann Road. The fee schedule for the two car parks for passengers is shown in **Table 2.1**.

Table 2.1: December 2012 Parking Charges at the Airport

Short Stay Car Park		Main Car Park	
Hours	Price	Hours	Price
0 - 0.5	£5.50	0 - 4	£16.00
0.5 - 1	£10.00	4 - 8	£18.00
1 - 2	£14.00	8 - 12	£22.00
2 - 4	£18.00	12 - 24	£40.00
4 - 8	£22.00	24 - 36	£60.00

8 – 12	£30.00	36 – 48	£80.00
12 – 24	£45.00	Additional 24 hours	£40.00
24 – 36	£75.00		
36 – 48	£90.00		
Additional 24 hours	£45.00		

2.15 The short-stay car park has 148 spaces whilst the long-stay car park has 644 spaces. 52 spaces are provided in the western staff car park, whilst 10 spaces are provided in the triangle staff car park.

2.16 In addition, 120 parking spaces are allocated to car hire companies. These are located within the Forecourt and in an area adjacent to Hartmann Road.

Accident Analysis

2.17 An analysis of Personal Injury Accident (PIA) data has been undertaken for the period between September 2007 and September 2012. Further details of each accident along with a plan showing the extent of the Study Area is included at **Appendix B**.

2.18 In summary, over a five year period, a total of forty-four accidents occurred within the Study Area. Forty accidents resulted in slight injuries, four accidents caused serious injuries and there were no fatalities. Ten accidents resulted in injuries to pedestrians including one which resulted in serious injuries. A summary of the accidents in the Study Area is shown in **Table 2.2**.

Table 2.2: Summary of Accidents

Location	No. of Accidents	Severity		
		Slight	Serious	Fatal
Albert Road	21	19	2	0
Hartmann Road	12	11	1	0
Connaught Road	8	7	1	0
Factory Road	3	3	0	0
Total	44	40	4	0

Albert Road

2.19 A total of twenty-one accidents occurred on Albert Road within the five year study period. Of these, nineteen resulted in slight injuries and two accidents caused serious injuries. Both

serious accidents were attributed to driver error. Five accidents resulted in slight injuries to pedestrians.

Hartmann Road

- 2.20 On Hartmann Road, which provides the main access to the airport, a total of twelve accidents occurred during the five year study period. Eleven accidents caused slight injuries while one accident resulted in serious injuries. A driver was seriously injured when he lost control of his vehicle for unknown reasons and struck a kerb. Two pedestrians received slight injuries on Hartmann Road during the five year study period.

Connaught Road

- 2.21 There were eight accidents on Connaught Road within the 5 year study period. Seven of these caused slight injuries while one accident resulted in serious injuries to a pedestrian. The serious accident was attributed to a pedestrian failing to look properly while crossing the road.

Factory Road

- 2.22 Three accidents occurred on Factory Road within the study period. All three resulted in slight injuries including one accident involving a pedestrian.

Summary

- 2.23 Given the size of the Study Area (as defined in Appendix B) and nature of the local highway network, the number and severity of accidents is not considered to be excessive, or atypical for this part of London.

Accessibility by Non-Car Modes

- 2.24 A key factor in determining the suitability of a location for development is its accessibility by non-car modes of transport. This helps to reduce the reliance on the use of the private car as well as promoting the aims of sustainable travel choices.
- 2.25 London City Airport already has the highest proportion of passengers travelling to / from the Airport by public transport compared to any other London Airport. The key features of the Airport's accessibility by walking, cycling and public transport are discussed further in the following sub-sections.

Walking

- 2.26 London City Airport is accessible on foot from the surrounding residential and commercial areas. Hartmann Road has a footway on its southern side which connects directly with footways on Connaught Road to the west. There are controlled pedestrian facilities at the traffic signal controlled junction of Connaught Road and Hartmann Road. Pedestrians can also access the Airport from a dedicated pedestrian link between Hartmann Road and Newland Street.
- 2.27 Because of these facilities local residents and visitors to the area can walk to the Airport in order to access bus services and the DLR.
- 2.28 A number of staff working at the Airport live locally and walk to work. The most recent staff travel survey undertaken in September 2011 showed that 7% of the staff walk to work, a significant increase in the 2% of staff who walked to work in 2009.

Cycling

- 2.29 There are 30 covered cycle parking spaces located beneath the DLR adjacent to the motorcycle parking area. This is opposite the main entrance to the Airport Terminal. There are a further 12 cycle parking spaces located within a secure bike store in the short stay car park. Cycle stands are predominantly used by staff.
- 2.30 Cyclists access the Airport from Hartmann Road.

Black Taxi

- 2.31 The current arrangement for black taxis is that on arrival at the Airport with passengers, the taxi will drop passengers at the front of the Terminal within the Forecourt. Once the passenger has paid the taxi fare, the vehicle departs from the Forecourt and either turns right away from the Airport or turns left and joins the back of the taxi queue that extends eastwards on Hartmann Road towards the Airport car parks. The taxi queue length can accommodate approximately 200 taxis.
- 2.32 Currently the Forecourt area has no formal vehicle controls in place, with black taxis, private hire minicabs and private cars sharing drop-off areas.

- 2.33 Taxis perform an important role as a public transport provider by reducing the passenger's reliance on the private car. They are particularly useful for passengers using the airport from Central London because they are not restricted to a time table or constrained by fixed routes. Taxis also fulfil a demand that cannot be met by bus, train or tube, especially early in the morning or late at night.

Private Hire Minicabs

- 2.34 Private hire minicabs use the pick-up / drop-off areas for private vehicles within the Airport Forecourt. Should private hire minicabs need to wait for longer periods, they are able to use the short-stay car park.

Buses

- 2.35 There are three bus stops adjacent to the 'ready' hire car parking area outside the Terminal on Hartmann Road and adjacent to the Jet Centre (used by staff, crew and passengers). All buses that visit the site perform a 'U' turn around the pick-up / drop-off area so only single stops are required ensuring that passengers do not have to cross Hartmann Road to access the stops.
- 2.36 The Airport is served by two London Bus routes, the 473 and the 474.
- 2.37 The 473 service travels from Stratford – Plaistow – London City Airport – North Woolwich, departing about every 9-13 minutes from the Airport Forecourt in both directions. The service commences from Stratford at 05:04 (06:11 Sunday) with the last bus at 01:14. The first bus from North Woolwich departs at 04:30 (05:39 Sunday) with the last bus at 00:16.
- 2.38 The 474 bus operates between Canning Town – London City Airport – North Woolwich – Beckton – East Ham – Manor Park, departing about every 10-13 minutes in both directions from the Airport Forecourt. The service operates over a 24 hour period, 7 days a week.
- 2.39 Bus usage is greatest amongst staff, with the 2011 staff travel survey indicating that 9% of staff travel to / from the Airport by bus.

Docklands Light Railway (DLR)

- 2.40 The DLR opened in 1987 to serve the first developments in Docklands, with eleven trains and fifteen stations. Since then, the DLR has progressively been extended to Bank, Beckton,

Lewisham, Stratford International and Woolwich Arsenal via London City Airport. The DLR London City Airport extension, opened in December 2005 with the extension onwards to Woolwich Arsenal completed in 2009. The section between Canning Town and London City Airport is known as 'the Airport Route.'

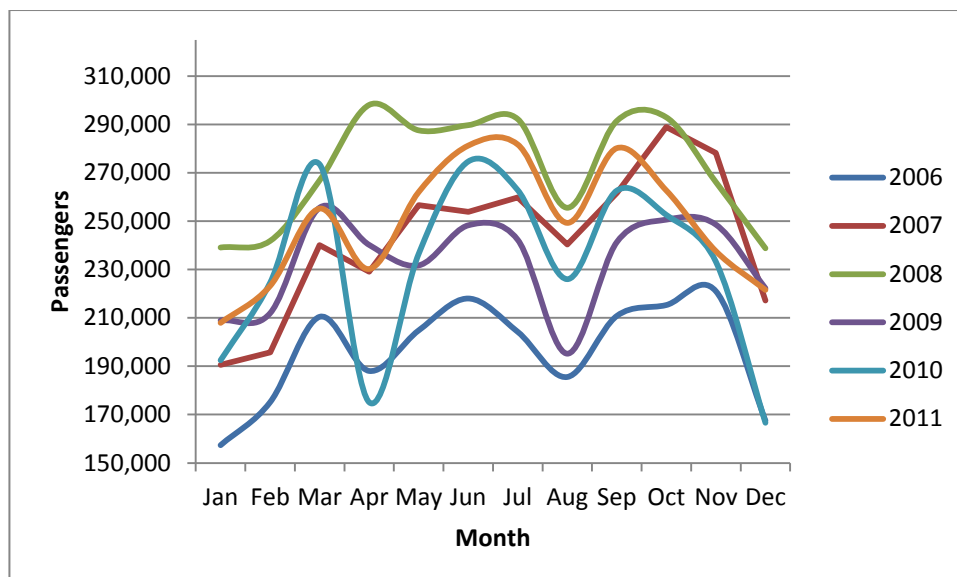
- 2.41 The DLR is extensive and currently comprises a 34 km railway with 40 stations and more than 100 trains. According to Transport for London (TfL), DLR carries almost 70 million passengers annually, with this expected to rise to more than 100 million in 2012. DLR is a fully accessible and fully integrated railway - it connects with more than 100 bus routes, five mainline railways, eight Underground lines and coach, taxi and river services.
- 2.42 DLR operates between 05:30 – 00:30 on Monday to Saturdays and between 07:00 – 23:30 on Sundays.
- 2.43 Since January 2012 DLR trains on the Bank → Woolwich Arsenal service have been increased from two to three-carriage trains, to help accommodate increasing DLR passenger numbers using the service from Woolwich Arsenal.

3 EXISTING TRAVEL PATTERNS

Passenger Profile

- 3.1 In the calendar year 2012 there were 3,029,013 passengers passing through the airport, including passengers travelling on flights at the Jet Centre. Overall this is an increase of 0.8% on 2011, when there were 3,005,759 passengers passing through the airport.
- 3.2 **Chart 3.1** shows how the annual passenger numbers are broken down on a monthly basis between 2006 and 2011.

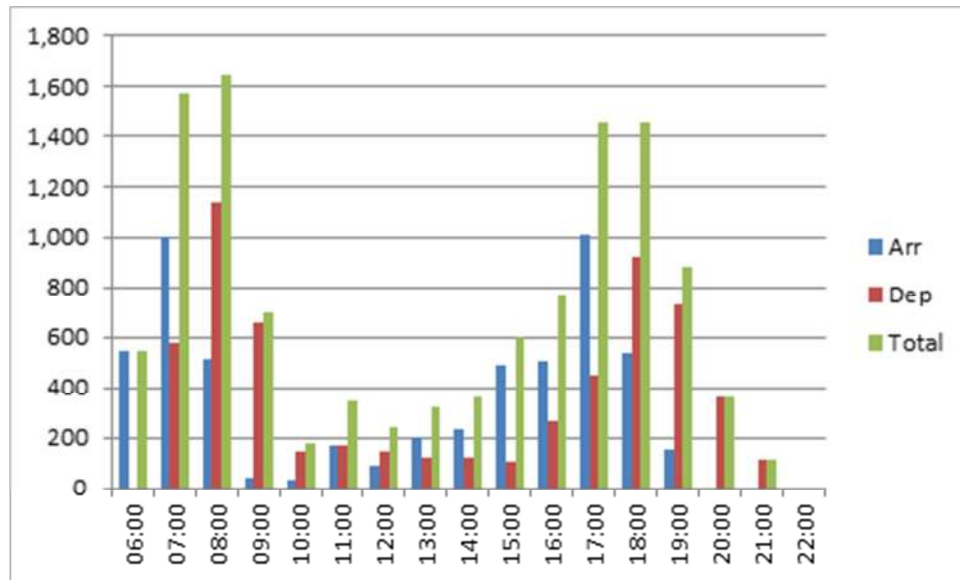
Chart 3.1: 2006 – 2011 Monthly Passenger Numbers



- 3.3 Chart 3.1 shows that passenger numbers follow a fairly consistent pattern of variation across the year, with passenger numbers peaking in June and September / October and lowest during August and December / January.
- 3.4 **Chart 3.2** shows the daily passenger profile of passengers accessing the Airport for a busy day during 2012. This takes into account that on average, passengers arrive 1 hour and 15 minutes prior to their flight departing from the Airport if travelling on a scheduled flight, and 15 minutes if flying from the Jet Centre. When a flight arrives at the Airport it takes on average 15 minutes for passengers to depart from the Airport from both the scheduled flights and Jet Centre. Departures on the chart are those having arrived on a flight and

leaving the Airport, whilst Arrivals on the chart are those arriving at the Airport to depart on a flight.

Chart 3.2: 2012 Daily Passenger Profile



- 3.5 Chart 3.2 shows that the busiest hours of the day for accessing the Airport are during 08:00 – 09:00 and 17:00 – 18:00. There is a noticeable dip in passengers at the Airport between 10:00 and 16:00 and after 20:00 in the evenings.
- 3.6 In terms of the types of passengers using London City Airport, a Civil Aviation Authority (CAA) 2012 survey indicates that 54% of passengers are travelling for business purposes, which is substantially higher than the average for the other London airports (albeit with lower levels of business travel as a consequence of the Jubilee and the Olympics). Previous survey data for 2010 showed 63% business travel, whereas the Airport’s own surveys suggest the current proportion of business travel is 61%.
- 3.7 The Airport also has the highest proportion of foreign resident passengers using it after Heathrow.

Passenger Mode Split

- 3.8 The Airport, as part of its on-going monitoring programme, undertakes regular passenger surveys. As part of this survey it asks passengers their last mode of transport to the Airport.

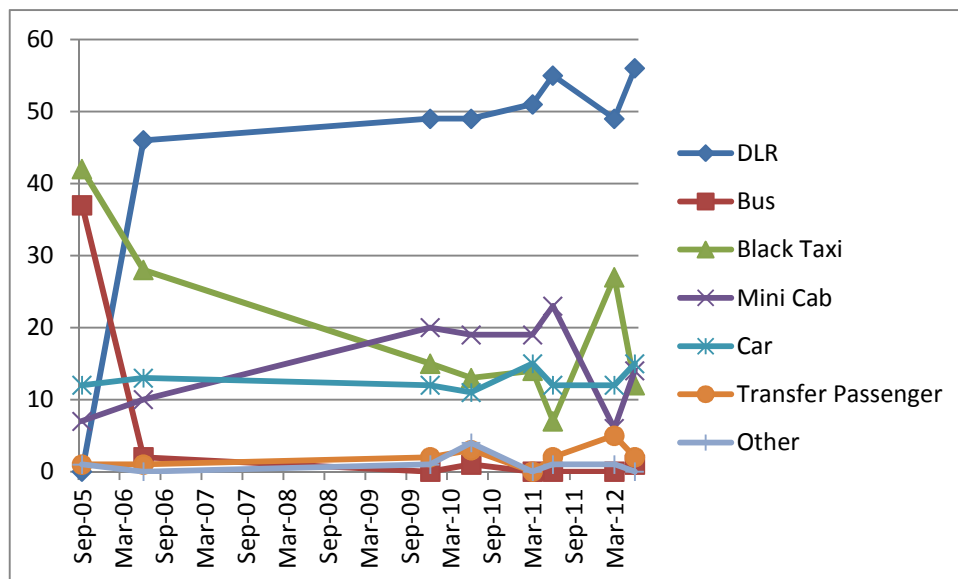
The results of surveys undertaken between 2005 and 2012 are summarised in **Table 3.1**, in order to show the change in mode split over time.

Table 3.1: Change in Mode Split over time - ALL Passengers

	DLR	Black Cab	Minicab	Car	Bus	Transfer	Other	Total
Sept 2005	0 %	42 %	7 %	12 %	37 %	1 %	1 %	100 %
June 2006	46 %	28 %	10 %	13 %	2 %	1 %	0 %	100 %
Dec 2009	49 %	15 %	20 %	12 %	0 %	2 %	1 %	100 %
June 2010	49 %	13 %	19 %	11 %	1 %	3 %	4 %	100 %
Mar 2011	51 %	14 %	19 %	15 %	0 %	1 %	0 %	100 %
Jun 2011	55 %	7 %	23 %	12 %	0 %	1 %	0 %	100 %
Mar 2012	49 %	27 %	6 %	12 %	0 %	5 %	1 %	100 %

3.9 **Chart 3.3** illustrates the change in mode split over time between 2005 and 2012.

Chart 3.3: Change in Mode Split over time 2005 - 2012



3.10 Table 3.1 and Chart 3.3 reveals that the mode split has fluctuated since the introduction of the DLR in December 2005. Between 2009 and 2012, DLR mode share varies between 49% and 56%. The use of Black Cabs / Private Hire Minicabs varies as when one decreases, the other increases. Private Car is fairly constant, at between 11% - 15%. Bus usage is low at between 0% and 1% whilst transfer passengers (those who arrive on one flight and depart on another without leaving the Airport) varies between 1% - 5%.

3.11 The average mode split for 2012 (based on the average of the four quarterly passenger surveys) is shown in **Table 3.2**.

Table 3.2: 2012 Passenger Mode Split

	DLR	Black Cab	Minicab	Car	Bus	Transfer/Other	Total
Average	55 %	14 %	16 %	11 %	0 %	4 %	100%

- 3.12 This shows that DLR comprised the greatest proportion of the mode share at 55%, followed by Private Hire Minicab at 16% and Black Taxi at 14%.
- 3.13 The use of the mode split figures from the Airport's passenger surveys has previously been agreed with DLR, since DLR do not collect this data themselves.

Staff Numbers

- 3.14 Baseline employment data shows that in 2012 there were some 2,470 Full Time Equivalent (FTE) employees dependent on the Airport; broken down between 1,900 direct employees (principally on-site) and 570 indirect and induced employees located in the surrounding areas.
- 3.15 The latest full staff travel survey undertaken in 2011 reveals that 74% of staff employed at the Airport work shifts, as opposed to regular office hours. This is demonstrated by the fact that 49% of staff regularly start work before 05:59 and 56% of staff regularly finish work between 21:00 – 24:00. This reduces the proportion of staff travel during peak hours, but limits the choice of modes available for travel to work.
- 3.16 The greatest proportion of employees directly employed by the Airport who participated in the survey are employed in Terminal Services with 18% of the total, followed by Ramp Services (ground handling) with 13% of the total.

Staff Mode Split

- 3.17 London City Airport is committed to monitoring staff travel patterns through its Travel Plan. The latest full and comprehensive staff travel survey was undertaken during September 2011. A total of 514 staff completed the questionnaire and provided information on their last mode of transport to work. The results of this survey, as compared to the previous survey in 2009, are included in **Table 3.3**.

Table 3.3: Change in Mode Split over time – Staff

	DLR	M'cab	Car	Bus	Walk	Cycle	M'bike	Other	Total
Sept 2009	19 %	1 %	66 %	9 %	2 %	1 %	1 %	0 %	100 %
Sept 2011	22 %	3 %	53 %	10 %	7 %	2 %	2 %	1 %	100 %

- 3.18 Table 3.2 illustrates that the greatest proportion of employees travel by car, with 53% of the total in 2011. This is followed by DLR with 22% and bus with 10%. Compared to the 2009 survey, the proportion of car travel has decreased, with walking seeing the greatest increase in mode share from 2% to 7%.

4 DEVELOPMENT PROPOSALS

Scheme Elements

- 4.1 The works proposed in CADP are described in two planning applications. With the exception of the proposed Hotel, detailed planning permission is being sought for CADP and is described in Planning Application CADP1. Outline planning permission is being sought for the Hotel (Planning Application CADP2) to provide a degree of flexibility for the building which is likely to be brought forward separately by a hotel operator.
- 4.2 The Scheme Layout Drawings are provided at **Appendix C**. This includes the existing Site Plan and proposed Site Plan, and the Dockside layout.
- 4.3 The proposed description of development is as follows:

Planning Application 1

“LONDON CITY CADP Planning Application 1: Works to demolish existing buildings and structures and provide additional infrastructure and passenger facilities at London City Airport without changes to the number of permitted flights or opening hours previously permitted pursuant to planning permission 07/01510/VAR. Detailed planning permission is being sought for

- (a) Demolition of existing buildings and structures;*
- (b) Works to provide 4 no. upgraded aircraft stands and 7 new aircraft parking stands;*
- (c) The extension and modification of the existing airfield to include the creation of a taxiline running parallel to the eastern part of the runway and connecting with the existing holding point;*
- (d) The creation of a vehicle access point over King George V dock for emergency vehicle access;*
- (e) Laying out of replacement landside forecourt area to include vehicle circulation, pick up and drop off areas and hard and soft landscaping;*
- (f) The Eastern Extension to the existing terminal building (including alteration works to the existing Terminal Building) to provide reconfigured and additional passenger facilities and circulation areas, landside and airside offices, immigration areas,*

security areas, landside and airside retail and catering areas, baggage handling facilities, storage and ancillary accommodation;

- (g) The construction of a 3 storey Passenger Pier to the east of the existing terminal building to serve the proposed passenger parking stands;*
- (h) Erection of a noise barrier at the eastern end of the proposed passenger pier*
- (i) Erection of a temporary noise barrier along part the southern boundary of the site to the north of Woodman Street;*
- (j) Western Extension and alterations to the existing Terminal Building to provide reconfigured additional passenger facilities and circulation areas, security areas, landside and airside offices, landside retail and catering areas and ancillary storage and accommodation;*
- (k) Western Energy Centre, storage, ancillary accommodation and landscaping to the west of the existing Terminal;*
- (l) Temporary facilitation works including the erection of a noise barrier to the south of 3 aircraft stands, a coaching facility and the extension to the baggage area;*
- (m) Works to upgrade Hartmann Road;*
- (n) Landside passenger and staff parking, car hire parking and associated facilities, taxi feeder park and ancillary and related work;*
- (o) Eastern Energy Centre;*
- (p) Dock Source Heat Exchange System and Fish Refugia within King George V Dock;
and*
- (q) Ancillary and related works*

Planning Application 2 (CADP2)

LONDON CITY CADP Planning Application 2: Erection of a Hotel with up to 260 bedrooms, ancillary flexible A1-A4 floorspace at ground floor, meeting/conference facilities together with associated amenity space, landscaping, plant and ancillary works.

Phasing

- 4.4 It is anticipated that the construction of CADP1 and CADP2 would be completed by 2021.
- 4.5 For the purposes of assessment, 2023 represents the optimisation of the CADP infrastructure and associated improvements at the Airport. The two year period after the completion of the

proposed CADP physical works allows for a gradual increase in passenger numbers to approximately 5.87 mppa.

Vehicle Access

- 4.6 Vehicle access will continue to be provided from the junction of Hartmann Road / A1011 Connaught Road.
- 4.7 In addition, it is proposed to create a further permanent access and vehicle link to the Airport from the junction with the A117 Woolwich Manor Way / Fishguard Way. Although not open to public traffic, the link already exists and has previously provided access to the Airport for staff and most recently has provided temporary access during the Olympics. The link is, and will remain, within LCY's ownership. It provides a direct connection between the eastern end of Hartmann Road and the signalised junction with the A117 Woolwich Manor Way / Fishguard Way. The proposed link is shown on **Figure 3**. Detailed drawings showing the specification for the link are included in at **Appendix C**.
- 4.8 The existing layout of the junction is shown on **Drawing no. 110116A/A/SK01**. No changes are proposed to the physical layout of the junction.
- 4.9 Whilst London Buses have indicated that they do not intend to operate bus services through the junction and along Hartmann Road in the short-term, the swept path analysis for a bus manoeuvring at the junction has been undertaken to show that this could be accommodated in the future. The swept paths are shown on **Drawing no. 110116A/AT/A01**.
- 4.10 Provision of the additional access improves the Airport's resilience to potential access disruption, as well as shortening the distance travelled on the local highway network for journeys to / from the east. In particular, it will reduce the number of Airport related vehicles using the A1020 Royal Albert Way.
- 4.11 It is not anticipated that a significant amount of non-Airport related traffic will be attracted to the new link, since it will remain a private road associated with Airport activity. Should this not be the case, measures to reduce and control speeds could be implemented, to discourage the route being used as an alternative to the A112 Albert Road.

- 4.12 Directional signage for the Airport on the wider highway network will be reviewed to ensure that vehicles arriving from the east via the Gallions Reach roundabout are signed along the A117 Woolwich Manor Way instead of the A1020 Royal Docks Way.

Airport Forecourt

- 4.13 A new passenger forecourt area is proposed to the south and east of the extended Terminal. To meet security requirements there will be a 30m wide landscaped vehicle free zone in front of the extended Terminal.
- 4.14 The Forecourt area has been designed to provide sufficient capacity to accommodate the forecast demand of approximately 6 mppa associated with the existing permitted annual number of flights. Drawings showing the Forecourt layout are provided at **Appendix D** including Atkins drawing no. 5115752/TP/PD/001R.
- 4.15 A Stage 1 Road Safety Audit has been undertaken and is included in **Appendix E**, along with the Designer's Response.
- 4.16 The Forecourt will continue to be actively managed by Airport staff, particularly during peak periods. This will ensure that the Forecourt operates efficiently and is used appropriately by the designated modes.
- 4.17 The proposed capacity of the forecourt for each mode is compared to the existing capacity of the forecourt in **Table 4.1** and discussed in the following paragraphs. In relation to taxis, 'forecourt' is to be taken to mean both the forecourt itself in front of the extended Terminal and the detached Taxi Feeder Park along the Dockside to the east, as described further in the Black Taxi sub-section below.

Table 4.1: Forecourt Capacity

	Existing Forecourt	Proposed Forecourt
Car pick-up / drop-off spaces	8	48
Black taxi pick-up spaces	200	336*
Black taxi drop-off spaces	8	10
Bus stops	3	3
Bus stand	1	1

* Total in forecourt and taxi feeder queue

- 4.18 The car hire spaces located within the existing Forecourt will not be reprovided in the replacement Forecourt. Separate car hire areas further east will accommodate all of the car hire spaces.

Car Pick-Up / Drop-Off

- 4.19 As shown in Table 4.1, the number of car pick-up / drop-off spaces (including private hire minicabs and chauffeur driven vehicles) is being increased from 8 to 48 spaces. This is because the existing pick-up / drop-off area is intensely used during peak periods and requires management by Airport staff to minimise dwell times and discourage vehicles from waiting to pick-up passengers. Further capacity is required in future for the following reasons:

- (a) To accommodate the increase in passenger demand associated with the proposed CADP;
- (b) To permit a modest increase in dwell times;
- (c) To provide a facility for vehicles to wait to pick-up passengers for a short period of time within the Forecourt area, particularly those such as chauffeur driven vehicles who are required to pick-up passengers directly from the Forecourt;
- (d) To ensure that the pick-up / drop-off area maintains an efficient circulation of vehicles at all times, minimising the opportunity for vehicles queuing back onto Hartmann Road; and
- (e) To recognise that the car parking areas will be located further from the Terminal than existing and that some drivers will prefer the convenience of using the Forecourt area to drop-off / pick-up.

- 4.20 The purpose of the enlarged Forecourt is to encourage pick-up / drop-off at the Airport and not elsewhere, such as Hartmann Road and Newland Street, resulting in disbenefits to the local area. This is particularly important once two-way traffic is permitted on Hartmann Road to prevent pick-up / drop-off's inhibiting traffic flows.

- 4.21 Private car pick-up / drop-off will be chargeable and this would be enforced by barriers at the entrance and exit to the pick-up / drop-off lanes. To discourage the area being used as a

short/ long stay car park a charging system will be implemented by a managing agent to make staying in the drop-off/ pick-up area progressively more expensive as time passes. There would also be a short grace period with no charge should a Controlled Parking Zone on local residential roads not have been introduced by the highway authority in time for the completion of the proposed CADP.

- 4.22 Wide footways and pedestrian crossings linking the Terminal and car pick-up / drop-off would be provided.

Black Taxis

- 4.23 Black taxis are a form of public transport and they comprise a significant proportion of the mode share for passengers travelling to / from the Airport. Thus black taxis have been given greatest priority within the new Forecourt, with black taxi pick-up and drop-off being located as physically close to the Terminal as possible.
- 4.24 For black taxi drop-off, the line of visibility and shortest walking route to the proposed extended Terminal is just 59 metres and there is no requirement to cross the carriageway. For black taxi pick-up, the line of visibility and shortest walking route from the Terminal is just 121 metres, less than a two minute walk, and there is also no requirement to cross the carriageway.
- 4.25 It is proposed that the black taxi pick-up / drop-off area is barrier-controlled to ensure that it is used appropriately by black taxis only. The barriers will be operated by automatic number plate recognition. This will ensure that it is not used by private vehicles.
- 4.26 Canopies will be provided along the full length of the pedestrianised area adjoining the taxi pick-up area, providing a covered waiting area for passengers and allowing a passenger queuing system to be implemented to manage demand at peak times.
- 4.27 The existing taxi queue on Hartmann Road would be removed, in order to facilitate the two-way movement of traffic along Hartmann Road and at the same time resolve adverse air quality impacts caused by taxis idling.
- 4.28 This would be replaced by a proposed Taxi Feeder Park which would be located further east along the dock, close to the junction of Hartmann Road with Woolwich Manor Way. It would be approximately 1 kilometre from the Forecourt, equivalent to less than a two minute drive.

- 4.29 The feeder park would have the capacity for up to 326 taxis. This is broken between 307 waiting spaces within the feeder park and 19 rest spaces for taxi drivers using the facilities provided, without joining the queue. The facilities comprise maintenance bays, welfare facilities and an office. The layout of the feeder park incorporates an escape lane, so that there would be a maximum queue of approximately 15 taxis in any single lane within the feeder park. The layout of the feeder park is provided at **Appendix D** on Atkins Drawing no. P_5115752_TP_PD_138.
- 4.30 A third party transport management specialist company is being appointed to manage and regulate the taxi rank.
- 4.31 A number of potential options have been identified for a taxi call-forward system between the proposed Taxi Feeder Park and new Forecourt. Based on the systems currently available on the market, it has been decided that a system using CCTV and Marshall Control is most appropriate for the Airport. During peak periods, which are typically between 08:00 – 09:00 and 17:00 – 18:00, it is anticipated that taxi marshals will be employed on the Forecourt and in the feeder park. The marshal at the front of the feeder park will release taxis in response to images on a monitor showing the live feed from the forecourt CCTV.
- 4.32 During quieter periods, it is anticipated that CCTV images of the Forecourt displayed within the feeder park will be sufficient to inform taxi drivers when to move forward to the Forecourt.
- 4.33 Other Airports already operate such systems. These include Liverpool, Birmingham and Heathrow airports. For example, Birmingham airport uses a CCTV system to show to taxis in the feeder park the status of the taxi rank in the pickup area. The taxis then manage themselves.
- 4.34 It is proposed that a Taxi Management Plan will be implemented in conjunction with the proposals which would set out the arrangements for black taxis and private hire minicabs. It is likely that it will be a planning condition. The Taxi Management Plan will comprise the following elements:
- a) A description of the proposed arrangements for black taxis and private hire minicabs;

- b) A commitment for the Airport to provide taxi marshals at peak times, to manage the taxi and passenger queues;
- c) Details of the Black Taxi Feeder Park and black taxi call-forward system; and
- d) Management measures to ensure the continued efficiency of the taxi operation at the Airport.

Bus Services

- 4.35 Three bus stops and a bus stand will be provided within the Forecourt area, to match the provision within the existing Forecourt. The existing bus stops and bus stand are under-utilised and could accommodate an increase in bus services. TfL have stated that the nature of the bus network may change in future due to demand elsewhere on the network. Maintaining the existing bus stop provision provides TfL with the flexibility to increase the frequency of bus services should they desire to do so.
- 4.36 Swept paths for the bus manoeuvres in / out of the Forecourt are displayed in **Appendix D** on Atkins drawing no. 5115752/TP/PD/131.

Car Parking

- 4.37 It is proposed to replace the main car parking areas with three passenger car parks, a new staff car park and two new car hire areas. Each of the car parks would be accessed from Hartmann Road. This enables passenger and staff parking to be managed and monitored separately.
- 4.38 Passenger Car Park 1 will be a twin level car park deck structure with 485 spaces. Passenger Car Parks 2 and 3 will be surface level car parks, with 189 and 75 spaces respectively. This gives a total of 749 passenger car parking spaces.
- 4.39 Passenger car parking will continue to be chargeable, with differing price structures for each passenger car park. Staff car parking will continue to operate on a permit basis.
- 4.40 The location of the car parks along with the proposed layouts is shown on the Atkins Dockside layout drawings in **Appendix C**.
- 4.41 A summary of the existing and proposed car parking provision is set out in **Table 4.2**.

Table 4.2: Comparison of Existing and Proposed Car Parking Provision

	Existing	Proposed
Short Stay	148	749
Main Stay	644	
Staff Car Park	Within short and main stay	300
Western Staff Car Park	52	52
Triangle Staff Car Park	10	0
Car Hire	120	150
Total	974	1,251

- 4.42 Table 4.2 shows that it is proposed to increase the parking provision from 974 spaces to 1,251 spaces, i.e. an increase of 277 spaces or a 28% increase. This compares with passenger numbers which will be increasing by 94% and staff numbers which will be increasing by 51%, compared to 2012. The car parking will also serve a Hotel with up to 260 bedrooms, proposed in CADP2.
- 4.43 An appropriate number of parking spaces will include electric vehicle charging points. The most appropriate location for these is within the main stay car parking where vehicles are parked for longer periods.
- 4.44 To summarise, the additional car parking is required for the following reasons:
- a) There will be an increase in demand from passengers, staff and hotel customers at the Airport. However, the increase in the parking provision is not pro rata to the increase in passengers, staff and hotel customers that will be associated with the proposals. This demonstrates the Airport's commitment to encourage travel by alternatives to the car which are conveniently available;
 - b) The proposals include a Hotel with up to 260 bedrooms. It is not proposed to provide any dedicated parking for the hotel and the additional parking demand will instead be accommodated within the main-stay car park;
 - c) Some passengers carrying luggage will always decide to drive to the Airport and will require a parking space;

- d) Many staff frequently work shift patterns with anti-social hours when public transport options are limited; and
- e) It is necessary to ensure that an appropriate parking provision is provided in order to minimise the potential for overspill parking on surrounding residential roads which do not have parking controls.

4.45 Hence the car parks have been designed in order that they operate at practical capacity at peak times and assuming that a realistic mode shift to other modes will be achieved. In particular, London City Airport is committed to maximising use of the DLR by passengers and staff, and is aiming to achieve a 60% mode share by DLR for passengers. This is an increase from the 2012 average of 55%. Further details of the car park accumulation are included in **Appendix F**.

Motorcycle Parking

4.46 A dedicated motorcycle parking area will be provided adjacent to the new staff car park. This will accommodate at least 22 motorcycles.

Cycle Parking

4.47 It is proposed to increase the number of cycle parking spaces from 42 to 70. All cycle parking will be located in the covered area underneath the DLR. Demand for cycle parking will continue to be monitored through the Travel Plan and additional cycle stands will be provided as necessary.

Coach Parking

4.48 Coach parking, when needed, will be provided in a layby located adjacent to the proposed hotel, immediately off Hartmann Road. This will be used by coach parties using the Airport and the proposed Hotel.

4.49 It is worth noting that demand for coach parking and group travel to / from the Airport is low, as illustrated by the results of the passenger travel surveys. This is not anticipated to change in the future.

Pedestrians

- 4.50 Pedestrians will continue to be able to access the Airport from Hartmann Road to the west and Newland Street to the south.
- 4.51 A further pedestrian access will be created along the dockside from the east, connecting to Woolwich Manor Way. This improves the permeability of the surroundings of the Airport for pedestrians and is particularly beneficial for employees, since a significant proportion live within walking distance.

River Services

- 4.52 It is not anticipated that there would be a significant demand for travel to / from the Airport by river services. Nonetheless, it is worth noting that the Airport is already connected to the Woolwich Ferry Terminal by bus routes 473 and 474, should Thames Clipper serve the existing pier in future if the Woolwich Ferry were to be relocated to Gallions Reach. Similarly, the proposed Minoco Wharf pier would be within acceptable walking distance of bus stops serving routes 473 and 474 and thereby providing a direct bus connection to the Airport.
- 4.53 The Airport will continue to engage with TfL and Thames Clippers to ensure that opportunities to connect the Airport to river services are optimised.

Travel Plan

- 4.54 The Airport has implemented a Travel Plan, a copy of which is included at **Appendix G**. The Travel Plan includes a comprehensive set of travel measures which has helped to encourage a modal shift away from the single occupancy private car.
- 4.55 The Travel Plan is being updated and initial discussions have already taken place with London Borough of Newham and TfL at a meeting on 30th April 2013. Initially the updated Travel Plan will concentrate on staff travel. This approach has been agreed with both stakeholders. The Travel Plan will then be updated to consider passenger travel in conjunction with the development of a new Airport surface access strategy. The new surface access strategy will be developed in consultation with key stakeholders and will reflect the passenger related surface access requirements both in the short term and those associated with the CADP project in the longer term.

4.56 The Staff Travel Plan will include a series of 'live actions' for key issues regarding how staff access the Airport. Progress against these actions will be reviewed annually. The key issues that will be addressed through the Staff Travel Plan are as follows:

- a) Engagement - the Airport's Travel Co-Ordinator will work with airport companies to share information and encourage airport staff to travel sustainably;
- b) Local staff travel - seek to implement measures that aim to increase the proportion of local staff (within a 3-5 mile radius) who choose to walk or cycle to work. The CADP will provide a new dockside path, creating a new pedestrian link from the east. Additional cycle parking will also be provided to encourage cycling;
- c) Multi-modal travel - work with partners and transport providers to look to offer better information and ticketing options for staff completing multi modal journeys to and from work;
- d) De-carbonising the car - explore opportunities that reduce the impact of single occupancy car use. To include car sharing, electric vehicles, occasional use of public transport, etc;
- e) Early morning accessibility - explore opportunities for the development of additional early morning transport services to align with airport operational requirements;
- f) Networking - seek to establish a travel plan network with local organisations to identify and address common transport issues; and
- g) Monitoring and reporting - report progress against the Staff Travel Plan annually.

4.57 Through the actions contained within the Staff Travel Plan the Airport will seek to maintain staff car parking provision at a level comparable with 2009 levels, until such time that increased staff numbers requires additional parking provision. This will be required in time for the completion of the proposed CADP in 2021.

4.58 A copy of the new Staff Travel Plan is included at **Appendix G**.

Construction

- 4.59 The Airport will implement a Construction Logistics Plan (CLP) which will include details on the proposals to manage the construction impacts. This will include consideration of the transportation of construction materials to / from the Airport.
- 4.60 Deliveries during construction will be undertaken by both road and where feasible, river. The river will be used where possible, in order to minimise the impacts on the local road network. As an example, it is anticipated that a number of large precast concrete units will be delivered to the site by barge.
- 4.61 It is envisaged that construction compound and landside site access will be provided from the junction with the A117 Woolwich Manor Way, whilst Airside Site access will be provided via the A1020 Connaught Bridge Road and the A112 Connaught Road.
- 4.62 A full CLP cannot be confirmed until a contractor has been appointed, but it is envisaged that the key points which will be included in the CLP are as follows:
- a) Details of the designated construction traffic routes to / from the Airport;
 - b) An estimate of the number and type of construction vehicles;
 - c) The access and egress arrangements for all construction vehicles;
 - d) The proposed mitigation measures such as wheel washing, road cleansing and dust and noise suppression measures; and
 - e) Details of any local traffic management measures, in discussion with the highway authorities.

Deliveries and Servicing

- 4.63 A Delivery and Servicing Plan (DSP) has been prepared and will be implemented at the Airport in conjunction with the CADP. A copy of the DSP is included at **Appendix H**.

5 POLICY CONTEXT

- 5.1 This section of the report considers the current and emerging planning policy guidance at national, regional and local level.

National Policy

National Planning Policy Framework (NPPF) (March 2012)

- 5.2 The National Planning Policy Framework sets out the Government's planning policies for England and how these are expected to be applied.

- 5.3 One of the 12 core land-use principles within the NPPF includes:

"[to] actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable."

- 5.4 Section 4 of the NPPF deals with 'Promoting sustainable transport.' Paragraph 29 states that:

"the transport systems needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel."

- 5.5 Paragraph 32 sets out the transport issues which should be addressed within Development Plans and decisions. These are:

- *"the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;*
- *safe and suitable access to the site can be achieved for all people; and*
- *improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe."*

Aviation Policy Framework (March 2013)

- 5.6 Paragraphs 1.96 and 1.97 of the Aviation Policy Framework states that:

“High quality, efficient and reliable road and rail access to airports contributes greatly to the experience of passengers, freight operators and people working at the airport.

We are committed to working with airport operators, transport operators, local authorities and LEPs to improve surface access to airports across the country, whilst taking into account the associated environmental impacts. We are already contributing funding to make this happen.”

- 5.7 In relation to Airport surface access strategies and Airport Transport Forums (ATFs), paragraph 4.20 states:

“Government attaches a high priority to effective public involvement in local transport policy. Local people, town and parish councils which have qualifying airports within their boundaries, business representatives, health and education providers, environmental and community groups should be involved in the development of airport surface access strategies.... We recommend that ATFs produce airport surface access strategies to set out:

- targets for increasing the proportion of journeys made to the airport by public transport for both airport workers and passengers*
- the strategy to achieve those targets.”*

- 5.8 Paragraph 5.11 states that:

“All proposals for airport development must be accompanied by clear surface access proposals which demonstrate how the airport will ensure easy and reliable access for passengers, increase the use of public transport by passengers to access the airport, and minimise congestion and other local impacts.”

Regional Policy

Mayor’s Transport Strategy (May 2010)

- 5.9 One of the key objectives of the Mayor’s Transport Strategy (MTS) is that:

‘London’s transport system should excel among those of world cities, providing access to opportunities for all its people and enterprises, achieving the highest environmental standards and leading the world in its approach to tackling urban transport challenges of the 21st century.’

5.10 The MTS further recognises that:

“As the economy of east London has changed, developments such as Canary Wharf, ExCel and The O2 have increased the demand for travel across the river significantly. Many of the large new economic drivers for London are located in east London, with the majority of these lying north of the river, such as the Olympic Park and adjacent Stratford City development, Canary Wharf, ExCel and City airport.”

5.11 With regard to Airport Policy, paragraph 435 states that:

“The Mayor recognises that adequate airport capacity is critical to the continued competitiveness of London’s economy. For this reason, the Mayor will consider whether optimum use is being made of existing airport infrastructure.”

5.12 On surface access to airports, the MTS states the following:

“TfL has worked with airport operators through their airport transport forums to help improve surface access to airports. Continued close engagement with airport operators and local boroughs will be essential to serve the increasing numbers of air passengers and encourage a shift from private car to reduce congestion and improve surrounding air quality.”

London Plan (July 2011)

5.13 Policy 6.6 of the London Plan deals with Aviation. Part B states that The Mayor:

“supports improvements of the facilities for passengers and other London airports in ways other than increasing the number of aircraft movements, particularly to optimise efficiency and sustainability, enhance the user experience and to ensure the availability of viable and attractive public transport options to access them.”

5.14 It continues to state that:

“Development proposals affecting airport operations or patterns of air traffic should:

Provide access to airports by travellers and staff by sustainable means, particularly by public transport.”

Vision 2020 (June 2013)

- 5.15 In June 2013, the Mayor produced his Vision 2020 – The Greatest City on Earth. This identifies the Royal Docks as an Opportunity Area and the role of London City Airport is serving the Royals:

“We are returning the Royal Docks to their former glory at the forefront of international trade and exchange. This 125 hectare site - including the regeneration areas of Silvertown Quays, Royal Albert Dock and Royal Albert Basin has £22bn of development potential. Already, innovative and iconic developments are springing up to create a world class business destination - such as The Siemens Crystal and the Emirates Air Line cable car.

A new Enterprise Zone will support business ventures creating 6,000 new jobs. A beautiful ‘floating village’ will host just some of 11,000 new homes built. A £1bn joint public and private investment will create London’s first Asian Business Park.

We will install transport links to Crossrail 1 at Woolwich and London City Airport.”

Local Policy

London Borough of Newham Core Strategy (January 2012)

- 5.16 London Borough Newham’s Core Strategy was adopted in January 2012. It sets out to ensure that *“new development will achieve the Council’s objective to make Newham a place where people will choose to live, work and stay”*.

- 5.17 Policy INF 2 on Sustainable Transport within the Core Strategy states that:

“Major development proposals that generate or attract large numbers of trips, including higher density residential and commercial development, should be located in areas with good public transport accessibility and demonstrate the existence of, or propose new safe, attractive walking and cycling routes to public transport nodes.”

- 5.18 It continues to state that:

“Development proposals will not be supported where they would have an unacceptable adverse impact on the capacity or environment of the highway network. Where applicable proposals must be accompanied by Transport Assessments which show the likely impacts of

trip generation, and which include acceptable robust, monitored proposals to counter or minimise the potential impacts; these include 'smarter travel' plans and measures to facilitate and encourage more widespread walking, cycling and public transport use."

Summary

- 5.19 London City Airport is accessible by public transport via black taxi, DLR and bus services, providing connections locally within Newham by bus and via DLR to central London and Canary Wharf. Targets are being set to increase the public transport mode share, in accordance with the Aviation Policy Framework. The Airport continues to engage with stakeholders to improve surface access. The Airport's Travel Plan is being updated, to promote access to the airport by sustainable modes and reducing the proportion of journeys by private car.
- 5.20 Hence the CADP accords with national, regional and local transport policies.

6 TRIP ATTRACTION

Background

- 6.1 The Airport's extant 2009 Planning Permission allows the annual number of permitted aircraft movements to grow to 120,000 'noise-factored' movements. The forecasts made in 2006 (and used to inform the 2007 Environmental Statement which accompanied the planning application for the 2009 planning permission), predicted that the 120,000 movement limit would be reached in 2010, of which 25,000 movements were predicted to derive from the Jet Centre, with the number of passengers carried reaching 3.9 million per annum on 95,000 scheduled movements. The actual increase in movements has not reached these amounts, due primarily to the global recession.
- 6.2 However, the effect of the recession has seen airlines introduce larger, more fuel efficient aircraft, with lower seat / mile costs. A comparison of the aircraft size and capacity of the current and future scheduled fleet mix is provided in **Table 6.1**.

Table 6.1: Aircraft Size and Capacity

Aircraft	Seats	Wingspan (m)	Length (m)	Height (m)
<i>Existing</i>				
Airbus A318	32 - 107	34.09	31.45	12.56
BAe 146 / Avro RJ	82-112	26.21	30.99	8.61
Bombardier Q400	70-78	28.42	32.84	8.36
Dornier 328	33-39	20.98	21.22	7.24
Embraer 170	76	26.00	29.90	9.67
Embraer 190	98-112	28.72	36.24	10.28
Fokker F50	50	29.00	25.25	8.32
ATR-42	46-50	24.57	22.67	7.59
ATR-72	68-74	27.10	27.20	7.65
Saab 2000	50	24.76	27.28	7.73
<i>Future</i>				
Airbus A318	32 - 107	34.09	31.45	12.56
Embraer 170	76	26.00	29.90	9.67
Embraer 190	98-112	28.72	36.24	10.28
Bombardier Q400	78	28.42	32.84	8.36
ATR-42	46-50	24.57	22.67	7.59
Canadair C100	100-120	35.10	34.90	11.50

- 6.3 Table 6.1 shows that whilst the future fleet is physically larger in terms of wingspan, length and height, there is not a significant increase in seating capacity.

Passenger Numbers

Annual Passenger Numbers

- 6.4 Updated aircraft and passenger forecasts for the period between 2012 and 2023 have been prepared by York Aviation LLP. The annual aircraft movements / passenger numbers both With and Without Development are set out in **Table 6.2**.

Table 6.2: Annual Passenger Numbers

	2012	2021		2023		2023 Sensitivity Test
	Existing	With Dev.	Without Dev.	With Dev.	Without Dev.	With Dev.
Scheduled Movements	70,502	104,901	88,822	107,119	87,713	107,119
Passengers	3,029,013	5,512,000	4,391,000	5,874,000	4,435,000	6,020,000

Source: York Aviation

- 6.5 This shows that passenger numbers are predicted to grow incrementally from 3.03 mppa in 2021 to 5.87 mppa in 2023 With Development compared to 4.44 mppa Without Development.
- 6.6 The difference in passenger numbers With and Without Development occurs as a result of the following:
- The constraint on the growth of movements in peak periods imposed by the limit of 18 stands and 38 runway movements per hour; and
 - Larger aircraft being able to operate from the new aircraft stands which are able to accommodate the new generation of larger planes.
- 6.7 Further details underpinning the forecasts are provided in the CADP Need Statement accompanying the CADP planning submission and in York Aviation's technical note included at **Appendix I**.

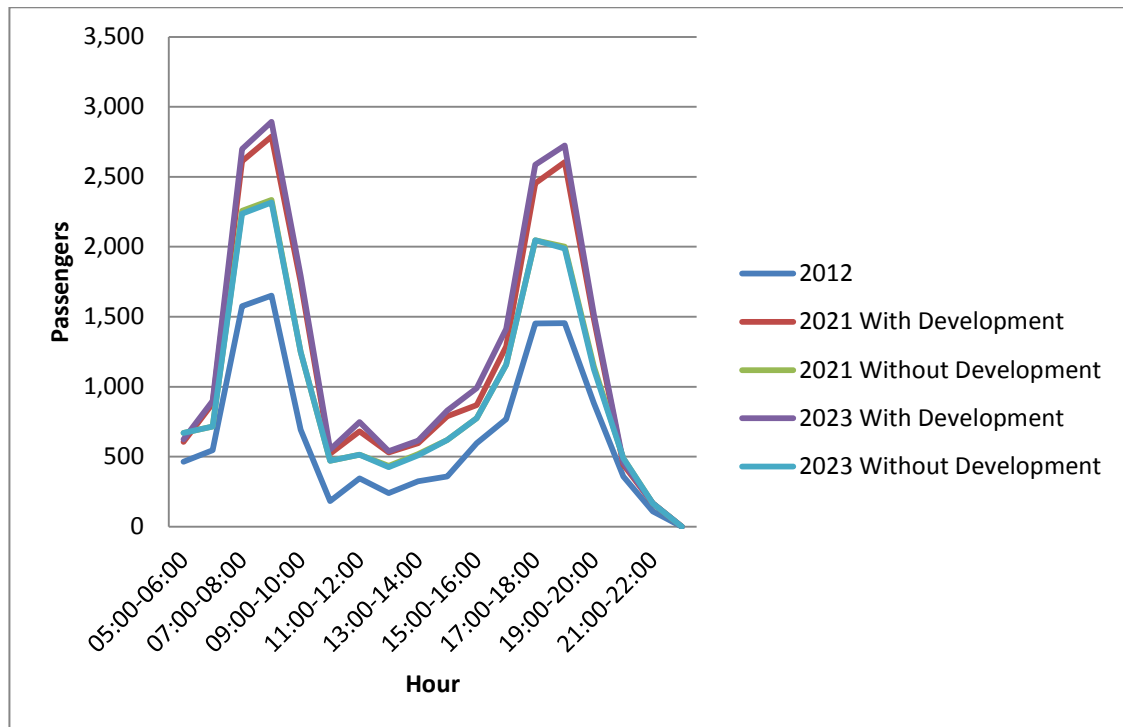
Sensitivity Test

- 6.8 Whilst passenger numbers are not forecast to increase above 5.87 mppa in 2023, a reasonable worst case sensitivity test has been undertaken, based on the following assumptions:
- a) A ceiling of 8 larger Code C aircraft on the ground simultaneously during any peak hour compared to 5 in the most likely planning forecast, consistent with the limit on what the infrastructure will accommodate without degrading runway capacity due to additional backtracking by these larger aircraft. For illustrative purposes, we have assumed a change in aircraft type by CityJet following its expected change of ownership but, in practice, an equivalent outcome could be realised by further aircraft type changes by BA, Lufthansa or other airlines.
 - b) An average peak period load factor of 90% in the Sensitivity Test compared to 85% in the With Development Case.
- 6.9 Further details are included at **Appendix I**.

Daily Profile

- 6.10 York Aviation has derived a scheduled timetable and daily profile of flight and passenger arrivals / departures for the base year 2012 as well as the predicted pattern for future years of 2021 and 2023. This is based on a typical busy day at the Airport and expected changes as demand grows. The scheduled timetables and resultant passenger numbers are included at **Appendix I**.
- 6.11 The predicted change in passenger numbers at the Airport across a weekday is illustrated in **Graph 6.1**. This takes into account that on average, passengers arrive 1 hour and 15 minutes prior to their flight departing from the airport if travelling on a scheduled flight, and when a flight arrives at the airport it takes on average 15 minutes for passengers to depart from the airport. This has previously been accepted by LBN and TfL and is not expected to change significantly in the future with CADP.

Graph 6.1: Profile of Passenger Numbers on Surface Access on a Weekday



- 6.12 **Graph 6.1** shows that there is anticipated to be an increase in passengers at all times of day, but particularly during the AM peak between 07:00 and 10:00 and during the PM peak between 17:00 and 20:00.
- 6.13 It is evident that the number of passengers using surface access modes is significantly lower during the off-peak period between 10:00 and 17:00, although in 2021 and 2023 the number of hourly passengers during the off-peak still does not exceed the hourly number of peak period passengers in 2012.
- 6.14 This is because the recession has also driven the demand for peak period flights higher, with less peak spreading than anticipated at the time of forecasts prepared pre-recession. In addition, it is now recognised that flights tend to operate at lower load factors in off-peak periods.
- 6.15 Hence the assessment of the impacts on surface access to the Airport are focused on the peak hours.

Peak Hours

- 6.16 Growth in scheduled movements and passenger numbers is driven by the Airport's primary role in supporting the business travel needs associated with the Canary Wharf Financial Services cluster, resulting in a greater dependence on peak period travel compared to other airports which have a broader mix of passenger types, allowing a greater spread of services.
- 6.17 The CADP facilitates a change to the daily profile of passengers arriving / departing the Airport, compared to the Without Development Scenario. The proportions in the peak periods are similar, but there will be a higher demand in the off peak period in the With Development Case. This is because the With Development Case will allow market growth overall so making a number of off-peak services viable. This is explained further in **Appendix I**.
- 6.18 A load factor is the proportion of passenger seating capacity occupied on a plane. Load factors are predicted to vary throughout the day, with higher load factors at peak times which is driven by higher demand. The predicted peak period load factors both With and Without Development are shown in **Table 6.3**.

Table 6.3: Peak Period Load Factors

	2021		2023		2023 Sensitivity Test
	With Dev.	Without Dev.	With Dev.	Without Dev.	With Dev
Peak Periods	85%	90%	85%	90%	90%

- 6.19 As can be seen from Table 6.3, peak period load factors are predicted to be 85% With Development and 90% Without Development. Load factors are higher Without Development because of the shortage of peak period flights to meet the underlying market demand. In other words, the With Development Case enables demand to be spread across a greater number of flights.
- 6.20 Peak hour load factors will never consistently reach 100% because airlines need to maintain a proportion of free seats on all flights, particularly during peak times, in order to accommodate those passengers with flexible tickets who require a seat on their desired

flight. In the With Development Case, it is anticipated that the airlines will be able to operate more off-peak services to match their growth in peak operations, and this further explains the difference in peak load factors between scenarios, as a greater proportion of peak services may be booked but unused, as passengers switch to a more convenient flight through the day.

- 6.21 The Airport confirms that whilst some flights have occasionally operated at 100% load factors, there has never been a scenario where 100% load factors have occurred across all flights within a single hour at any time. Furthermore, where flights have occasionally operated at 100%, there is no consistent pattern by day/month/year or any other variable. Hence, there is no reason to believe that this will occur in the future.
- 6.22 The predicted change in passenger numbers on surface transport (taking into account the time lag between passengers arriving / departing on a plane and arriving / departing the Airport) for the weekday AM peak hour of 08:00 – 09:00 and for the weekday PM peak hour of 17:00 – 18:00 is shown in **Tables 6.4 - 6.7** for 2012, 2021 and 2023 respectively. It is worth noting that both of these hours are the combined network and development peak hours.

Table 6.4: 2012 Peak Hour Passenger Numbers

	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
	Arr's	Dep's	Total	Arr's	Dep's	Total
Observed	516	1,134	1,650	1,005	448	1,453

Table 6.5: 2021 Peak Hour Passenger Numbers

	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
	Arr's	Dep's	Total	Arr's	Dep's	Total
Without Development	808	1,528	2,336	1,377	670	2,047
With Development	1,072	1,717	2,789	1,743	711	2,453
Difference	264	189	453	366	41	406

Table 6.6: 2023 Peak Hour Passenger Numbers

	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
	Arr's	Dep's	Total	Arr's	Dep's	Total
Without Development	808	1,508	2,316	1,377	670	2,047
With Development	1,107	1,785	2,892	1,838	748	2,586
Difference	299	277	576	461	78	539

Table 6.7: 2023 Sensitivity Test Peak Hour Passenger Numbers

	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
	Arr's	Dep's	Total	Arr's	Dep's	Total
Without Development	808	1,508	2,316	1,377	670	2,047
With Development	1,150	1,922	3,072	1,967	778	2,745
Difference	342	414	756	590	108	698

6.23 This shows that during the AM peak hour in 2023 there would be an increase of 576 passengers compared to the Without Development Scenario, whilst during the PM peak hour in 2023 there would be an increase of 539 passengers compared to the Without Development Scenario.

Staff Numbers

6.24 Staff numbers at the Airport are also anticipated to increase overtime. An estimate of the number of staff employed on-site at the Airport has been derived by York Aviation. This is summarised in **Table 6.8**.

Table 6.8: Number of Direct Full Time Equivalent Jobs at the Airport

	2012	2021	2023
Without Development	1,900	2,220	2,160
With Development	-	2,790	2,860

** NB. Numbers are rounded to the nearest 10.*

6.25 In addition to the figures in Table 6.8, the proposed Hotel is expected to employ up to 130 employees.

Hotel

6.26 The starting point in estimating the trip attraction associated with the hotel has been to interrogate the TRAVL v8.17 database. The search of similar hotels in the database was based on the following criteria:

- PTAL's of 3 and 4;
- Hotels with greater than 34 bedrooms; and
- Parking provision of between 14 and 40 spaces.

- 6.27 It is envisaged that many customers at the proposed Hotel will already be using the Airport and may simply decide to extend their stay before or after their flight. However, a proportion of hotel customers may be visiting local attractions such as ExCel.

Mode Split

Passengers

- 6.28 The mode split assumptions for passengers are set out in **Table 6.9**.

Table 6.9: Mode Split - Passengers

Mode	2012	2021 / 2023
Private car parked at Airport	2 %	2 %
Dropped off by car	9 %	8 %
Private Hire Minicab	16 %	14 %
Black Taxi	14 %	12 %
DLR	55 %	60 %
Bus	0 %	1 %
Transfer / Other	4 %	3 %
TOTAL	100 %	100 %

- 6.29 The future year mode split is considered to represent the maximum mode share for the DLR, taking into account the fact that DLR mode share has not increased substantially since the Airport branch opened, but also having regard to the Airport's aspiration to maximise the use of public transport as a means of surface access. It is considered that, with appropriate encouragement and publicity, DLR mode share can realistically increase over time to reach 60% by 2021.

Staff

The mode split assumptions for staff is set out in **Table 6.10**.

Table 6.10: Mode Split – Staff

Mode	Existing	2021 / 2023
Single Occupancy Vehicle	44 %	38 %
Car Share	5 %	6 %
Dropped off by Car	4 %	4 %
Private Hire Minicab	3 %	2 %
Black Taxi	0 %	0 %
DLR	22 %	24 %
Bus	10 %	11 %
Walk	7 %	9 %
Cycle	2 %	4 %
Motorcycle	2 %	2 %
Other	1 %	0 %
TOTAL	100 %	100 %

- 6.30 The starting point for estimating the mode split for staff is the existing mode split as revealed through the staff travel surveys. However, it is anticipated that the proportion of staff travelling by sustainable modes will increase with the continued implementation of the Airport's Travel Plan. Therefore, the Single Occupancy Vehicle mode share has been reduced by 14% from the 2011 level (44% down to 38%), with a proportional increase in sustainable modes.
- 6.31 With regards to the DLR mode share for staff travel, in the TfL consultation response of 17th January 2013, DLR recognise that since most staff work shifts the DLR operating hours may not support their working pattern so a low DLR mode share for staff would be expected.

Hotel

6.32 The mode split assumptions for the are hotel is set out in **Table 6.11**.

Table 6.11: Mode Split – Hotel

Mode	Existing
Car Driver	27 %
Car Passenger	11 %
DLR	27 %
Bus	8 %
Walk	19 %
Cycle	0 %
Motorcycle	1 %
Coach	2 %
Taxi	5 %
TOTAL	100 %

6.33 The mode split has been derived from the site selection from the TRAVL database used to derive the trip attraction.

Multi-Modal Trip Attraction

6.34 It should be noted that the hotel has been assumed to be developed in conjunction with CADP. As such it has been included in the With Development Case and not within the Without Development Case. Should the hotel be developed in isolation from CADP, the multi-modal trip attraction would increase for the Without Development Case as a result of having the hotel in place. However, the Without Development Case with the proposed Hotel would still not be greater than the With Development Case without the proposed Hotel.

6.35 The resultant multi-modal person trip attraction for the peak hours is shown in **Tables 6.12 – 6.17**.

Table 6.12: Multi-Modal Trip Attraction (Passenger and Staff) - 2012

	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
Mode	Arrivals	Departures	Total	Arrivals	Departures	Total
Car (Parked)	93	18	111	19	99	118
Car (Drop-off)	57	79	136	85	84	169
Rented Car	2	3	4	3	3	5
Black Taxi	78	123	200	132	119	251
Private Hire Minicab	93	138	232	149	139	289
DLR	343	477	821	514	503	1017
Bus	21	4	26	5	23	28
Transfer (Passengers)	19	31	50	33	30	63
Walk	13	0	13	0	13	13
Cycle	4	0	4	0	4	4
Motorcycle	4	0	4	0	4	4
Other	11	0	11	0	11	11
TOTAL	739	873	1,611	940	1,030	1,970

Table 6.13: Multi-Modal Trip Attraction (Passenger and Staff) - 2021 Without Development

	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
Mode	Arrivals	Departures	Total	Arrivals	Departures	Total
Car (Parked)	95	31	126	28	92	120
Car (Drop-off)	75	127	202	114	64	178
Rented Car	6	12	19	11	5	16
Black Taxi	97	183	280	165	80	246
Private Hire Minicab	109	199	308	179	91	270
DLR	534	917	1,451	826	452	1,278
Bus	25	5	30	4	25	29
Transfer (Passengers)	19	35	54	32	15	47
Walk	19	0	19	0	19	19
Cycle	8	0	8	0	8	8
Motorcycle	4	0	4	0	4	4
Other	22	18	40	17	21	37
TOTAL	1,015	1,527	2,541	1,376	877	2,252

Table 6.14: Multi-Modal Trip Attraction (Passenger, Staff and Hotel) - 2021 With Development

	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
Mode	Arrivals	Departures	Total	Arrivals	Departures	Total
Car (Parked)	130	60	190	65	125	190
Car (Drop-off)	99	143	242	145	69	214
Rented Car	9	14	22	14	6	20
Black Taxi	129	206	335	209	85	294
Private Hire Minicab	146	228	374	232	100	332
DLR	715	1,056	1,771	1,076	501	1,577
Bus	35	13	48	14	34	49
Transfer (Passengers)	25	39	64	40	16	56
Walk	24	0	24	0	24	24
Cycle	10	0	10	0	10	10
Motorcycle	5	0	5	0	5	5
Other	40	52	92	58	39	97
TOTAL	1,368	1,810	3,178	1,853	1,015	2,868

Table 6.15: Multi-Modal Trip Attraction (Passenger and Staff) - 2023 Without Development

	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
Mode	Arrivals	Departures	Total	Arrivals	Departures	Total
Car (Parked)	93	30	123	28	90	118
Car (Drop-off)	75	125	200	114	64	178
Rented Car	6	12	19	11	5	16
Black Taxi	97	181	278	165	80	246
Private Hire Minicab	109	196	305	179	91	270
DLR	533	905	1438	826	450	1276
Bus	25	5	29	4	24	28
Transfer (Passengers)	19	35	53	32	15	47
Walk	18	0	18	0	18	18
Cycle	8	0	8	0	8	8
Motorcycle	4	0	4	0	4	4
Other	22	18	40	17	20	37
TOTAL	1,009	1,507	2,516	1,376	871	2,247

Table 6.16: Multi-Modal Trip Attraction (Passenger, Staff and Hotel) - 2023 With Development

	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
Mode	Arrivals	Departures	Total	Arrivals	Departures	Total
Car (Parked)	134	61	195	67	129	196
Car (Drop-off)	103	148	251	153	73	225
Rented Car	9	14	23	15	6	21
Black Taxi	133	214	347	221	90	310
Private Hire Minicab	151	237	388	245	105	349
DLR	738	1,097	1,835	1,133	525	1,658
Bus	36	13	49	14	35	50
Transfer (Passengers)	25	41	67	42	17	59
Walk	24	0	24	0	24	24
Cycle	11	0	11	0	11	11
Motorcycle	5	0	5	0	5	5
Other	41	53	94	59	40	99
TOTAL	1,410	1,878	3,288	1,948	1,059	3,007

Table 6.17: Multi-Modal Trip Attraction (Passenger, Staff and Hotel) - 2023 With Development Sensitivity Test

	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
Mode	Arrivals	Departures	Total	Arrivals	Departures	Total
Car (Parked)	134	64	199	70	129	199
Car (Drop-off)	106	160	266	163	75	239
Rented Car	9	15	25	16	6	22
Black Taxi	138	231	369	236	93	329
Private Hire Minicab	157	255	411	261	109	370
DLR	764	1,179	1,943	1,211	543	1,754
Bus	36	13	49	15	35	50
Transfer (Passengers)	26	44	71	45	18	63
Walk	24	0	24	0	24	24
Cycle	11	0	11	0	11	11
Motorcycle	5	0	5	0	5	5
Other	42	54	96	61	40	100
TOTAL	1,452	2,015	3,468	2,077	1,089	3,167

Summary

6.36 The proposed approach to trip attraction is therefore as follows:

- a) Derive the person trip attraction from the daily profile of passenger forecasts supplied from York Aviation;
- b) Derive the staff trip attraction from the staff forecasts supplied from York Aviation;
- c) Derive the hotel person trip attraction from the TRAVL database;
- d) Apply mode splits to the passenger, staff and hotel trips; and
- e) Derive the multi-modal trip attraction for the combined passenger, staff and hotel trips.

6.37 Further details regarding Trip Attraction for passengers, staff and hotel users are included at **Appendix J**.

7 IMPACT ON PUBLIC TRANSPORT NETWORKS

DLR

Study Area

- 7.1 It has been agreed with DLR that the impact of the proposed CADP will be examined on 'the Airport route' of the DLR network. This comprises the section between Canning Town and Woolwich Arsenal via London City Airport.

Assessment Years

- 7.2 An assessment of the capacity of the Airport route is conducted for the With / Without Development Scenarios:
- a) 2012: Baseline Year;
 - b) 2021: Movement Limit Year for the completed Development;
 - c) 2023: Optimisation of the CADP Development and other associated improvements at the Airport; and
 - d) 2023: Sensitivity Test.
- 7.3 The DLR loadings will be adjusted to take account of the anticipated Airport-related passengers in the With and Without Development Scenarios in the above assessment years.
- 7.4 DLR have not provided predicted loadings data for 2023. To assess 2023, it has been necessary to use the 2026 DLR loadings data. This provides a robust assessment since the 2026 loadings data for non-Airport related DLR passengers would be higher than 2023. Therefore, there would be a greater amount of spare capacity on the DLR in 2023 than suggested by the results for this scenario.

DLR Passenger Forecasts

- 7.5 DLR have provided passenger loadings for the Airport route for the weekday AM peak hour of 08:00 – 09:00. This is the busiest hour of the day on the DLR network.
- 7.6 For the future years up to 2026 this includes the predicted increase in DLR passengers associated with planned developments in the vicinity of the Airport route.

Airport-Related DLR Passengers

- 7.7 The Airport-related DLR passengers for the weekday AM peak hour of 08:00 – 09:00 is shown in **Table 7.1**.

Table 7.1 – Weekday AM Peak Hour Airport-related DLR Passengers

Year	Without Development			With Development			Difference		
	Arr	Dep	Total	Arr	Dep	Total	Arr	Dep	Total
2012	343	477	821	-	-	-	-	-	-
2021	535	917	1,452	716	1,056	1,772	181	139	320
2023	534	905	1,439	738	1,097	1,835	204	192	396
2023 ST	-	-	-	764	1,179	1,943	-	-	-

- 7.8 Table 7.1 shows that the greatest increase in DLR passengers occurs in 2023 when there is a total of 396 additional DLR passengers in the weekday AM peak hour. The actual increase in passengers per train is low when seen in the context of the frequency of trains on the Airport route; of 15 trains per hour each way.
- 7.9 Airport-related DLR passengers have been distributed according to Origin-Destination data for existing journeys to / from the Airport.
- 7.10 DLR passenger flow diagrams showing the number of DLR passengers on the Airport route for the AM Peak hour in the With and Without Development Scenarios for each of the assessment years are included at **DLR Figures 1 to 20**.

Crowding Factors

- 7.11 DLR apply crowding factors as a measure of capacity on the DLR network. Crowding factors are calculated on the number of standing passengers per sqm of standing space (ppm²). Factors are categorised according to the following scale:

Crowding level key

ppm ²	
0	No crowding (all passengers seated)
0-1	Slight crowding (some standing)
1-2	Medium crowding
2-3	Heavy crowding
3-4	Severe crowding
4-4.6	Maximal crowding (very close to capacity)
>4.6	Overcrowding* (beyond stated crush loads)

* NB that overcrowding would more likely result in queuing on platforms instead

- 7.12 DLR consider that 'planning capacity' is reached at 3 ppm², after which there is potential for passengers to be left behind at stations. However, the actual capacity of a train is reached at 4.6 ppm². DLR reduce the amount of available standing space on the Airport route by 15% to take account passengers with luggage.
- 7.13 A crowding factor is calculated for each link in both directions on the Airport route between Canning Town and Woolwich Arsenal.

Results

7.14 **Tables 7.2 - 7.4** illustrates how the increase in passengers affects the capacity of DLR services for the weekday AM peak hour in 2021 and 2023.

Table 7.2 – DLR Passengers 2021 Weekday AM Peak

Link	DLR Passengers		Crowding Factor pp sqm		Category	
	Without Dev	With Dev	Without Dev	With Dev	Without Dev	With Dev
Canning Town → West Silvertown	1,893	2,032	0.09	0.22	Slight crowding	Slight crowding
West Silvertown → Pontoon Dock	1,728	1,868	0.00	0.07	No crowding	Slight crowding
Pontoon Dock → London City Airport	1,206	1,345	0.00	0.00	No crowding	No crowding
London City Airport → King George V	712	721	0.00	0.00	No crowding	No crowding
King George V → Woolwich Arsenal	634	644	0.00	0.00	No crowding	No crowding
Woolwich Arsenal → King George V	908	950	0.00	0.00	No crowding	No crowding
King George V → London City Airport	1,473	1,515	0.00	0.00	No crowding	No crowding
London City Airport → Pontoon Dock	2,131	2,261	0.29	0.41	Slight crowding	Slight crowding
Pontoon Dock → West Silvertown	3,867	3,996	1.81	1.92	Medium crowding	Medium crowding
West Silvertown → Canning Town	4,316	4,445	2.20	2.31	Heavy crowding	Heavy crowding

Table 7.3 – DLR Passengers 2023 Weekday AM Peak (Most Likely Scenario)

Link	DLR Passengers		Crowding Factor pp sqm		Category	
	Without Dev	With Dev	Without Dev	With Dev	Without Dev	With Dev
Canning Town → West Silvertown	2,116	2,273	0.29	0.43	Slight crowding	Slight crowding
West Silvertown → Pontoon Dock	1,836	1,993	0.04	0.18	Slight crowding	Slight crowding
Pontoon Dock → London City Airport	1,288	1,445	0.00	0.00	No crowding	No crowding
London City Airport → King George V	851	865	0.00	0.00	No crowding	No crowding
King George V → Woolwich Arsenal	796	809	0.00	0.00	No crowding	No crowding
Woolwich Arsenal → King George V	916	963	0.00	0.00	No crowding	No crowding
King George V → London City Airport	1,513	1,560	0.00	0.00	No crowding	No crowding
London City Airport → Pontoon Dock	2,076	2,254	0.25	0.41	Slight crowding	Slight crowding
Pontoon Dock → West Silvertown	4,024	4,203	1.95	2.11	Medium crowding	Heavy crowding
West Silvertown → Canning Town	5,031	5,209	2.83	2.98	Heavy crowding	Heavy crowding

Table 7.4 – DLR Passengers 2023 Weekday AM Peak (Sensitivity Test (ST) Scenario)

Link	DLR Passengers		Crowding Factor pp sqm		Category	
	Without Dev	With Dev ST	Without Dev	With Dev ST	Without Dev	With Dev
Canning Town → West Silvertown	2,116	2,293	0.29	0.44	Slight crowding	Slight crowding
West Silvertown → Pontoon Dock	1,836	2,013	0.04	0.20	Slight crowding	Slight crowding
Pontoon Dock → London City Airport	1,288	1,465	0.00	0.00	No crowding	No crowding
London City Airport → King George V	851	870	0.00	0.00	No crowding	No crowding
King George V → Woolwich Arsenal	796	815	0.00	0.00	No crowding	No crowding
Woolwich Arsenal → King George V	916	969	0.00	0.00	No crowding	No crowding
King George V → London City Airport	1,513	1,566	0.00	0.00	No crowding	No crowding
London City Airport → Pontoon Dock	2,076	2,331	0.25	0.48	Slight crowding	Slight crowding
Pontoon Dock → West Silvertown	4,024	4,279	1.95	2.17	Medium crowding	Heavy crowding
West Silvertown → Canning Town	5,031	5,286	2.83	3.05	Heavy crowding	Severe Crowding

7.15 Tables 7.2 - 7.4 shows that for most links the degree of crowding does not change between the With and Without Development Scenarios. This is because there is a marginal change in the crowding factor as a result of the Development.

7.16 In summary, in 2023, the maximum crowding factor recorded is for the West Silvertown to Canning Town link which scores 2.83 in the Without Development Case compared to 2.98 in the With Development Case. This shows that 'Heavy Crowding' is anticipated to occur without the Development in place and that the Development does not increase crowding significantly, with the assessed crowding key level not changing. The corresponding increase in passengers on this link as a result of the Development is 178, an increase of just 12 passengers per train or 4 per train carriage (since there are three carriages per train). This again highlights that this planning application does not have a significant impact on DLR capacity during peak hours.

- 7.17 In 2023, the With Development Case would also remain within planning capacity with a score of less than 3.01 pp sqm that is well within theoretical capacity of 4.60 pp sqm. This shows that additional DLR capacity is not required to accommodate the Development.
- 7.18 In the 2023 sensitivity test, Table 7.4 shows that it would result in 'Severe Crowding' on the link between West Silvertown → Canning Town. However, the actual change in crowding factor compared with the Without Development scenario is just 0.23 pp sqm. Severe crowding is classified as a score of between 3.01 pp sqm – 4.00 pp sqm. The actual score for this link is 3.05 pp sqm which shows that it is at the lower end of the Severe Crowding category and still within the actual capacity of a DLR train which is reached at a score of 4.60 pp sqm. It should be emphasised that this result is for the sensitivity test, which is the reasonable worst case scenario, rather than most likely planning forecast of passenger numbers.
- 7.19 Although DLR loadings are not available for the weekday PM peak hour, it should be noted that Airport-related DLR passengers are lower in the weekday PM peak hour compared to the weekday AM peak hour. This demonstrates that the assessment provided in Tables 7.2 and 7.3 represents a worst-case in terms of the level of impact of the Development.
- 7.20 It should be further noted that the results include a 15% reduction in standing capacity to take account of passengers luggage. This is a very robust reduction when in reality few passengers travelling to / from the Airport carry bulky luggage and simply need to be instructed to move further down the train carriages.
- 7.21 On this basis, it is considered that the Development can be accommodated on DLR network and that mitigation measures are not required.
- 7.22 London City Airport is committed to maximising use of the DLR by passengers and staff. Measures to improve the passenger experience and promote the DLR will be implemented, such as additional DLR travel information in the arrivals hall.

Crossrail

- 7.23 The current proposals for Crossrail do not include a station at London City Airport. However, both London Borough of Newham and London City Airport continue to lobby for a Crossrail

proposal that includes access to the Airport. This aspiration is set out on the Air Quality Action Plan prepared by London Borough of Newham.

- 7.24 The Airport anticipates that Crossrail as currently approved will have a broadly neutral impact on future passenger numbers, as whilst Crossrail will improve the accessibility of Heathrow, it will also improve the accessibility of the Airport from Westminster.
- 7.25 Similarly, it is not anticipated that Crossrail will have a significant impact on the mode split of passenger and staff travel to the Airport. This is because there are currently no proposals for a direct link between Crossrail and the Airport. The nearest Crossrail station will be at Custom House.
- 7.26 DLR forecasts show that some DLR passengers will transfer their journey from DLR to Crossrail. This increases the spare capacity on the Airport Route of the DLR network.

Buses

- 7.27 The proportion of passengers travelling to the airport by bus is between just 0-1%. Thus, the projected increase in passengers travelling to and from the airport during the AM and PM peak hours is low in 2021 and 2023. A greater proportion of staff travel to / from the Airport by bus, with the mode share varying between 9%-10%.
- 7.28 **Table 7.5** shows the number of peak hour bus passengers boarding / alighting in 2023.

Table 7.5: Peak Hour Bus Passengers in 2023

		Arrivals	Departures	Total
AM Peak (08:00 – 09:00)	Without Development	25	5	30
	With Development	36	13	49
	Change	11	8	19
PM Peak (17:00 – 18:00)	Without Development	4	24	28
	With Development	14	35	49
	Change	10	11	21

- 7.29 This shows that the number of peak hour bus passengers boarding / alighting bus services at City Airport is low, particularly when the passengers are distributed across bus services. The number of additional bus passengers is just 19 during the 2023 AM peak hour and 21 during the 2023 PM peak hour.

- 7.30 As there are in the order of 11 buses per hour calling at the airport during peak periods, it is not considered that the marginal increase in bus passengers will have any impact upon the operation of these services. It is likely that this increase will be well within daily fluctuations that would occur in any event.
- 7.31 In addition, the results of the highway modelling show that the proposals will result in limited delay to traffic at key junctions on the local highway network. This shows that there will be a minimal impact on bus journey times.

River Services

- 7.32 It is not anticipated that there would be a significant demand for travel to / from the Airport by river services. Nonetheless, it is worth noting that the Airport is already connected to the Woolwich Ferry Terminal by bus routes 473 and 474, should Thames Clipper serve the existing pier in future. Similarly, the proposed Minoco Wharf pier would be within acceptable walking distance of bus stops serving routes 473 and 474 and thereby providing a direct bus connection to the Airport.
- 7.33 The Airport will continue to engage with TfL and Thames Clippers to ensure that opportunities to connect the Airport to river services are optimised.

Summary

- 7.34 This section has considered the impact that the development would have on public transport modes of travel to / from the Airport. This is summarised below:
- a) The additional Airport-related passengers can be accommodated on the Airport branch of the DLR network;
 - b) Crossrail will have a broadly neutral impact on passenger numbers and the mode split at the Airport;
 - c) The Airport benefits from bus services serving the Airport Forecourt and providing connections to a range of local destinations. These facilities will be enhanced and modernised through CADP;
 - d) The additional bus passengers associated with the proposals are likely to be able to be accommodated on existing bus services; and

- e) There are existing bus services giving access to potential future connections to river services.

8 IMPACT ON WALKING AND CYCLING NETWORKS

Walking

- 8.1 The mode split data identifies that currently less than 1% of passengers and 7% of staff walk to the Airport. Staff includes flight crew staying at hotels and of course locally based employees.
- 8.2 It is anticipated that in future there is the potential for a greater proportion of journeys to the Airport to be made on foot, particularly since a further pedestrian access will be created along the dockside from the east, connecting to Woolwich Manor Way. This improves the permeability of the Airport for pedestrians and reduces the walk distance from areas to the east, thereby increasing the attractiveness of walking to the Airport.
- 8.3 A Pedestrian Environment Review System (PERS) walking audit has been undertaken on the key existing pedestrian routes to / from the Airport. PERS is a tool that measures the quality of the pedestrian environment through subjective review, and provides an objective measure to pedestrian quality. The auditing process allows for an overall review of pedestrian accessibility to and from the site.
- 8.4 The PERS audit focused on the following routes:
- a) Hartmann Road – along its full length;
 - b) Albert Road / Connaught Road / Woolwich Manor Way – along the full length; and
 - c) Airport Terminal to Newland Street via Hartmann Road.
- 8.5 A full copy of the PERS audit, along with a plan illustrating the audited routes is provided at **Appendix K**.
- 8.6 The key findings can be summarised as:
- a) Hartmann Road scored positively for each of the criteria, with the highest score of +3 awarded for 'surface quality,' with the existing footway surfaces being well-maintained;
 - b) Albert Road / Connaught Road / Woolwich Manor Way did not score negatively for any of the criteria, with the highest scores of +2 for permeability, legibility, lighting

and tactile information, and the lowest score of 0 for maintenance and surface quality; and

- c) The Airport Terminal to Newland Street route also did not score negatively for any of the criteria, with each criteria scoring between +1 and +2.

- 8.7 The audit identified that there are some minor improvement works which could be undertaken to improve the pedestrian environment and increase the attractiveness of walking to / from the Airport. Specifically, this includes repairing broken paving slabs and resurfacing on Albert Road, at the locations identified within the audit.

Cycling

- 8.8 It is proposed to increase the number of cycle parking spaces from 42 to 70, although the existing cycle stands are under-utilised. Demand for cycle parking will continue to be monitored through the Travel Plan and additional cycle stands will be provided as necessary.
- 8.9 Cyclists will also benefit from the creation of the further vehicle access point from Woolwich Manor Way. This reduces the cycle distance to the Airport from areas to the east, which should encourage employees in particular to cycle to the Airport.

Summary

- 8.10 This section has considered the impact the development would have on walking and cycling modes of transport for travel to / from the Airport. This is summarised below:
- a) The proposals enhance the attractiveness of walking and cycling to the Airport, potentially increasing the demand for both modes, particularly for staff;
 - b) The PERS audit has demonstrated that for pedestrians the Airport is well-connected to the surrounding area; and
 - c) The proposals include additional cycle parking and facilitate an additional cycle route to / from Woolwich Manor Way.

9 IMPACT ON THE ROAD NETWORK

Methodology

Study Area

- 9.1 The change in daily traffic flows is considered for the study area. The scope of the study area is shown on **Figure 4**. It includes the key strategic vehicle routes in the vicinity of the Airport including the A1020 Royal Albert Way / Connaught Bridge and the A117 Woolwich Manor Way / Albert Road. It also includes links where this is anticipated to be a greater than 10% change in traffic flows, as well as those in environmentally sensitive areas in proximity to the Airport. Further details regarding the scope of the study area are provided in Chapter 11 of the Environmental Statement.
- 9.2 For the purposes of further assessment of the traffic impact during peak hours, the Study Area for the Transport Assessment includes the following junctions:
- a) Hartmann Road / Connaught Road;
 - b) Connaught Road / Connaught Bridge Road; and
 - c) Proposed Access / A1011 Woolwich Manor Way / Fishguard Way
- 9.3 Detailed capacity analyses have been undertaken at the above junctions. This has been agreed with the highway authorities. A copy of the traffic survey data is included at **Appendix L**.
- 9.4 In their consultation response of 17th January 2013, TfL commented that *"the data collection that is set out in the scoping note is broadly acceptable."*

Assessment Years and Periods

- 9.5 The assessment of the impact of the proposals on the Study Area has been conducted for the With / Without Development Scenarios for the following assessment years:
- a) 2012: Baseline Year;
 - b) 2021: Movement Limit Year for the completed development;
 - c) 2023: Optimisation of the CADP Development and other associated improvements at the Airport; and

d) 2023: Sensitivity Test.

9.6 From the traffic surveys it has been determined that the network peak hours are as follows:

- a) Weekday AM Peak – 08:00 – 09:00
- b) Weekday PM Peak – 17:00 – 18:00

9.7 These hours are also the development peak hours when the number of Airport passengers on surface modes is greatest.

Committed Developments

9.8 The assessment considers the predicted trip generation of committed developments in the vicinity of the Airport, which will have a traffic impact in the Study Area. Committed developments are those which have been granted planning permission but which have not yet been constructed. They comprise the following:

- a) Barrier Park East;
- b) Canning Town Areas;
- c) Great Eastern Quays;
- d) Leamouth Peninsula;
- e) Minoco Wharf;
- f) Rathbone Market;
- g) Silvertown Quays;
- h) Thames Road Industrial Estate (Unex Site);
- i) Royals Business Park; and
- j) Tidal Basin.

9.9 It is noted that the proposed changes to the East London River Crossings may have an impact on traffic patterns within the local area, should these become committed schemes in future. However, since the river crossings are still undergoing a consultation process and are not yet committed, these are not be included within the assessment.

Traffic Growth

- 9.10 Due to the congested nature of the transport network in London during peak hours, it is generally accepted that a traffic growth factor should not be applied to future year assessments. However, it is recognised that a significant amount of development is planned in the Docks areas near the Airport, which has not yet been granted planning permission. Therefore, in this case, medium rate traffic growth factors have been applied to the future year assessments of 2021 and 2023. The growth factors were calculated by adjusting a National Transport Model (NTEM) 2009 dataset factor by a local TEMPRO version 6.2 factor for the London Borough of Newham. The resultant growth factors are shown in **Table 9.1**. This approach has been agreed with London Borough of Newham and TfL.

Table 9.1: Peak Hour Traffic Growth Factors*

	AM Peak	PM Peak
2010 - 2021	1.1570	1.1540
2010 - 2023	1.2012	1.1987
2012 - 2021	1.1455	1.1434
2012 - 2023	1.1892	1.1877

** adjusted to take account of committed developments*

- 9.11 A traffic growth factor will not be applied separately to peak hour traffic on Hartmann Road since it is almost exclusively used by Airport traffic.

East London River Crossings

- 9.12 The additional traffic associated with the proposed CADP is expected to have a broadly neutral impact on the proposed East London River Crossings. Whilst the crossings proposed at Silvertown Tunnel and Gallions Ferry will improve the accessibility of the Airport to areas south of the river, it is expected that Airport traffic would reassign from existing crossings such as the Blackwall Tunnel and Woolwich Ferry. Traffic which would relocate from the Woolwich Ferry would actually reduce traffic flows in the vicinity of the Airport.

Results

Daily Traffic Flows

- 9.13 **Traffic Figures 1 to 6** show the change in daily traffic flows on key highway links in the vicinity of the Airport.

9.14 **Table 9.2** shows the overall effect of the proposed Development traffic flows on the surrounding routes serving the Airport for the future year of 2023, the assumed year of completion and full utilisation.

Table 9.2: 2023 Annual Average Daily Traffic Flows

Link	Without Dev	With Dev	Change	% Change
1. Royal Docks Road	28,629	30,231	+1,602	+5.6%
2. Woolwich Manor Way (North)	10,094	10,094	-	-
3. Royal Albert Way (East)	24,078	20,574	- 3,504	- 14.6%
4. Woolwich Manor Way South	12,055	17,161	+5,106	+42.4%
5. Pier Road	6,353	6,397	+44	+0.7%
6. Connaught Road (East)	7,507	6,330	-1,177	-15.7%
7. Hartmann Road (West)	12,140	10,214	-1,926	-15.9%
8. Connaught Road (West)	18,971	18,222	-749	-3.9%
9. Connaught Bridge (South)	28,143	30,212	+2,069	+7.4%
10. North Woolwich Road (East)	6,471	6,471	-	-
11. North Woolwich Road (West)	25,178	27,247	+2,069	+8.2%
12. Connaught Bridge (North)	25,392	22,574	-2,818	-11.1%
13. Royal Albert Way (West)	26,843	23,339	-3,504	-13.1%
14. Victoria Dock Road	14,820	15,506	+686	+4.6%
15. Hartmann Road (East)	-	6,621	+6,621	100.0%

9.15 Table 9.2 demonstrates that there is an increase in traffic on some links and a reduction in traffic on others. This is because of the creation of an additional vehicle access point to the Airport from Woolwich Manor Way through to Hartmann Road (East). This results in a redistribution of Airport-related traffic and a reduction in traffic on some links.

9.16 The greatest proportional reduction in traffic is forecast for Hartmann Road (West) with a - 15.9% reduction and Connaught Road (East) with a -15.7% reduction.

9.17 The greatest proportional increase in traffic flows are forecast for Hartmann Road (East) adjacent to the new vehicle access, which results in a 100% increase in traffic. This is followed by Woolwich Manor Way South, with a +42.4% increase and North Woolwich Road (West) which scored a +8.2% increase. This increase is a result of the redistribution of traffic to Woolwich Manor Way with the creation of the additional vehicle access point.

9.18 **Table 9.3** shows the overall effect of the proposed Development traffic flows on the surrounding routes serving the Airport for the 2023 sensitivity test.

Table 9.3: 2023 Sensitivity Test Annual Average Daily Traffic Flows

Link	Without Dev	Sensitivity Test	Change	% Change
1. Royal Docks Road	28,629	30,389	+1,760	+6.1%
2. Woolwich Manor Way (North)	10,094	10,094	-	-
3. Royal Albert Way (East)	24,078	20,574	-3,504	-14.6%
4. Woolwich Manor Way South	12,055	17,319	+5,264	+43.7%
5. Pier Road	6,353	6,401	+48	+0.8%
6. Connaught Road (East)	7,507	6,334	-1,173	-15.6%
7. Hartmann Road (West)	12,140	10,466	-1,674	-13.8%
8. Connaught Road (West)	18,971	18,470	-501	-2.6%
9. Connaught Bridge (South)	28,143	30,404	+2,262	+8.0%
10. North Woolwich Road (East)	6,471	6,471	-	-
11. North Woolwich Road (West)	25,178	27,439	+2,262	+9.0%
12. Connaught Bridge (North)	25,392	22,629	-2,763	-10.9%
13. Royal Albert Way (West)	26,843	23,339	-3,504	-13.1%
14. Victoria Dock Road	14,820	15,561	+741	+5.0%
15. Hartmann Road (East)	-	6,779	+6,779	100.0%

- 9.19 Table 9.3 shows that there is not a significant difference in traffic flows for the sensitivity test compared to the With Development traffic flows shown in Table 9.2.

Junction Assessment

- 9.20 **Traffic Figures 7 to 65** illustrate the peak hour traffic flows for the key junctions in the Study Area.
- 9.21 Stand-alone junction assessments have been undertaken at the junctions within the Study Area. The results are set out in the following paragraphs and the modelling output is included at **Appendix M**.

Hartmann Road / Connaught Road

- 9.22 **Tables 9.3 - 9.6** provide a summary of the LINSIG output for the operation of the signalised junctions for the weekday AM Peak and PM Peak hours.

Table 9.3: Hartmann Road / Connaught Road – 2021 Weekday AM Peak Hour

	Observed		2021 Without Dev		2021 With Dev	
	<i>96 seconds cycle</i>		<i>96 seconds cycle</i>		<i>96 seconds cycle</i>	
	DoS	Queue	DoS	Queue	DoS	Queue
Connaught Road (West)	44.6%	4	64.1%	5	59.3%	5
Hartmann Road	59.8%	10	83.6%	15	71.7%	11
Connaught Road (East)	58.3%	7	83.9%	13	72.1%	11

Note: DoS – degree of saturation

Table 9.4: Hartmann Road / Connaught Road - 2023 Weekday AM Peak Hour

	2023 Without Dev		2023 With Dev		2023 Sensitivity Test	
	<i>96 seconds cycle</i>		<i>96 seconds cycle</i>		<i>96 seconds cycle</i>	
	DoS	Queue	DoS	Queue	DoS	Queue
Connaught Road (West)	65.2%	6	62.2%	5	64.1%	5
Hartmann Road	87.3%	16	79.3%	13	82.1%	14
Connaught Road (East)	85.9%	14	77.0%	12	80.2%	12

Table 9.5: Hartmann Road / Connaught Road – 2021 Weekday PM Peak Hour

	Observed		2021 Without Dev		2021 With Dev	
	<i>96 seconds cycle</i>		<i>96 seconds cycle</i>		<i>96 seconds cycle</i>	
	DoS	Queue	DoS	Queue	DoS	Queue
Connaught Road (West)	70.5%	6	76.3%	11	68.7%	8
Hartmann Road	69.2%	12	74.5%	10	69.7%	7
Connaught Road (East)	52.4%	5	73.6%	9	40.8%	6

Table 9.6: Hartmann Road / Connaught Road – 2023 Weekday PM Peak Hour

	2023 Without Dev		2023 With Dev		2023 Sensitivity Test	
	<i>96 seconds cycle</i>		<i>96 seconds cycle</i>		<i>96 seconds cycle</i>	
	DoS	Queue	DoS	Queue	DoS	Queue
Connaught Road (West)	76.2%	11	71.2%	9	72.8%	9
Hartmann Road	77.2%	10	72.2%	8	73.9%	8
Connaught Road (East)	72.9%	9	44.0%	6	44.4%	6

9.23 It is apparent from Table 9.3 and 9.5 that based on the observed flows; the junction operates within theoretical capacity during both weekday AM and PM peak hours, with a maximum queue of 12 PCU's on the Hartmann Road approach.

- 9.24 In the future years of 2021 and 2023, the junction performs better in the With Development Case, since the Airport traffic flows using the junction are reduced compared to the Without Development Case. This is because of the additional vehicle access with Woolwich Manor Way that will be open in the With Development Case. However, the junction still continues to operate within theoretical capacity even in the Without Development Case, with a maximum Degree of Saturation (DoS) of 87.3% with a corresponding queue of 16 PCU's for the Hartmann Road approach in the 2023 AM Peak hour for the Without Development Case.
- 9.25 In the 2023 sensitivity test scenario, there is not a significant difference in the performance of the junction as compared with 2023 With and Without Development scenarios, with a marginal increase in the Degree of Saturation.

Connaught Road / Connaught Bridge Road

- 9.26 **Tables 9.7 – 9.10** provide a summary of the ARCADY output for the operation of the signalised junctions for the weekday AM Peak and PM Peak hours.

Table 9.7: Connaught Road / Connaught Bridge Road – 2021 Weekday AM Peak Hour

	Observed		2021 Without Dev		2021 With Dev	
	RFC	Queue	RFC	Queue	RFC	Queue
Connaught Bridge Road (N)	0.45	1	0.68	3	0.64	2
Connaught Road	0.48	1	0.79	4	0.75	3
Connaught Bridge Road (S)	0.37	1	0.55	2	0.55	2
Silvertown Quays	0	0	0.17	1	0.16	0

Note: RFC – Ratio of Flow to Capacity

Table 9.8: Connaught Road / Connaught Bridge Road – 2023 Weekday AM Peak Hour

	2023 Without Dev		2023 With Dev		2023 Sensitivity Test	
	RFC	Queue	RFC	Queue	RFC	Queue
Connaught Bridge Road (N)	0.7	3	0.66	2	0.66	2
Connaught Road	0.81	4	0.78	4	0.81	5
Connaught Bridge Road (S)	0.56	2	0.57	2	0.57	2
Silvertown Quays	0.17	1	0.16	1	0.16	1

Table 9.9: Connaught Road / Connaught Bridge Road – 2021 Weekday PM Peak Hour

	Observed		2021 Without Dev		2021 With Dev	
	RFC	Queue	RFC	Queue	RFC	Queue
Connaught Bridge Road (N)	0.29	1	0.53	2	0.35	1
Connaught Road	0.36	1	0.42	1	0.33	1
Connaught Bridge Road (S)	0.62	2	0.85	6	0.83	5
Silvertown Quays	0	0	0.23	1	0.24	1

Table 9.10: Connaught Road / Connaught Bridge Road – 2023 Weekday PM Peak Hour

	2023 Without Dev		2023 With Dev		2023 Sensitivity Test	
	RFC	Queue	RFC	Queue	RFC	Queue
Connaught Bridge Road (N)	0.54	2	0.5	1	0.51	1
Connaught Road	0.43	1	0.38	1	0.38	1
Connaught Bridge Road (S)	0.87	7	0.93	11	0.94	13
Silvertown Quays	0.24	1	0.26	1	0.26	1

- 9.27 Tables 9.7 and 9.9 illustrate that the junction currently operates with ample spare capacity during both the AM and PM peak hours, with a maximum queue of just two vehicles on any approach.
- 9.28 In the future year assessments, the junction continues to operate within capacity in both the With and Without Development Cases. The greatest RFC is 0.93 for recorded for the Connaught Bridge Road (South) approach in the 2023 With Development Case for the weekday PM peak hour with a corresponding queue of 11 vehicles. This compares with 0.88 and a queue of seven vehicles for the 2023 Without Development Case, illustrating that there is not a significant difference between the With and Without Development Cases. The increase in the With Development Case is because of the additional traffic travelling to the Airport from destinations to the west.
- 9.29 In the 2023 sensitivity test scenario, there is a negligible difference in the performance of the junction as compared with the 2023 With Development Case. For example, the RFC increases by just 0.01 on two approaches, with a maximum increase in queue length of two vehicles.
- 9.30 Overall, the analysis shows that the impact of the development at this junction does not warrant mitigation measures since the development impact is minimal.

Proposed Access / A1011 Woolwich Manor Way / Fishguard Way

9.31 **Tables 9.11 – 9.14** provide a summary of the LINSIG output for the operation of the signalised junction for the weekday AM Peak and PM Peak hours.

Table 9.11: Proposed Access / A1011 Woolwich Manor Way / Fishguard Way – 2021 Weekday AM Peak Hour

	Observed		2021 Without Dev		2021 With Dev	
	<i>90 seconds cycle</i>		<i>90 seconds cycle</i>		<i>90 seconds cycle</i>	
	DoS	Queue	DoS	Queue	DoS	Queue
Woolwich Manor Way	37.2%	6	44.3%	7	63.6%	9
Fishguard Way	34.8%	2	42.9%	3	58.9%	3
Albert Road	24.2%	3	27.9%	4	29.3%	4
Hartmann Road	0.4%	0	0.4%	0	58.1%	5

Table 9.12: Proposed Access / A1011 Woolwich Manor Way / Fishguard Way – 2023 Weekday AM Peak Hour

	2023 Without Dev		2023 With Dev		2023 Sensitivity Test	
	<i>90 seconds cycle</i>		<i>90 seconds cycle</i>		<i>90 seconds cycle</i>	
	DoS	Queue	DoS	Queue	DoS	Queue
Woolwich Manor Way	45.9%	7	65.8%	10	67.4%	10
Fishguard Way	44.5%	3	60.8%	3	60.8%	3
Albert Road	28.8%	4	30.2%	4	31.0%	4
Hartmann Road	0.4%	0	60.1%	5	60.8%	5

Table 9.13: Proposed Access / A1011 Woolwich Manor Way / Fishguard Way – 2021 Weekday PM Peak Hour

	Observed		2021 Without Dev		2021 With Dev	
	<i>90 seconds cycle</i>		<i>90 seconds cycle</i>		<i>90 seconds cycle</i>	
	DoS	Queue	DoS	Queue	DoS	Queue
Woolwich Manor Way	39.5%	6	45.2%	7	64.7%	10
Fishguard Way	30.6%	1	35.1%	2	41.5%	2
Albert Road	35.9%	5	41.1%	6	41.9%	7
Hartmann Road	0.0%	0	0.0%	0	65.1%	5

Table 9.14: Proposed Access / A1011 Woolwich Manor Way / Fishguard Way – 2023 Weekday PM Peak Hour

	2023 Without Dev		2023 With Dev		2023 Sensitivity Test	
	<i>90 seconds cycle</i>		<i>90 seconds cycle</i>		<i>90 seconds cycle</i>	
	DoS	Queue	DoS	Queue	DoS	Queue
Woolwich Manor Way	46.8%	8	67.3%	11	68.3%	11
Fishguard Way	36.4%	2	50.0%	2	50.0%	2
Albert Road	42.6%	6	46.4%	7	46.4%	7
Hartmann Road	0.0%	0	67.7%	5	68.1%	5

9.32 It is apparent from Table 9.11 to 9.14 that the junction operates without difficulty in each of the observed and future years, even under the sensitivity test scenario. For the majority of the approaches, the queue is less than ten PCU's. This shows that the junction is capable of accommodating the additional demand from the development and that there are no capacity issues with allowing it to provide access to the Airport on a permanent basis.

Summary

- 9.33 A link flow and junction capacity assessment has been undertaken in order to assess the impact on the highway network. The assessment has taken account of the planned and committed development in the vicinity of the Airport.
- 9.34 The proposals result in a reassignment of traffic on the local highway network, resulting in a reduction in traffic on certain links and an increase on others.
- 9.35 The junction capacity assessment was undertaken for the network and development peak hours of 08:00 – 09:00 and 17:00 – 18:00 on a weekday.
- 9.36 It has been demonstrated that the development contributes to a minor increase in traffic flows at each of the junctions assessed; namely the existing Airport access junction of Hartmann Road / Connaught Road the proposed Airport access junction of Hartmann Road / Woolwich Manor Way / Fishguard Way and the roundabout junction of Connaught Road / Connaught Bridge Road which is in close proximity to the Airport.
- 9.37 It is also noteworthy that each of the junctions operates with spare capacity in the With Development Cases in both 2021 and 2023, with minimal queuing.

- 9.38 The 2023 sensitivity test scenario does not result in a material difference in the performance of any of the three junctions in the study network.
- 9.39 The implementation of a second vehicle access to the Airport provides additional capacity on the highway network and enables the impact of development traffic to be spread between two vehicle access points.
- 9.40 Therefore, it is considered that the traffic impact assessment is robust and the impact of the development traffic on the local highway network is acceptable.

10 SUMMARY AND CONCLUSIONS

Summary

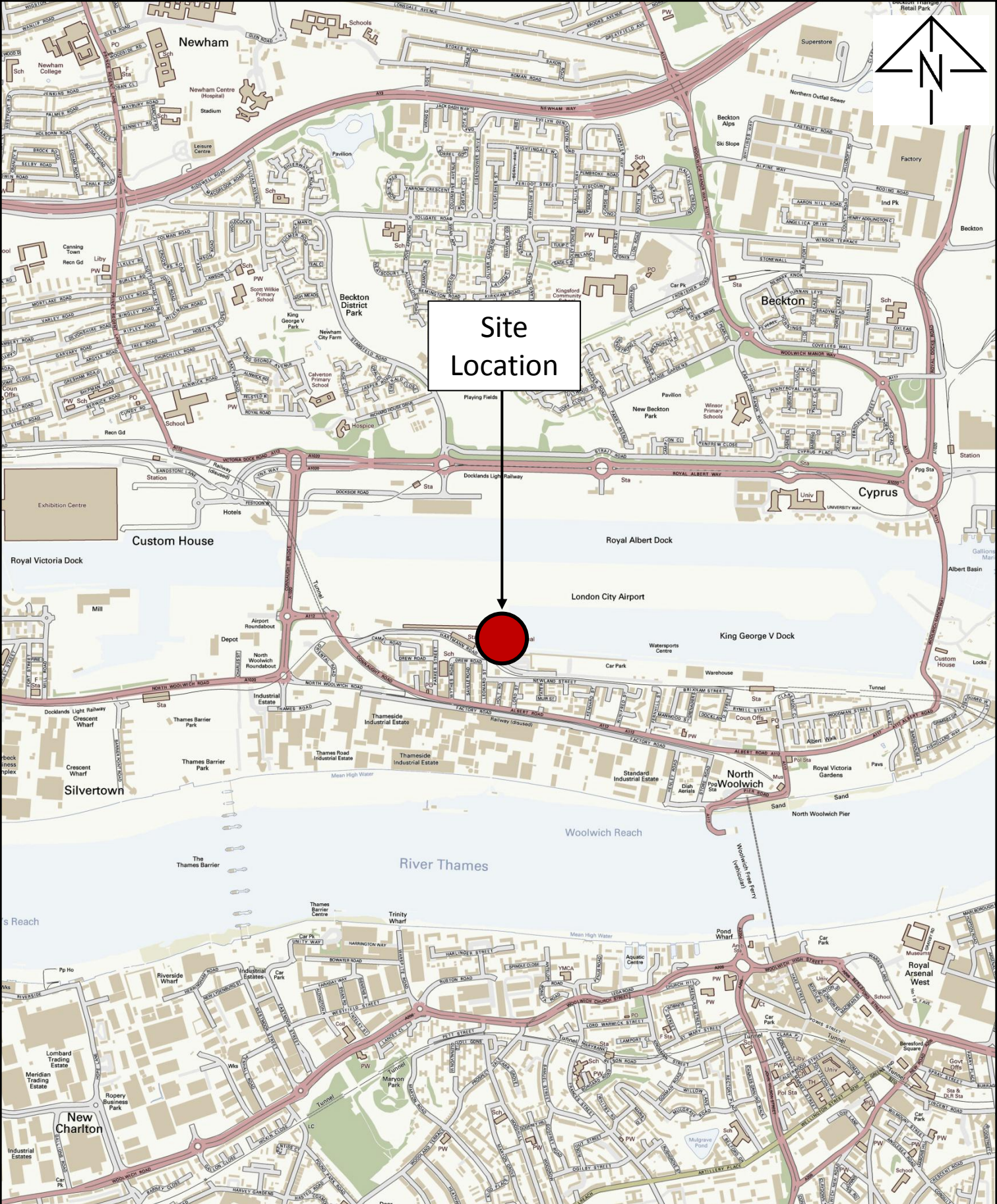
- 10.1 London City Airport proposes to replace existing aircraft stands, piers and associated infrastructure at the Airport, as part of the City Airport Development Programme. The proposals include a replacement passenger forecourt, a new permanent vehicle access and additional car parking for passengers and staff.
- 10.2 Passenger numbers are forecast to increase incrementally from 3.03 mppa in 2012 to 5.87 mppa in 2023 With Development compared to 4.44 mppa Without Development. Staff numbers are expected to increase from 1,900 employees in 2012 to a maximum of 2,860 employees in 2023.
- 10.3 This Transport Assessment has assessed the impact on surface access modes arising from this planning application. The main transport modes used to access the Airport are the DLR and road-based modes including Black Taxis, Private Hire Minicabs and Private Cars.
- 10.4 The assessment of the highway and DLR networks has considered the cumulative impact of committed and planned developments in the vicinity of the Airport.
- 10.5 The increase in passengers as a result of the Development using the DLR equates to at most, 12 additional passengers per DLR train during the AM peak hour. The category of crowding factor does not exceed 'Heavy Crowding,' which is still within DLR planning capacity and therefore the character of performance of DLR services will not be significantly affected.
- 10.6 Analysis of the impact on the highway network shows that the key junctions in proximity to the Airport would continue to operate within capacity with minimal queuing. This shows that no mitigation measures would be required on the highway network.
- 10.7 A sensitivity test assuming a reasonable worst case increase in passenger numbers has been undertaken. This has shown that the impact on the highway and DLR network is acceptable.
- 10.8 This Transport Assessment has reviewed transport policy relevant to surface access at London City Airport and concluded that the likely transport effects of the increase in passenger and staff numbers are acceptable in relation to national, regional and local policy and guidance.

- 10.9 Overall, it is considered that in terms of surface access the proposals improve access to the Airport for all users, not only passengers and staff, but also those already living in the wider area.

Conclusion

- 10.10 It is concluded that the increase passenger and staff numbers associated with the proposed CADP will not have an adverse impact on the local highway network, or the efficient operation of public transport services. The Airport location and design accords with the requirements of current transport and land use policy, and there are no traffic and transport related impacts that cause demonstrable harm to interests of acknowledged importance.
- 10.11 Therefore, it is concluded that the proposed CADP is appropriate and acceptable in sustainable traffic and transport terms.

FIGURES



City Airport Development Programme

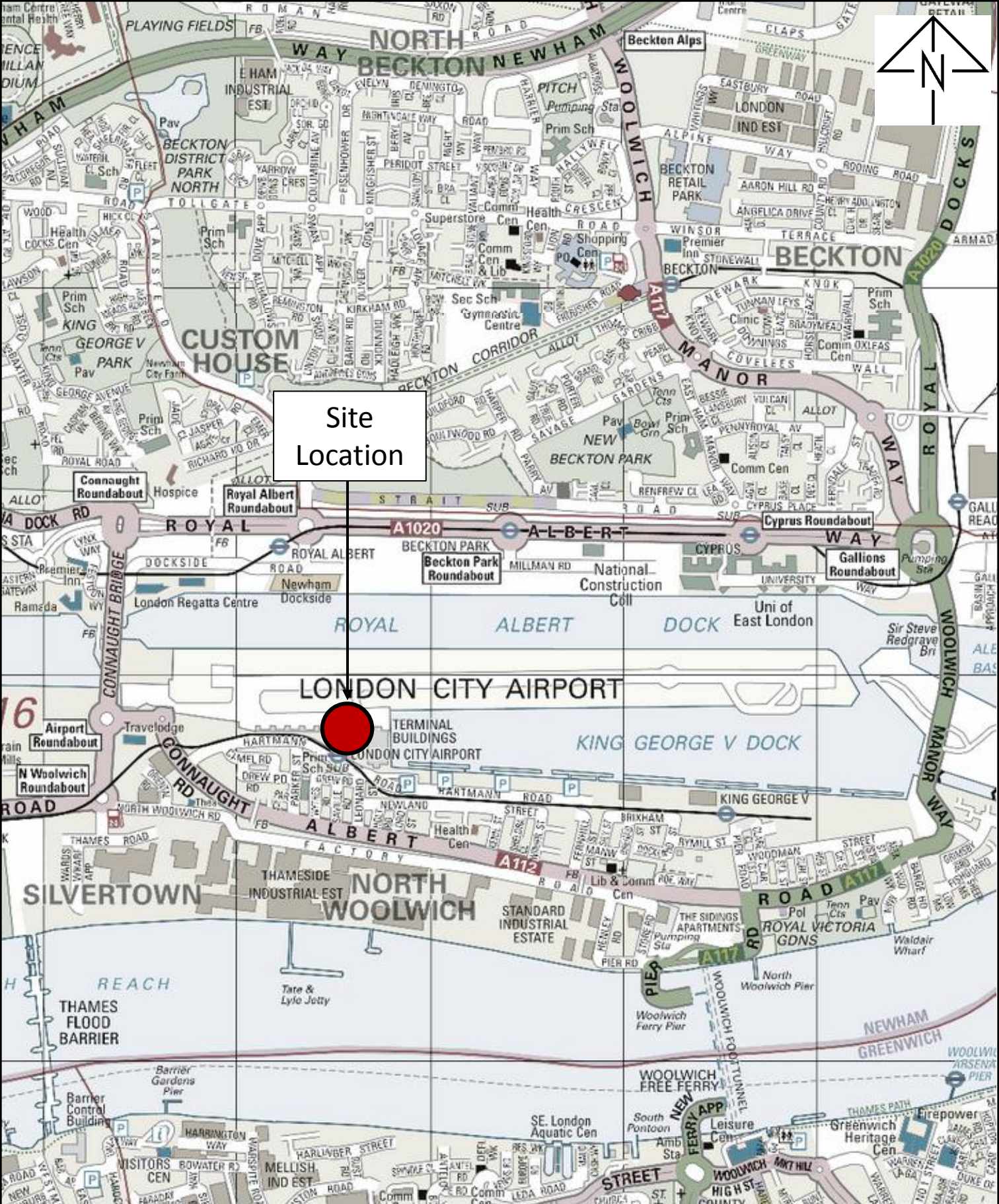
London City Airport

Site Location - Strategic Location



Network Building, 97 Tottenham Court Road, London W1T 4TP
Tel: 020 7580 7373 Email: london@vectos.co.uk www.vectos.co.uk

DRAWN: R.R:	CHECKED: E.G	DATE: 17/05/13	SCALES: NTS	DRAWING REFERENCE: Figure 1	REVISION:
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Site
Location

City Airport Development Programme

London City Airport

Site Location –
Surrounding Area



Network Building, 97 Tottenham Court Road, London W1T 4TP
Tel: 020 7580 7373 Email: london@vectos.co.uk www.vectos.co.uk

DRAWN: R.R.	CHECKED: E.G.	DATE: 17/05/13	SCALES: NTS	DRAWING REFERENCE: Figure 2	REVISION:
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Key:

- Existing Vehicle Access Route
- - - - - Proposed Vehicle Access Route
- ↔ Proposed Vehicle Access Junction
- ↔ Existing Vehicle Access Junction

London City Airport

CADP

Proposed Vehicle Access Arrangements



Network Building, 97 Tottenham Court Road, London W1T 4TP
Tel: 020 7580 7373 Email: london@vectos.co.uk www.vectos.co.uk

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Figure 3



Key:

- Existing Vehicle Access Route
- - - Proposed Vehicle Access Route
- 1 Junction Assessment
- 1 Link Flow Assessment

London City Airport

CADP

Highway Study Area



Network Building, 97 Tottenham Court Road, London W1T 4TP
Tel: 020 7580 7373 Email: london@vectos.co.uk www.vectos.co.uk

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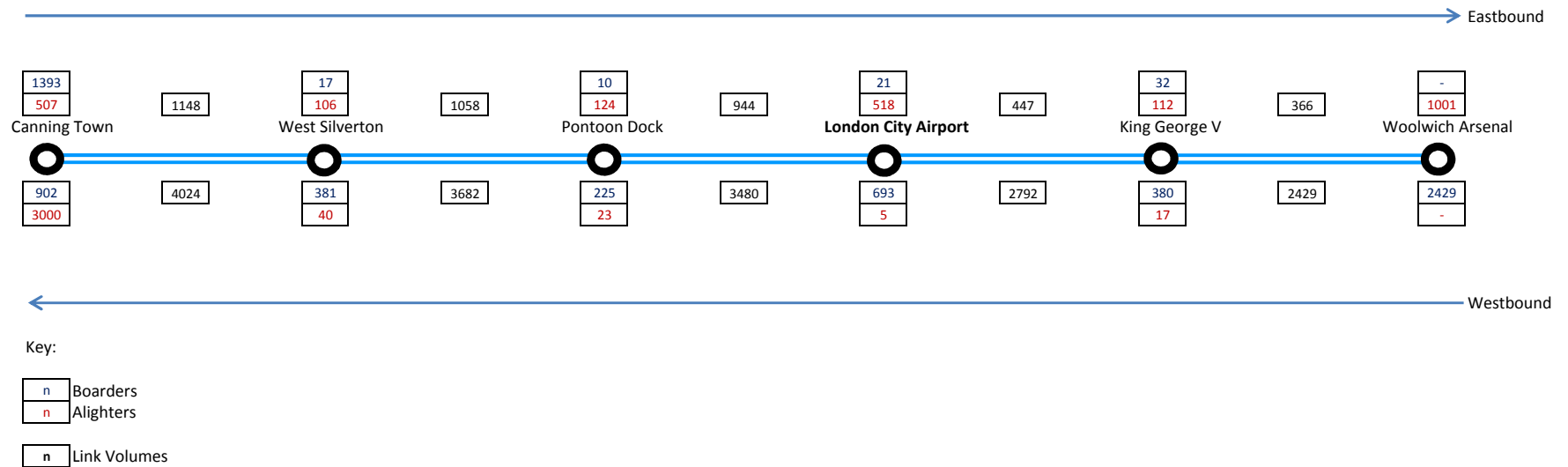
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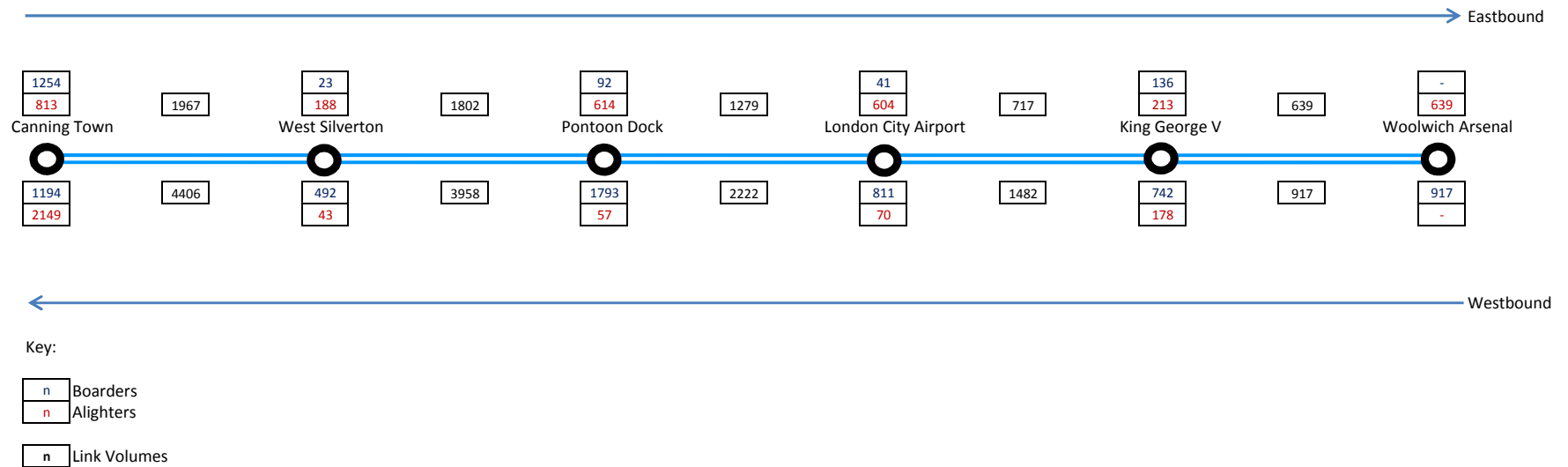
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Figure 4

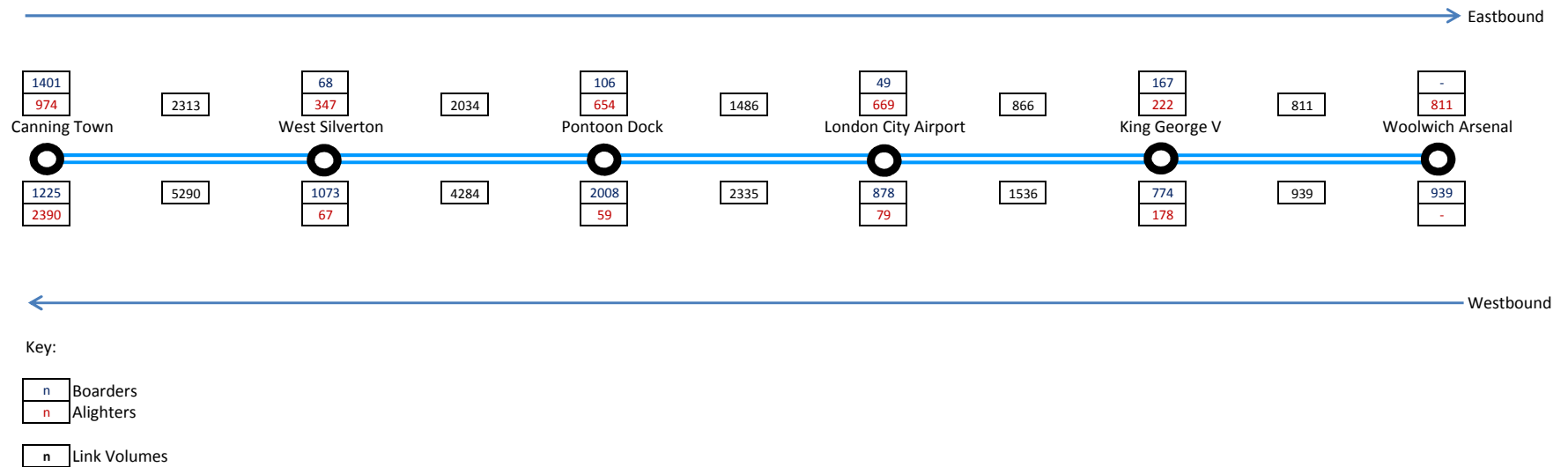
DLR FIGURES



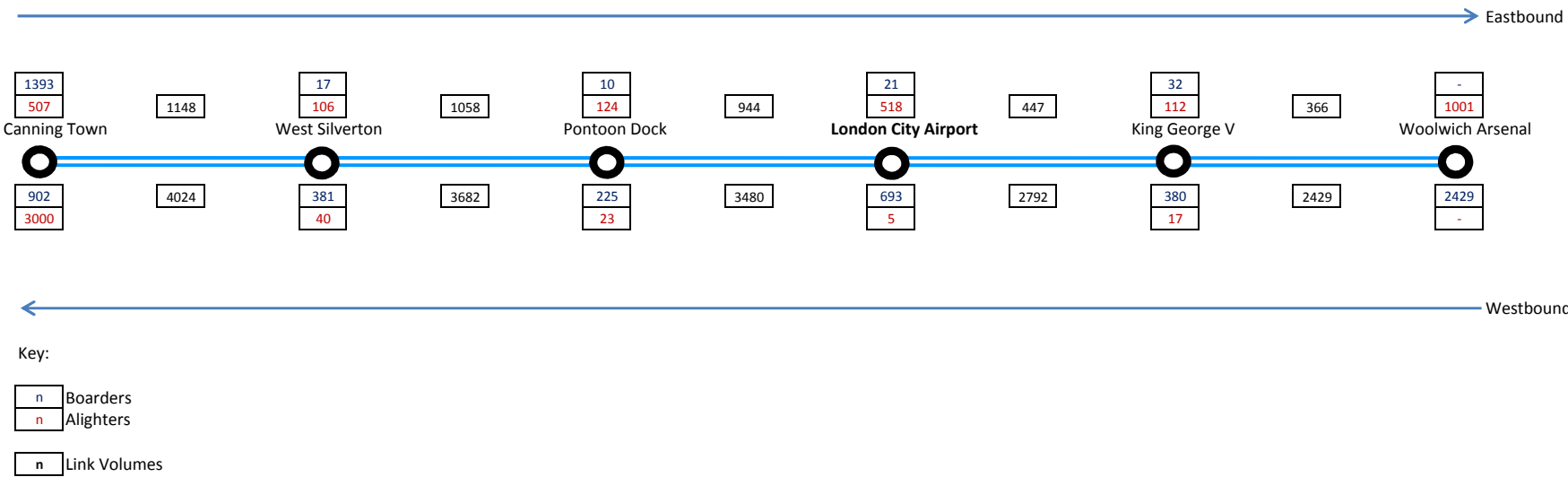
DLR Figure 1: AM Peak 2012 (DLR numbers)



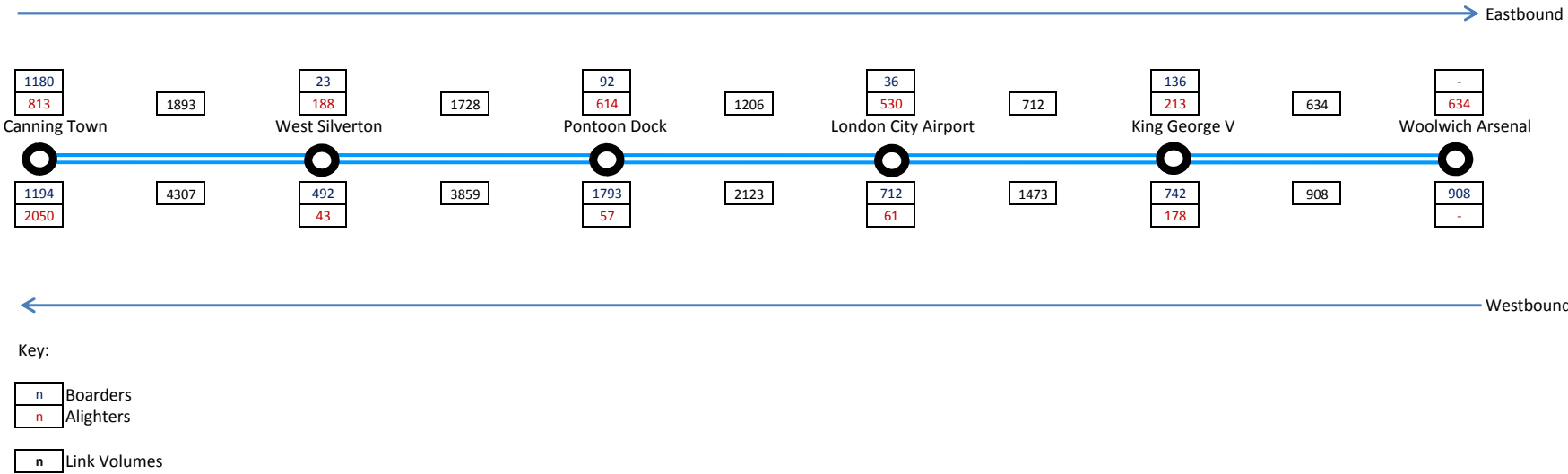
DLR Figure 2: AM Peak 2021 (DLR numbers)



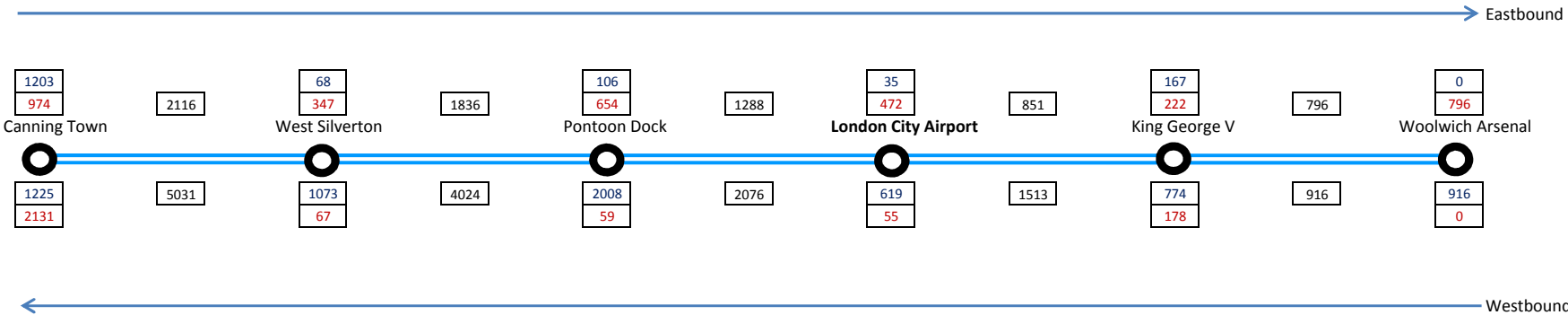
DLR Figure 3: AM Peak 2026 (DLR numbers)



DLR Figure 4: AM Peak 2012 (updated numbers)



DLR Figure 5: AM Peak Base 2021 (updated numbers)



Key:

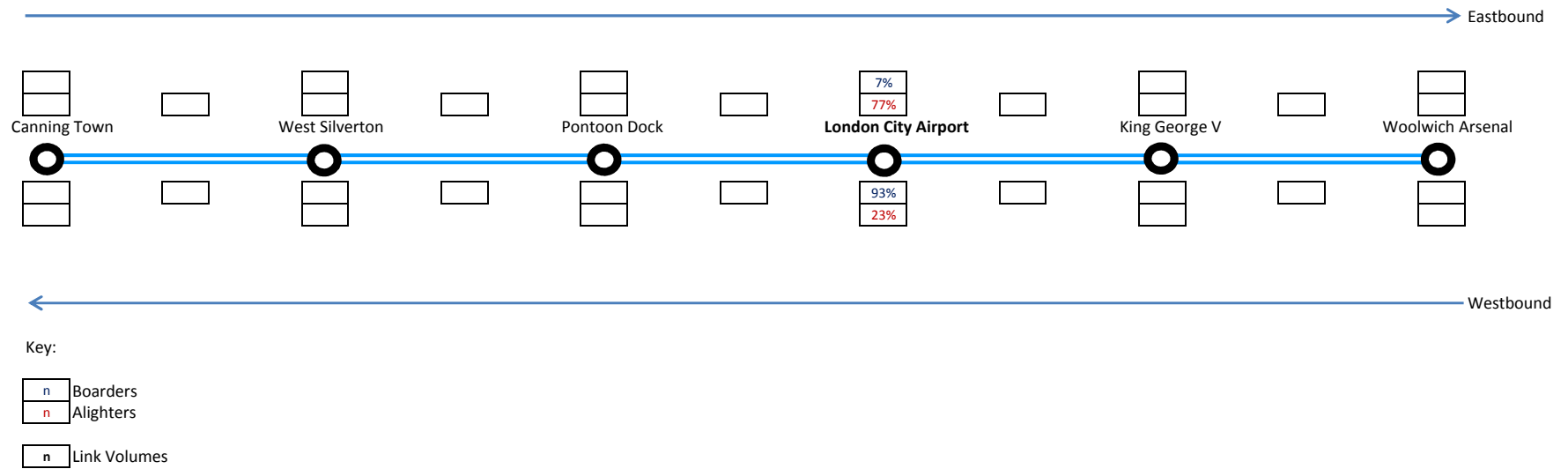
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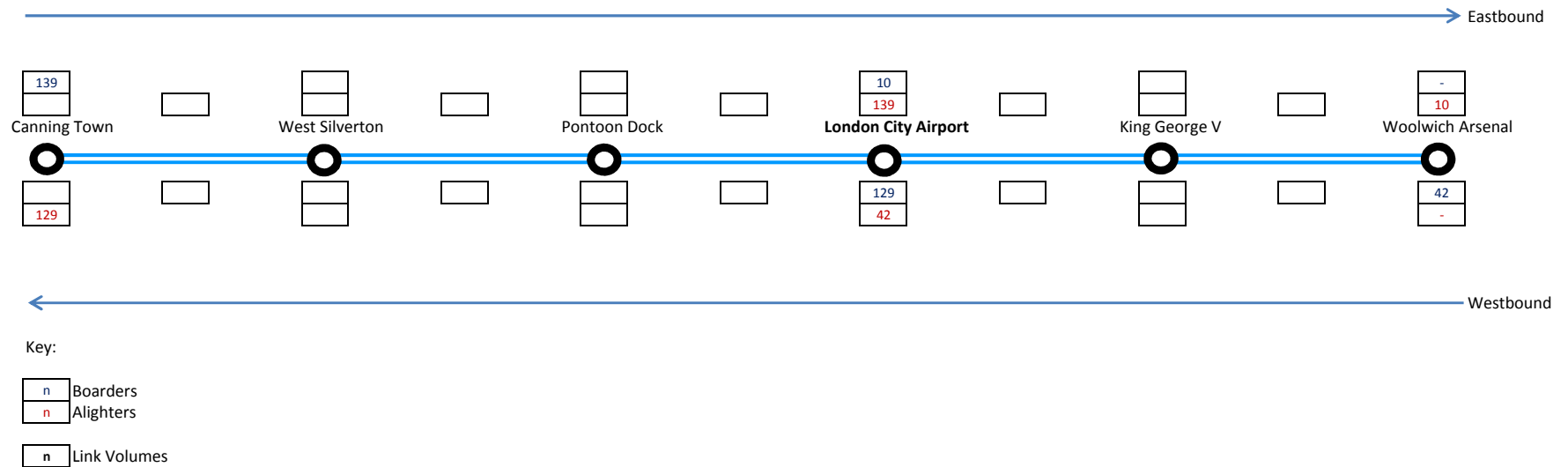
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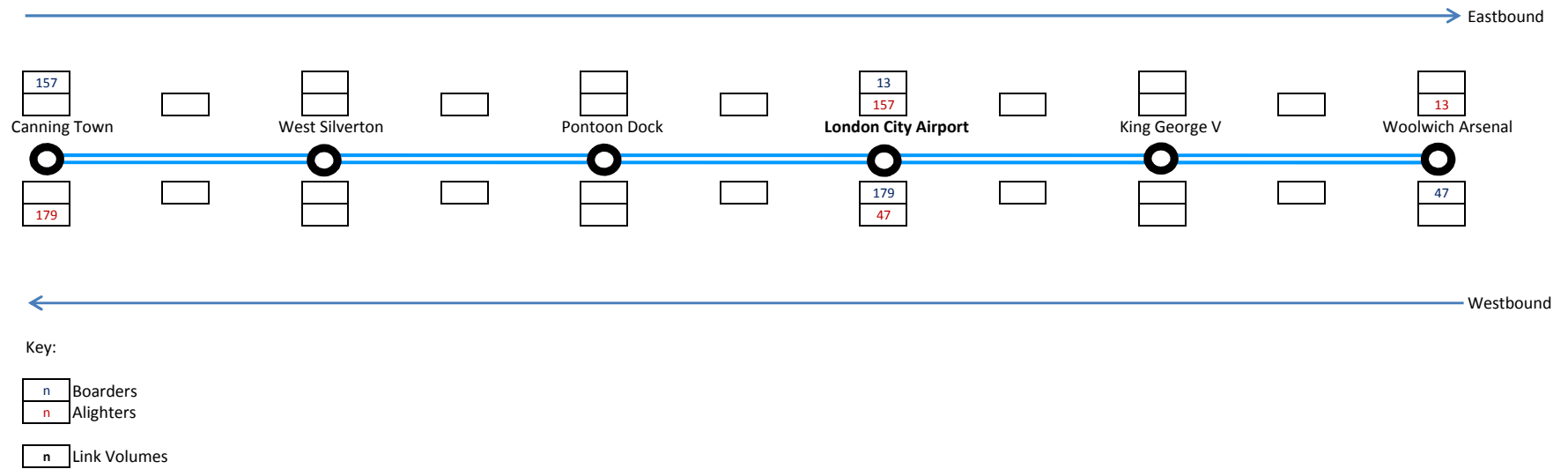
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 Link Volumes

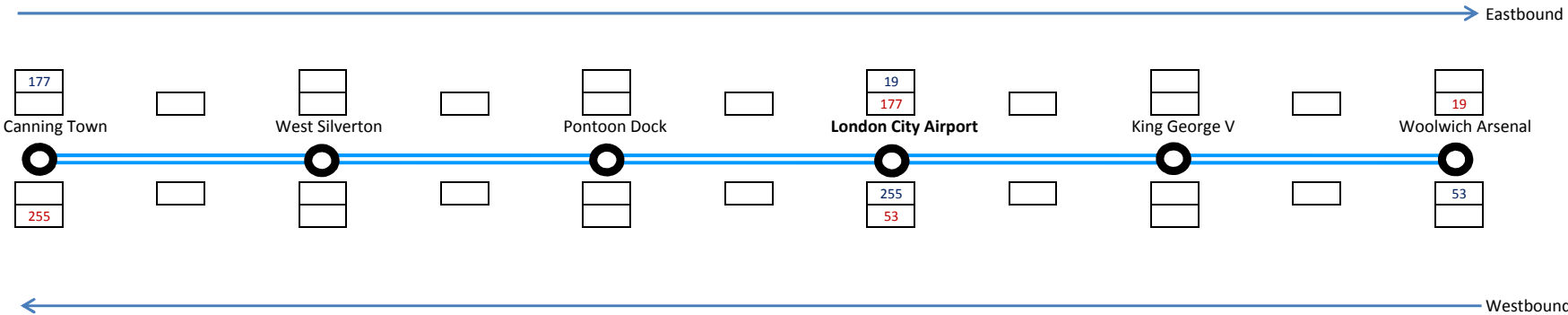
DLR Figure 6: AM Peak Base 2026 (updated numbers)







DLR Figure 9: AM Peak 2026 Development



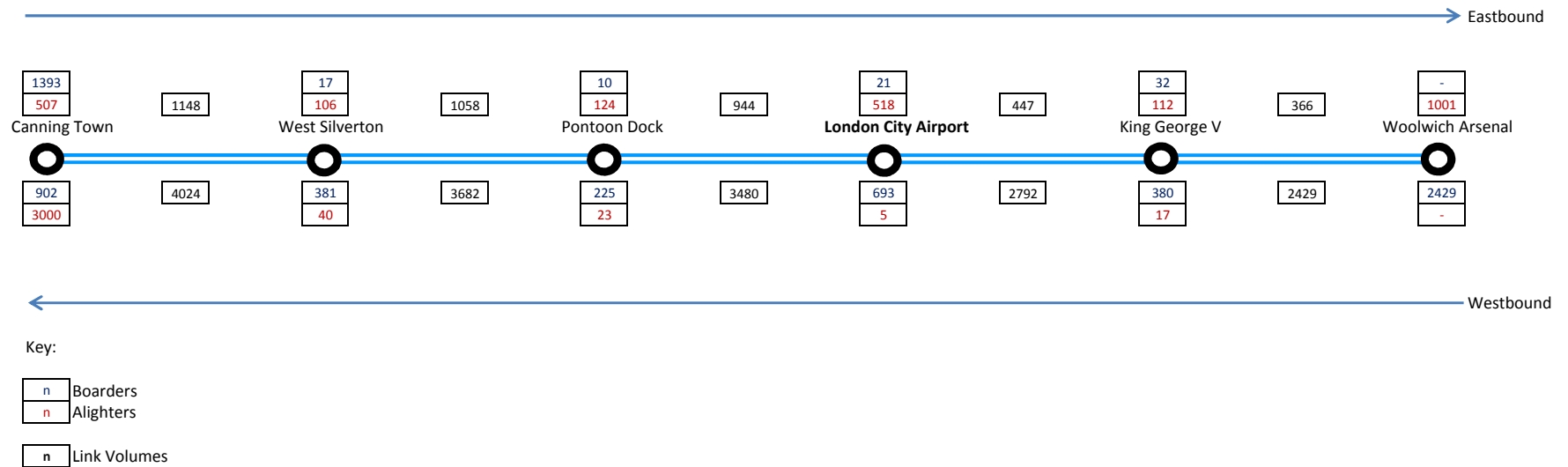
Key:

- n Boarders
- n Alighters
- n Link Volumes

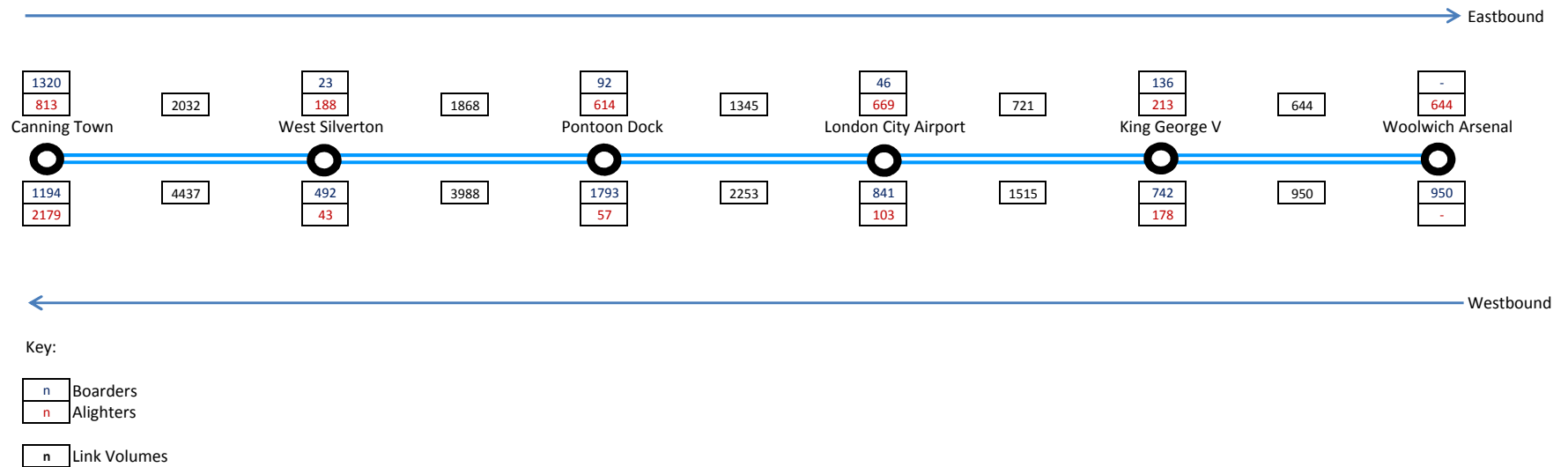
DLR Figure 10: AM Peak 2026 Development - Sensitivity Test

London City Airport: ESD

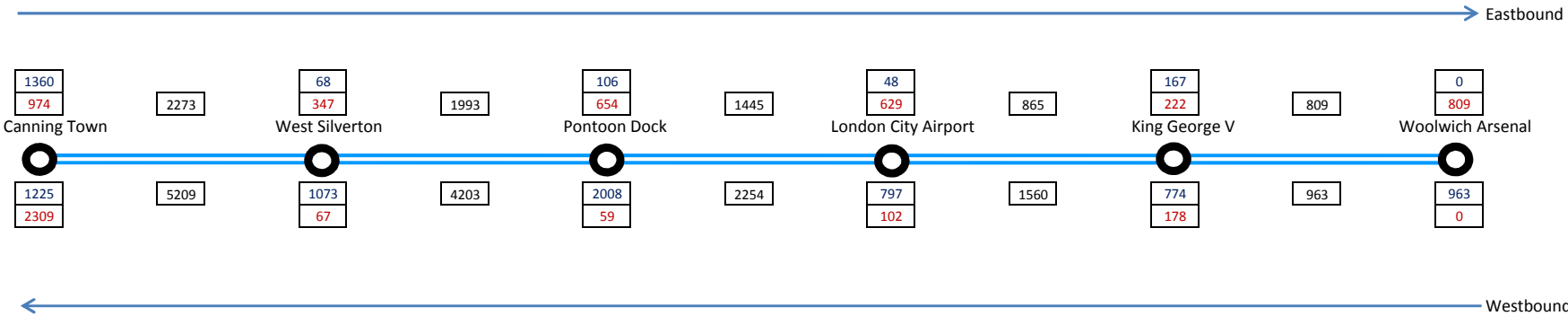
Vectos



DLR Figure 11: AM Peak 2012 - Observed



DLR Figure 12: AM Peak 2021 - Base + Development Passengers



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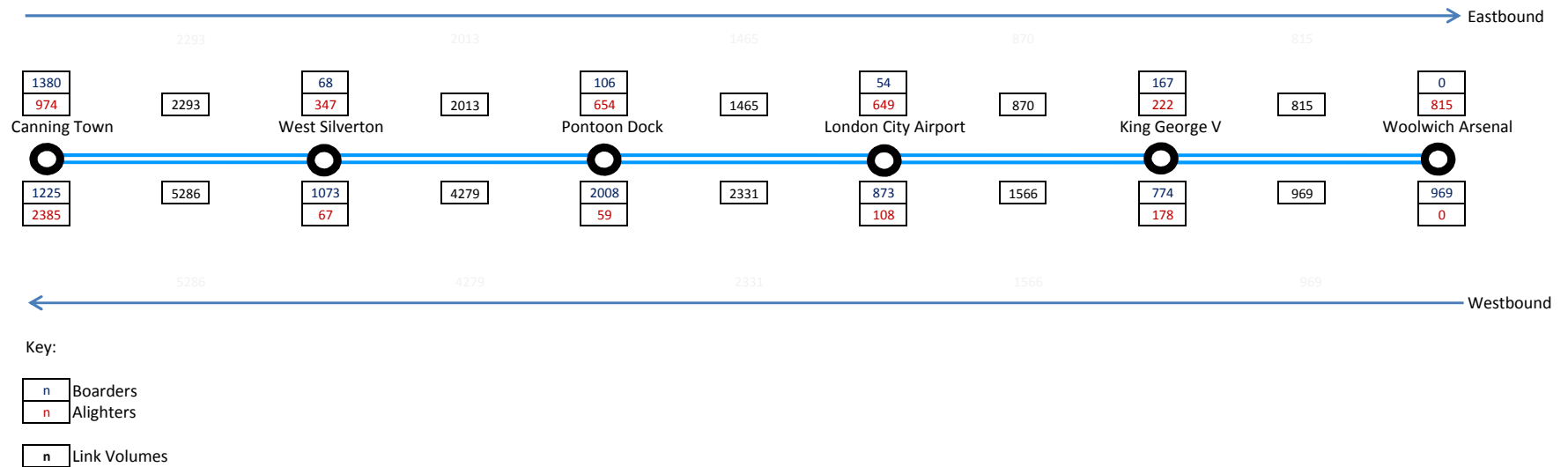
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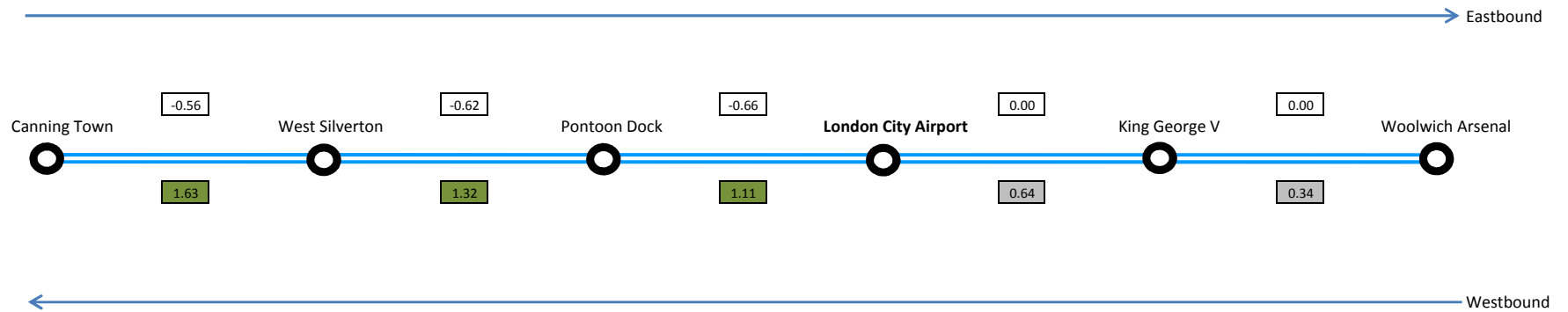
DLR Figure 13: AM Peak 2026 - Base + Development Passengers

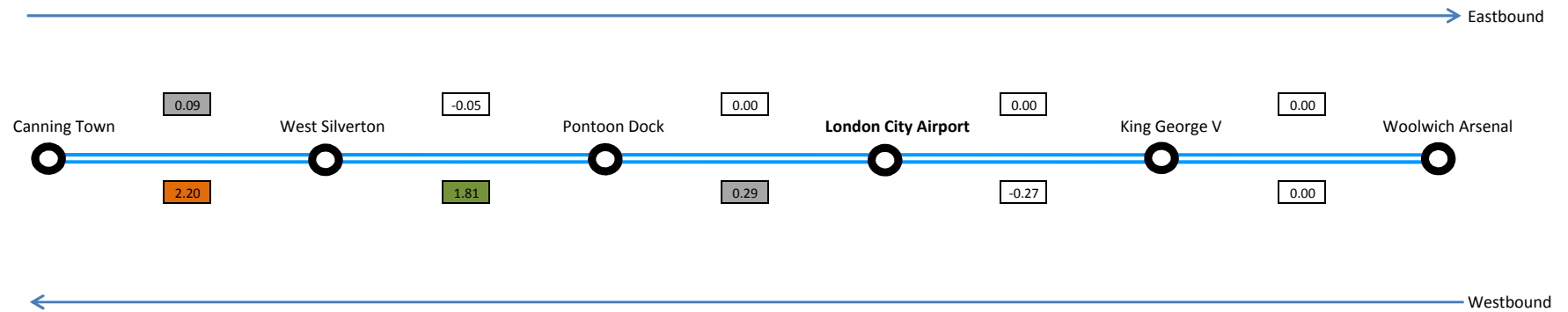
London City Airport: ESD

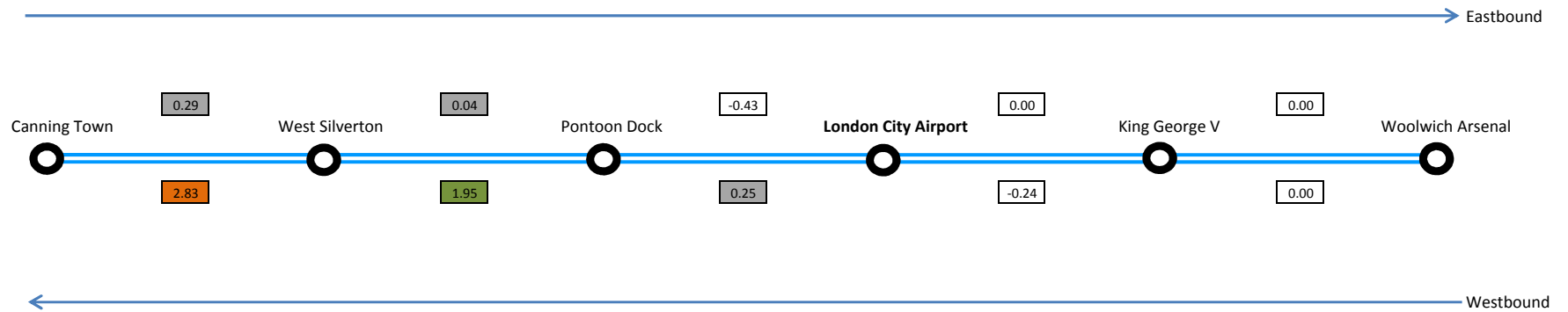
Vectos

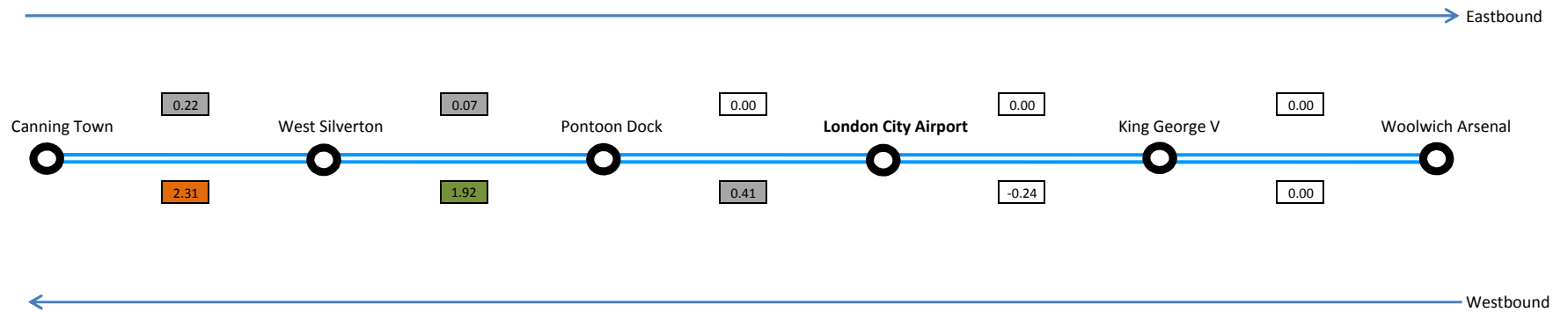


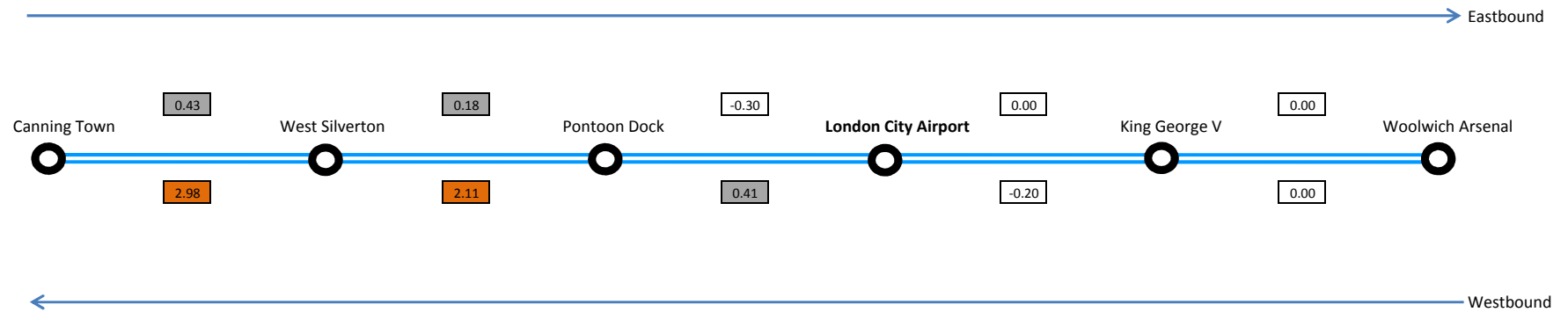
DLR Figure 14: AM Peak 2026 - Base + Development Passengers - Sensitivity Test

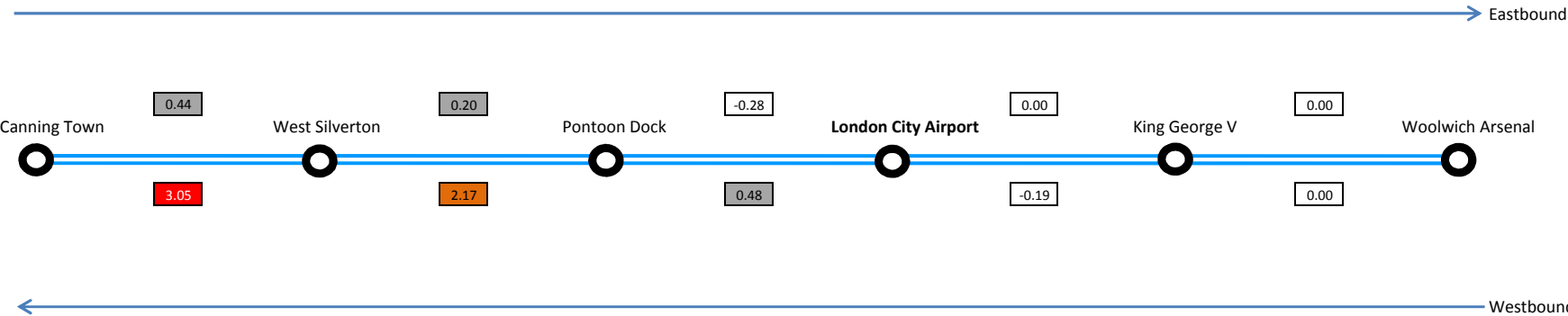






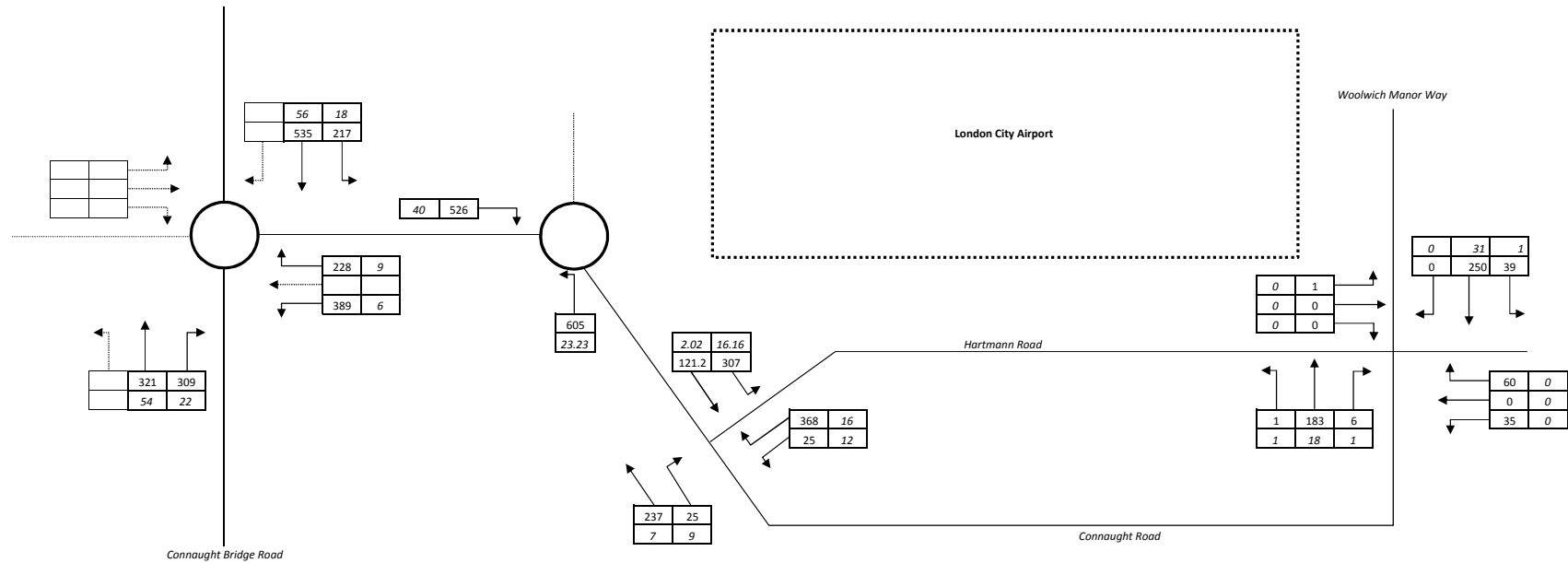






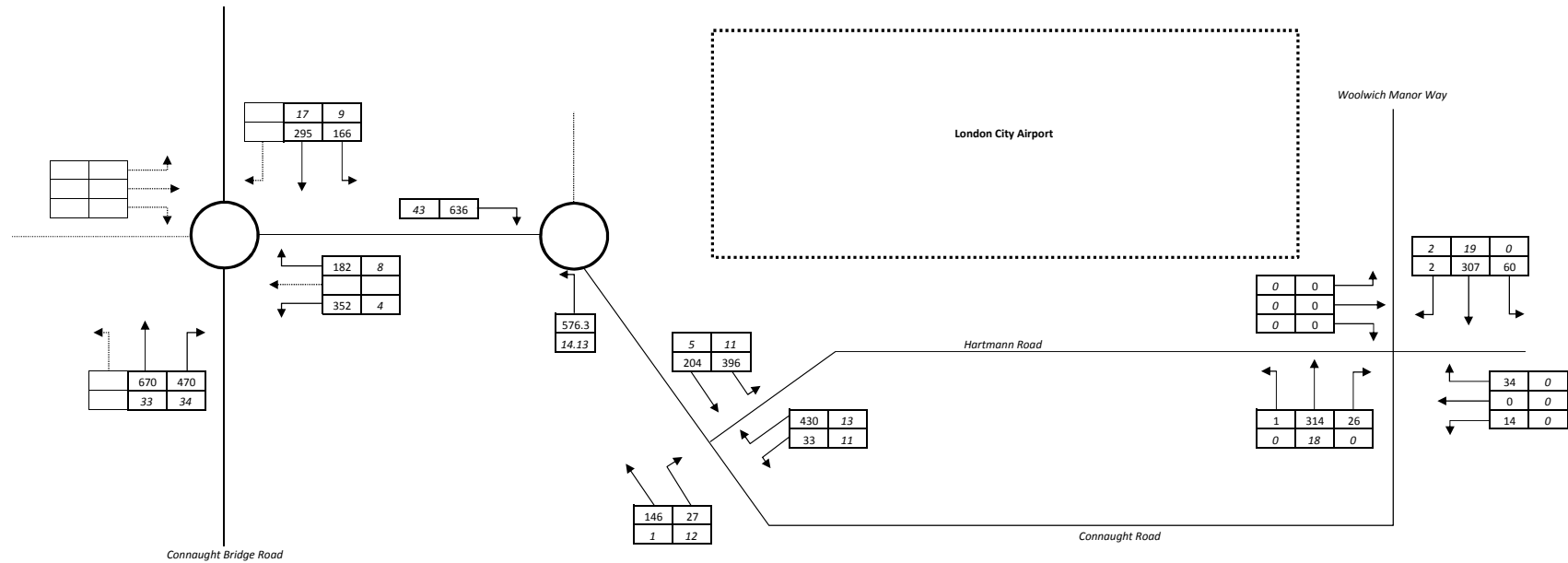
DLR Figure 20: Link Crowding 2026 - Base + Development (2023 Development Trips Forecast) - Sensitivity Test

TRAFFIC FIGURES



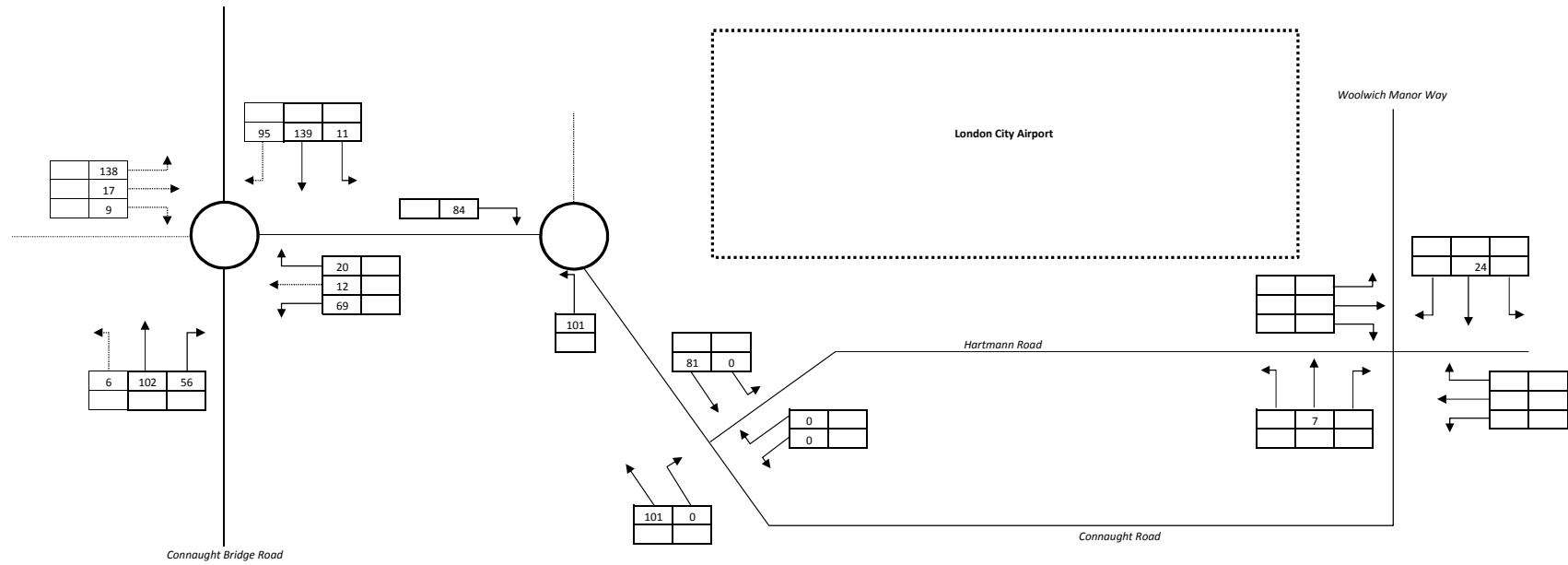
NB: Due to Crossrail, Connaught Road between Hartmann Road and Woolwich Manor Way is closed to eastbound traffic. Therefore, there appears to be less traffic on the Connaught Road Arm of the Connaught Bridge Roundabout. Therefore the straight on movement (WB) along Connaught Road (235) has been added to the Connaught Bridge Road Arm of the Connaught Bridge Roundabout (left and right proportions based on existing turning movements)

Traffic Figure 1: Observed Traffic Flows: Weekday AM Peak Hour - Turning Movements

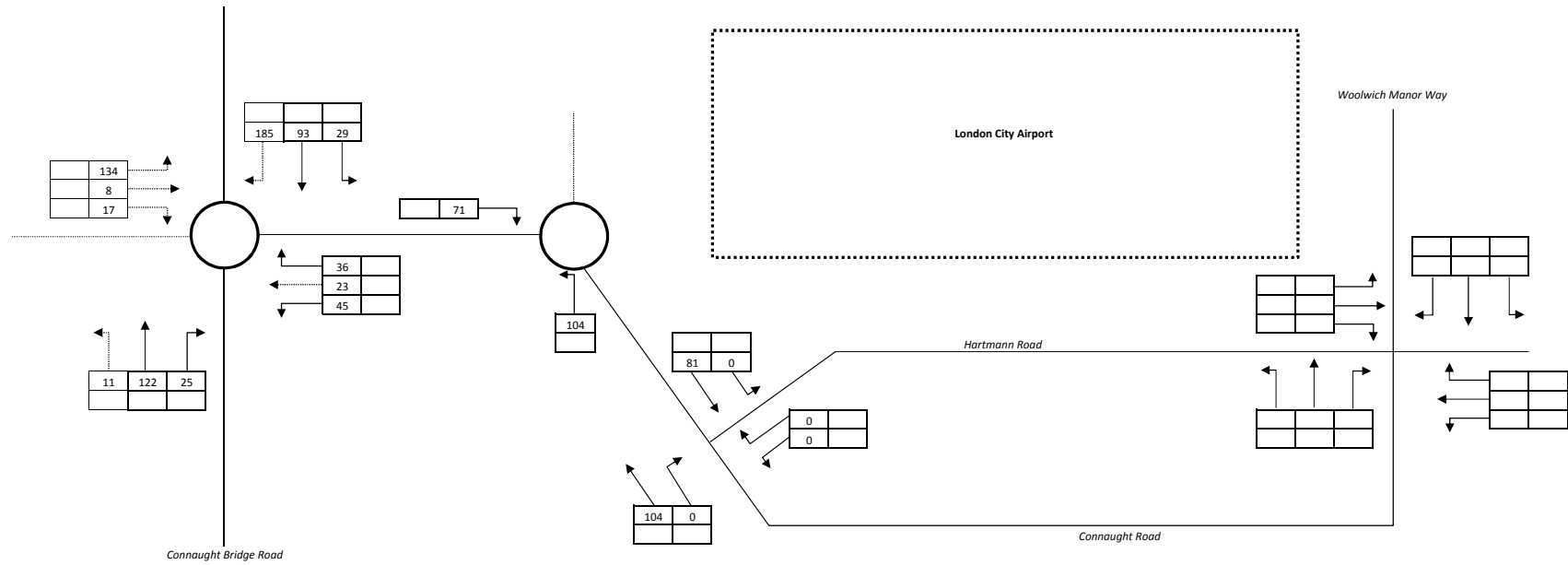


NB: Due to Crossrail, Connaught Road between Hartmann Road and Woolwich Manor Way is closed to eastbound traffic. Therefore, there appears to be less traffic on the Connaught Road Arm of the Connaught Bridge Roundabout. Therefore the straight on movement (WB) along Connaught Road (235) has been added to the Connaught Bridge Road Arm of the Connaught Bridge Roundabout (left and right proportions based on existing turning movements)

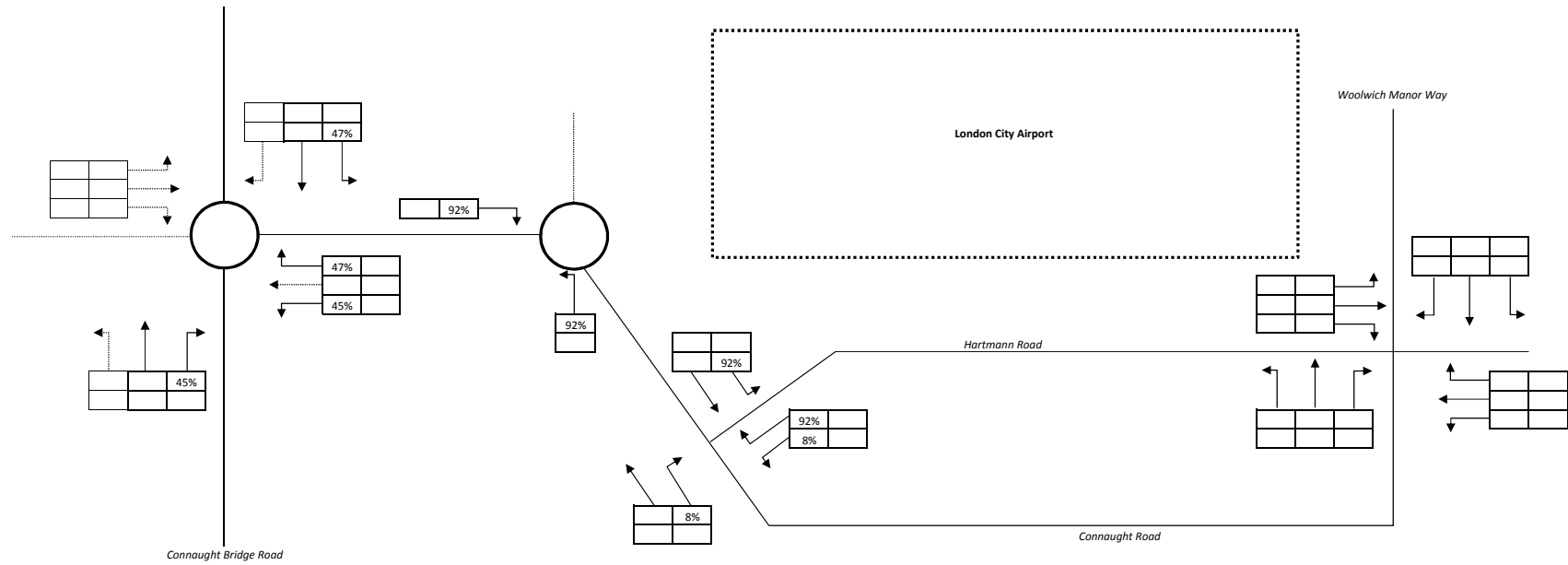
Traffic Figure 2: Observed Traffic Flows: Weekday PM Peak Hour - Turning Movements



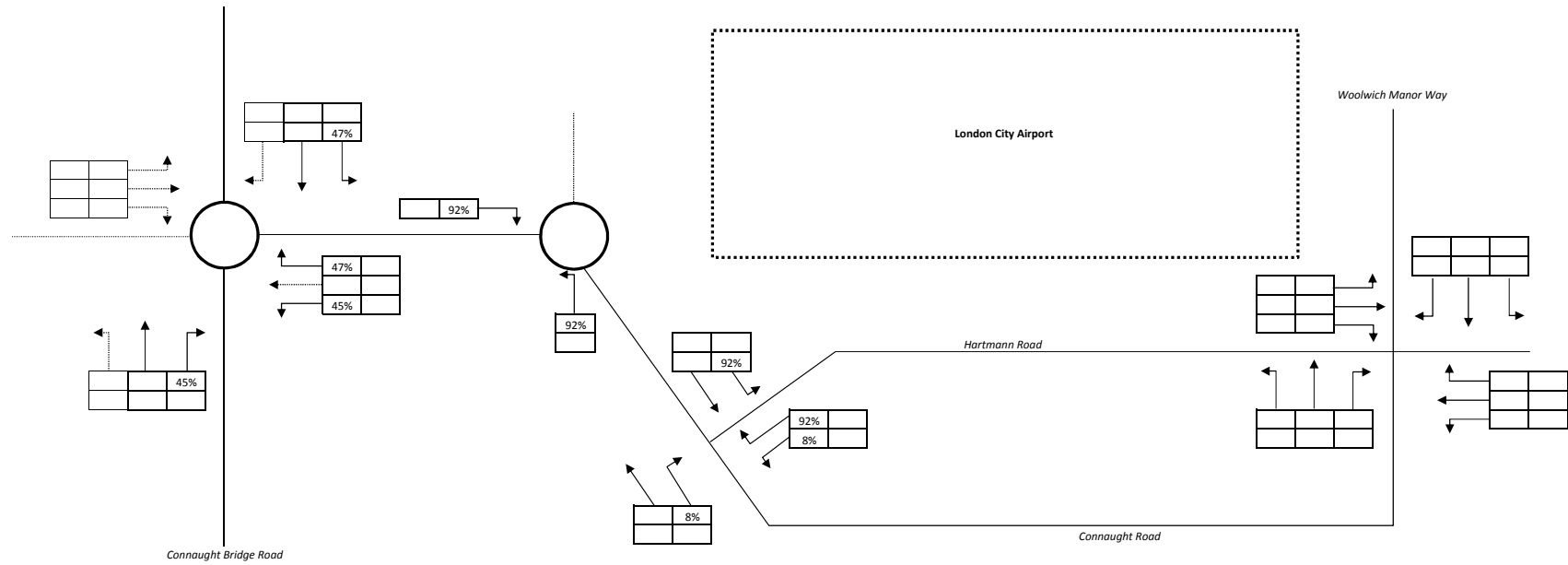
Traffic Figure 3: Committed Development Flows: Weekday AM Peak Hour - Turning Movements



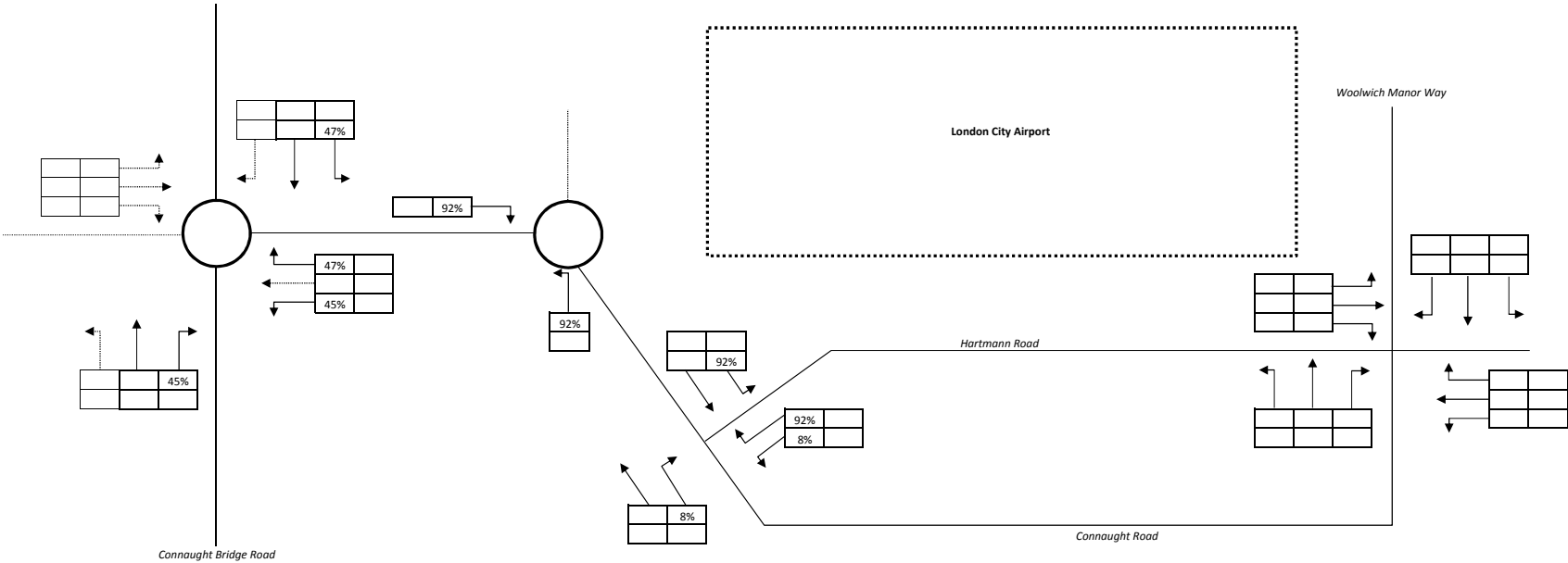
Traffic Figure 4: Committed Development Flows: Weekday PM Peak Hour - Turning Movements



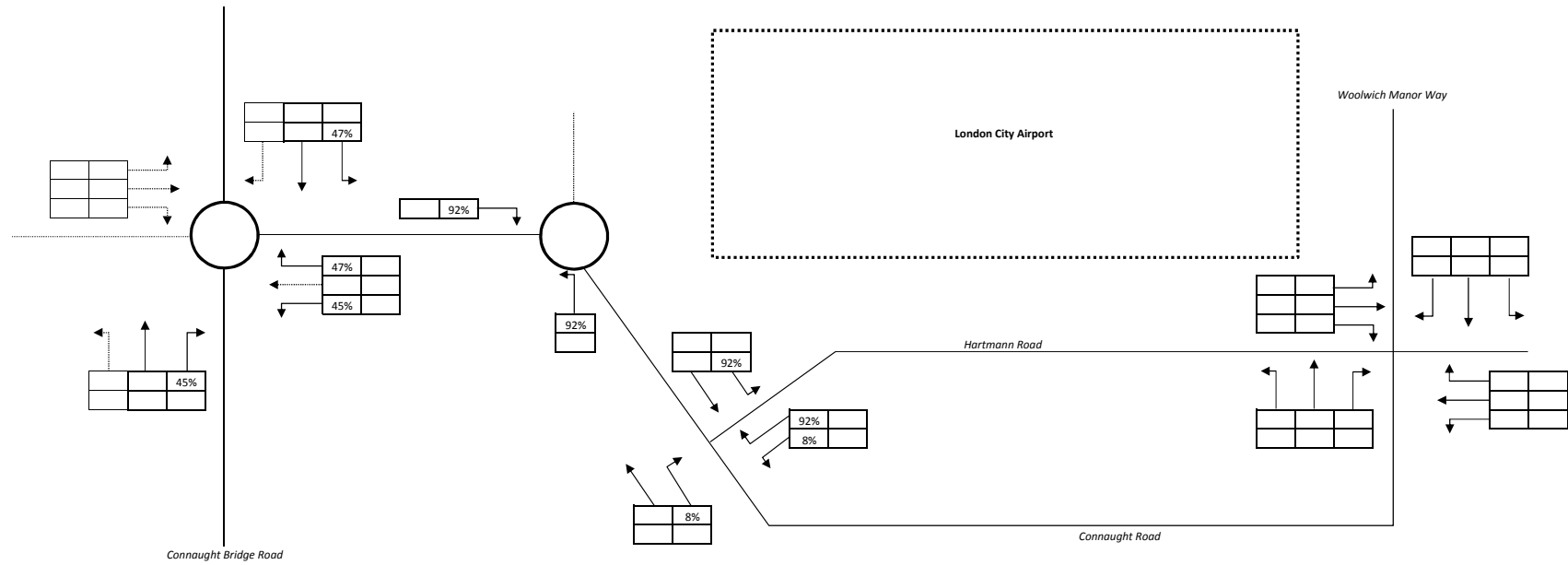
Traffic Figure 5: Without Development Passenger Distribution: AM Peak - Turning Movements



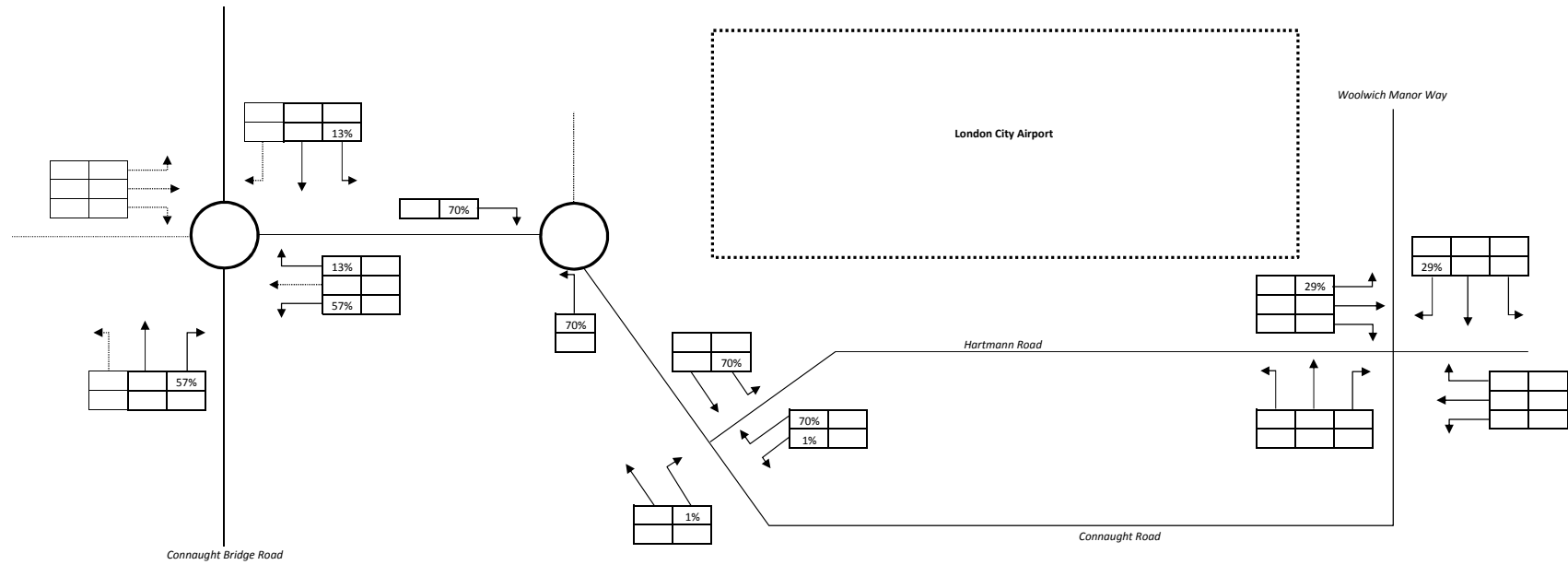
Traffic Figure 6: Without Development Passenger Development Distribution: PM Peak - Turning Movements



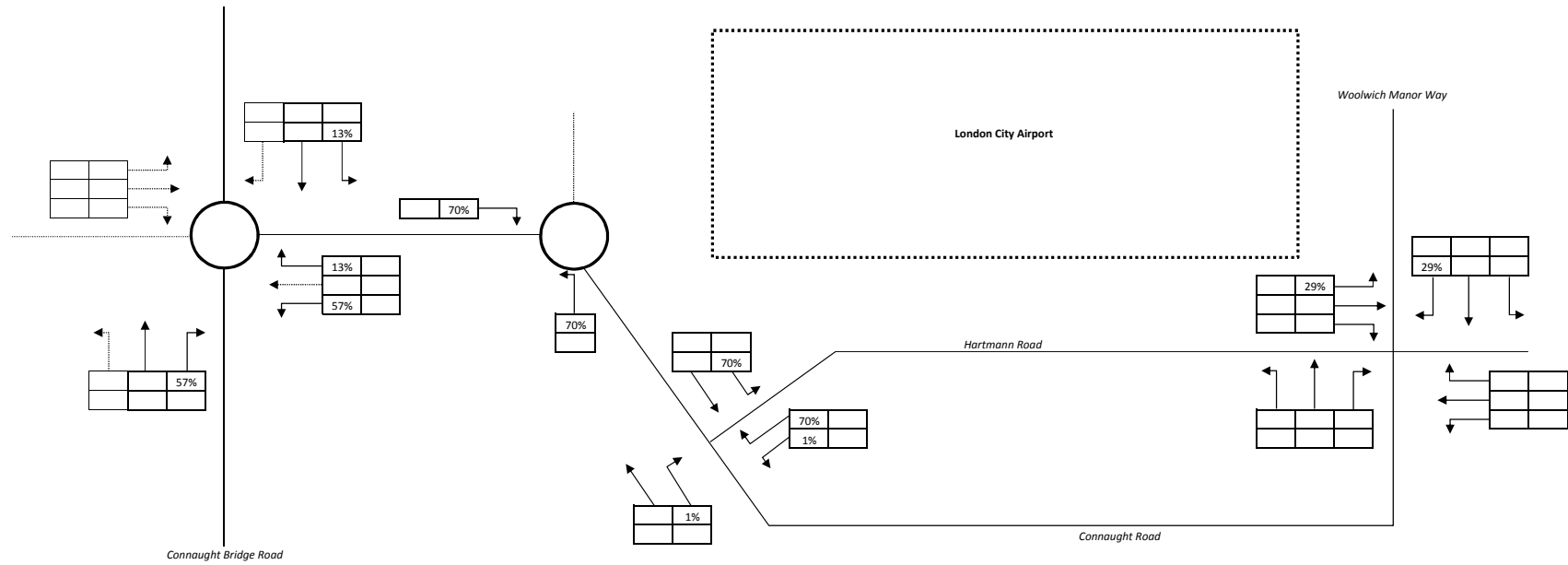
Traffic Figure 7: Without Development Staff Development Distribution: AM Peak - Turning Movements



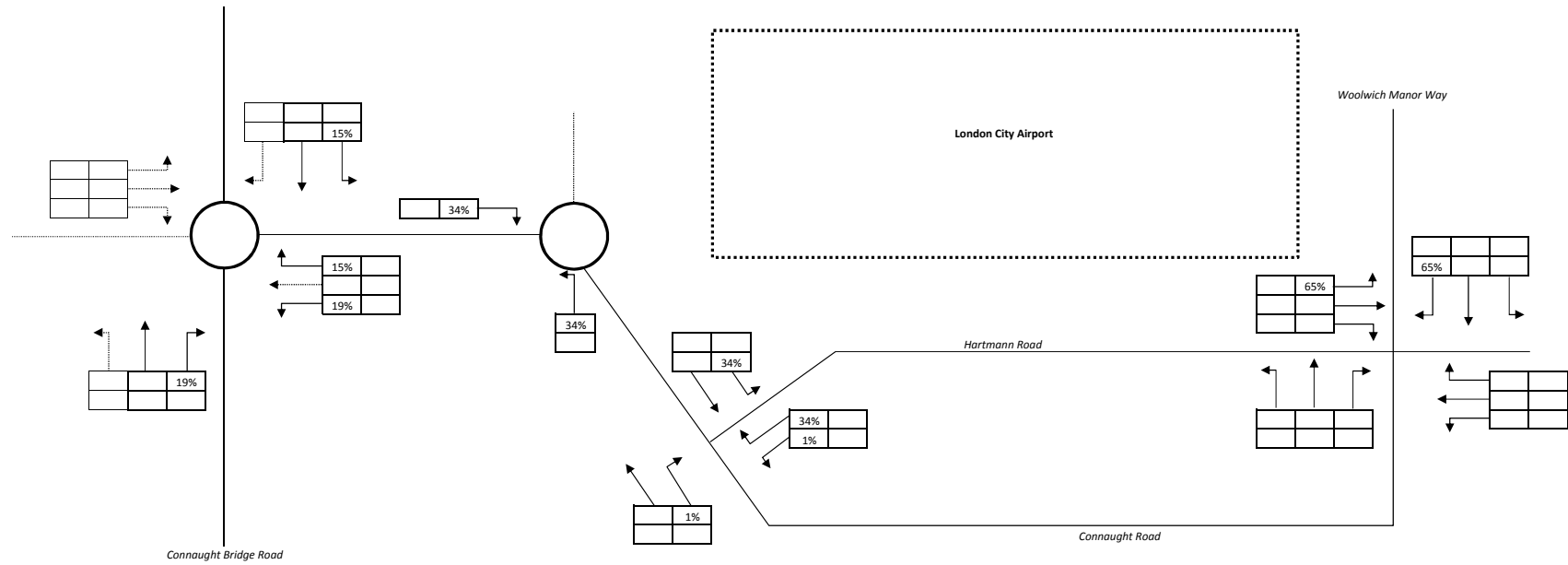
Traffic Figure 8: Without Development Staff Development Distribution: PM Peak - Turning Movements



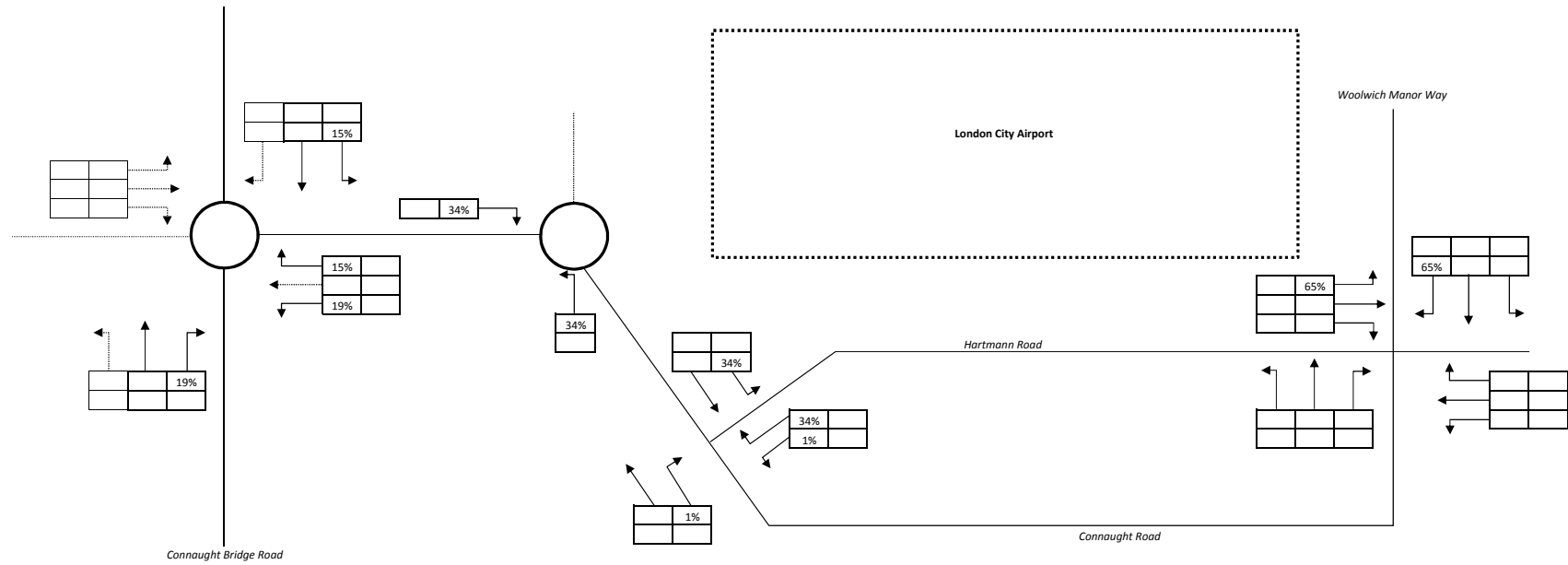
Traffic Figure 9: With Development Passenger Distribution: AM Peak - Turning Movements



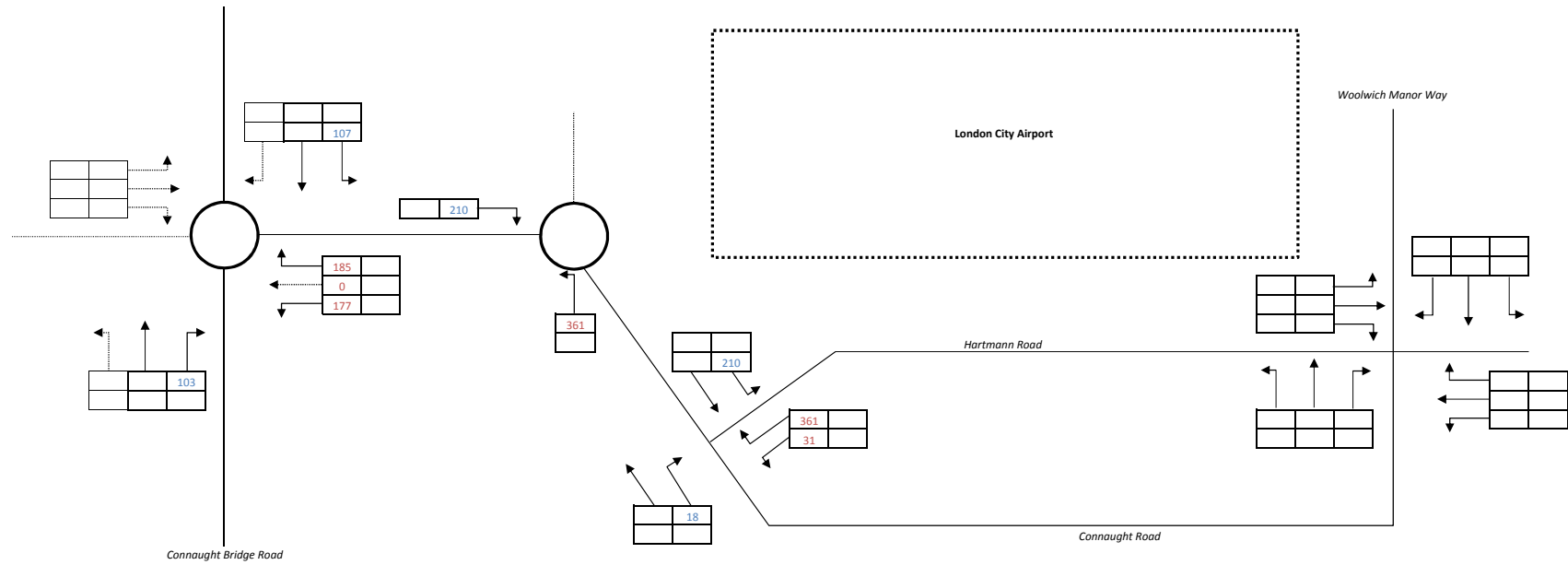
Traffic Figure 10: With Development Passenger Development Distribution: PM Peak - Turning Movements



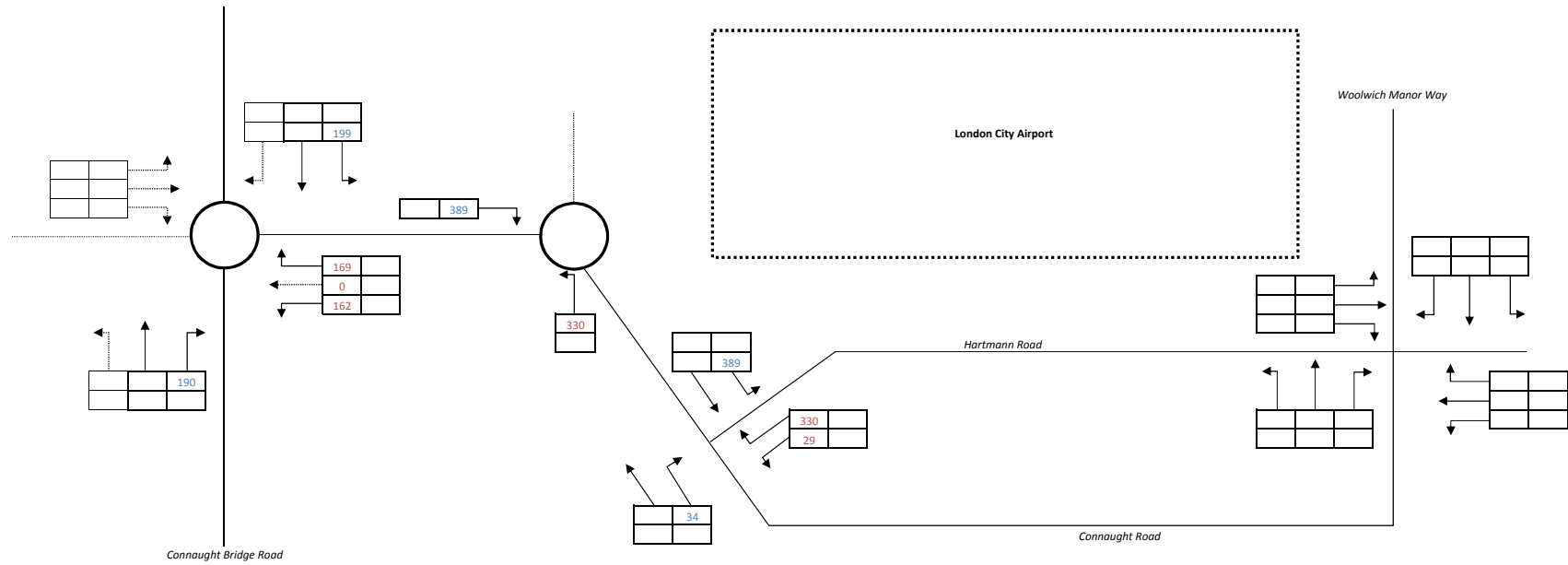
Traffic Figure 11: With Development Staff Development Distribution: AM Peak - Turning Movements



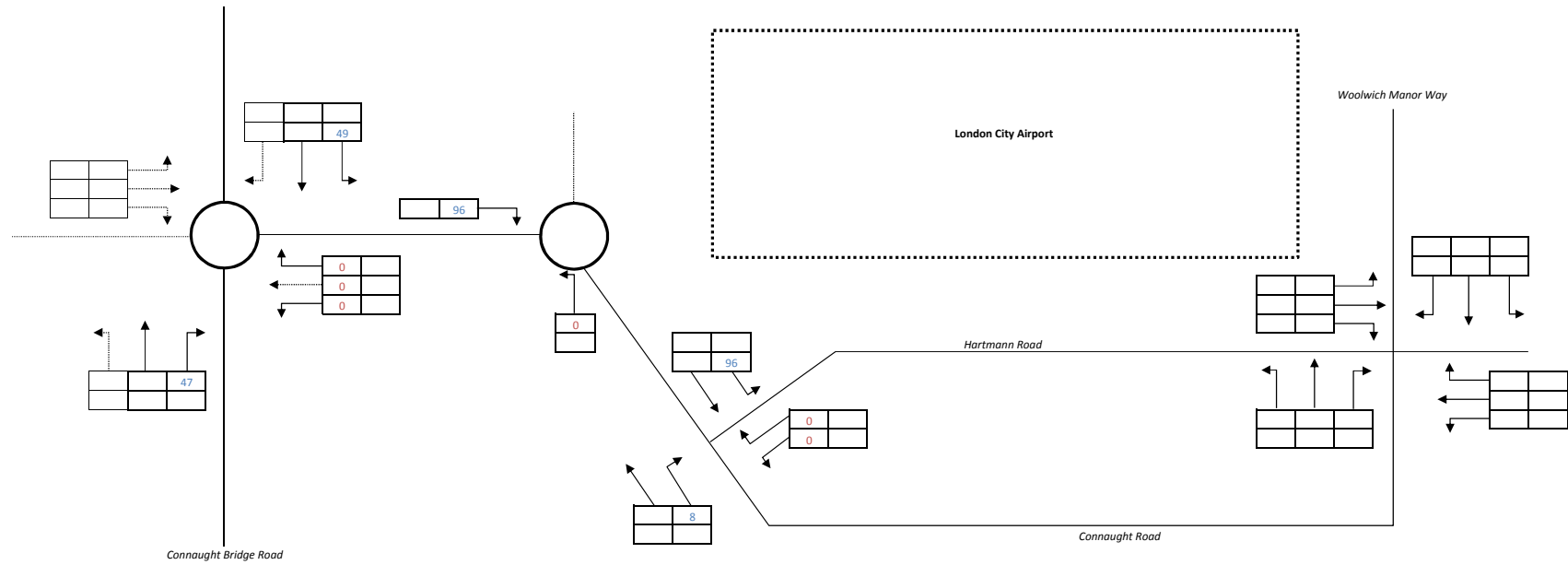
Traffic Figure 12: With Development Staff Development Distribution: PM Peak - Turning Movements



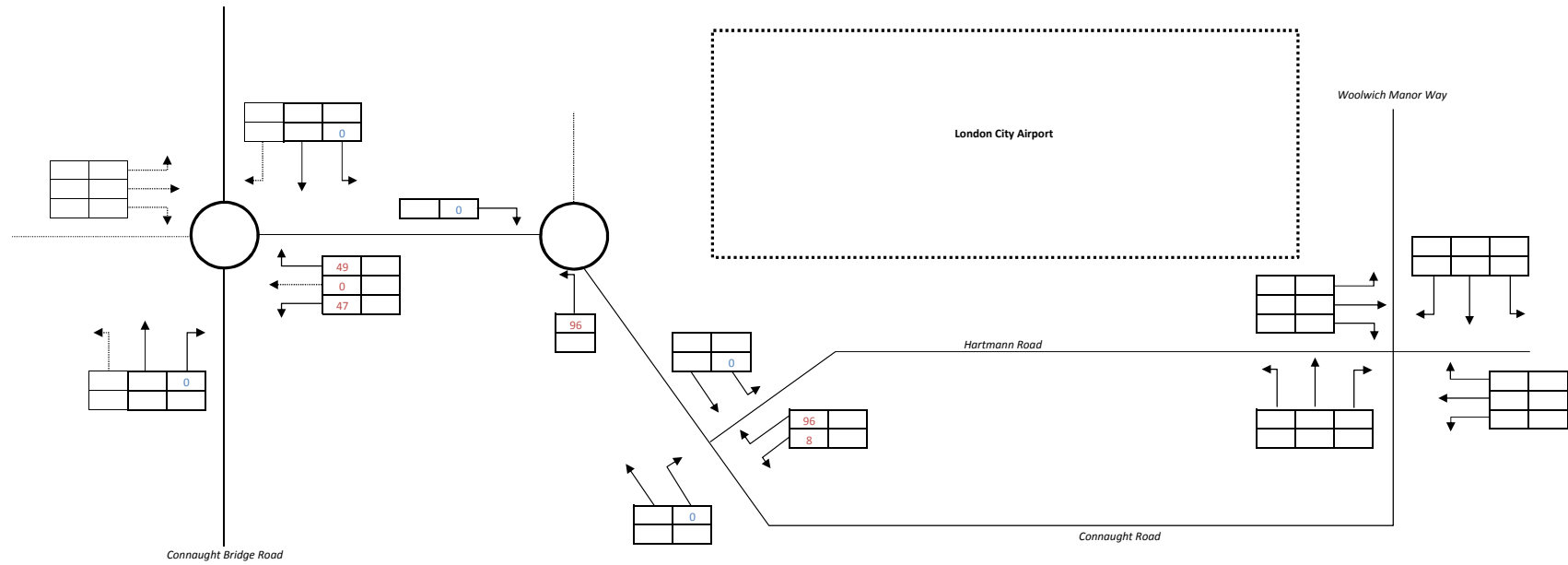
Traffic Figure 13: 2011 Existing LCY Passenger Trips: AM Peak - Turning Movements



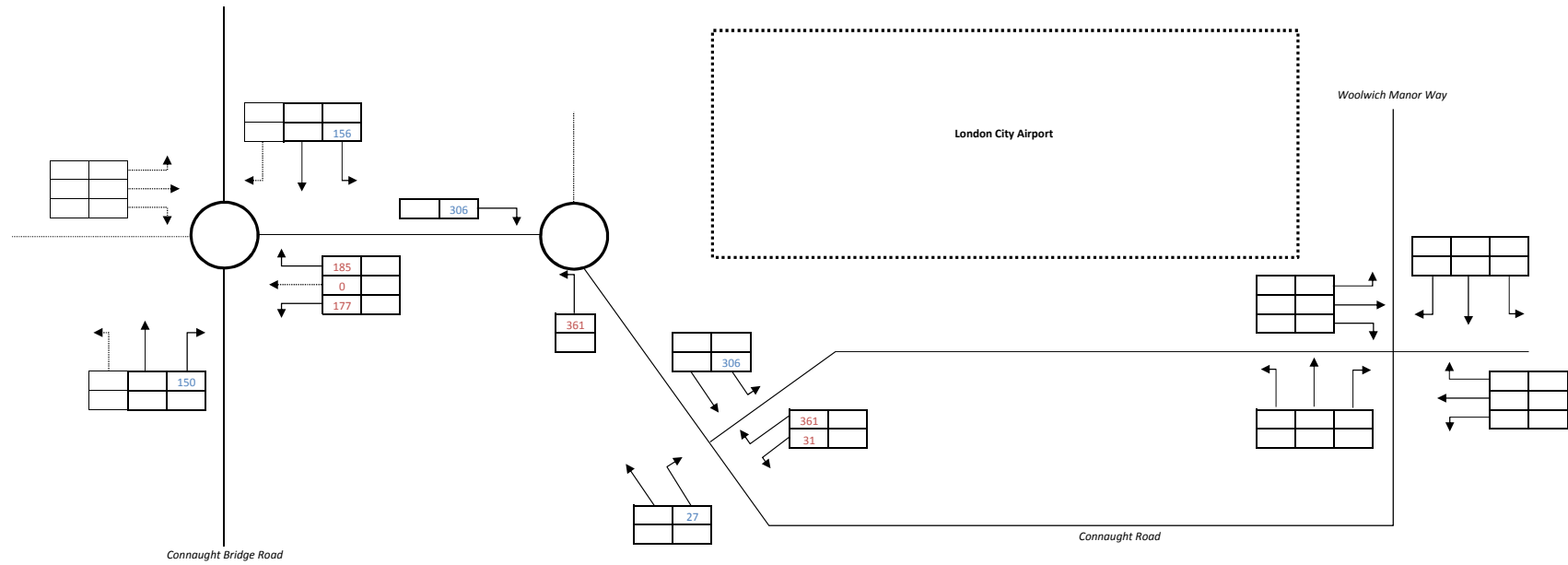
Traffic Figure 14: 2011 Existing LCY Passenger Trips: PM Peak - Turning Movements



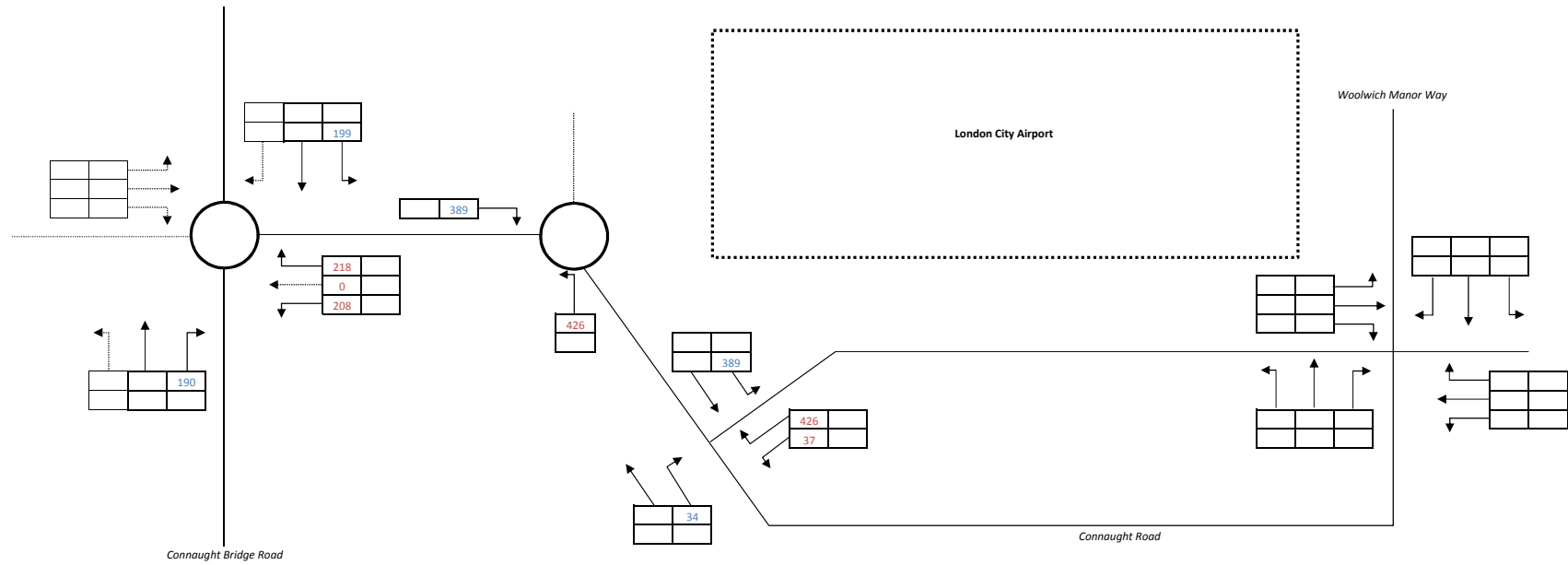
Traffic Figure 15: 2011 Existing LCY Staff Trips: AM Peak - Turning Movements



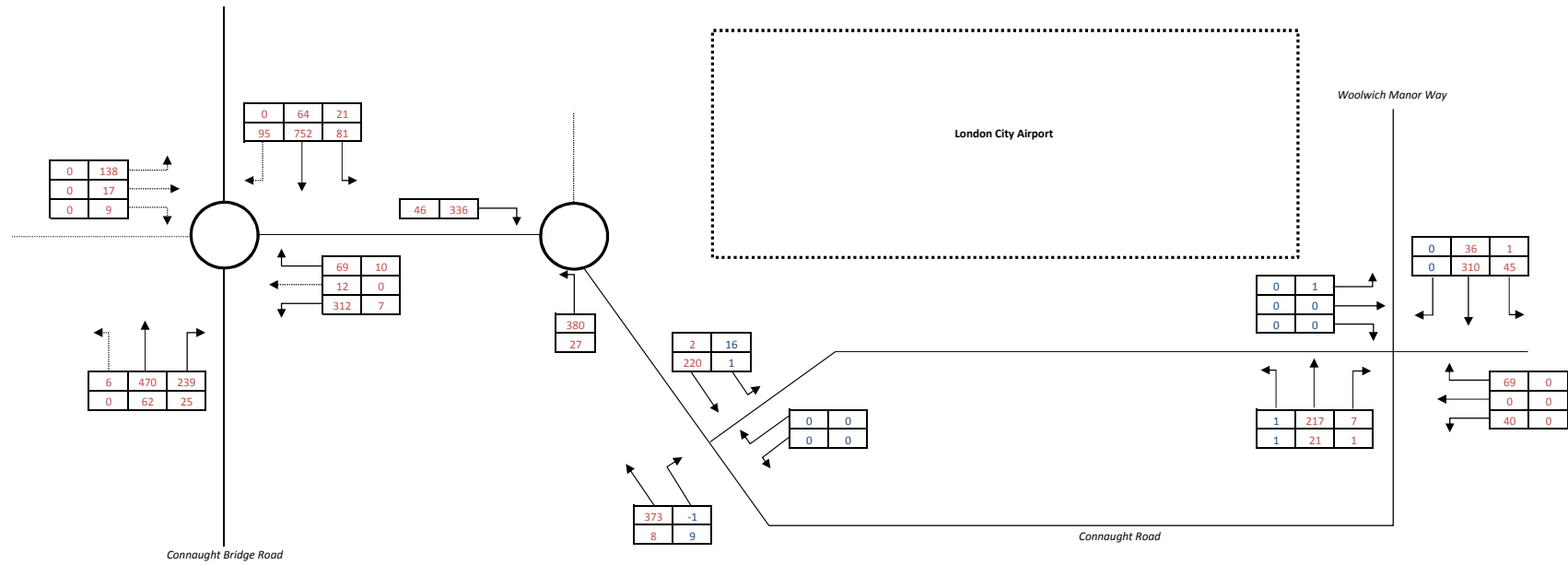
Traffic Figure 16: 2011 Existing LCY Staff Trips: PM Peak - Turning Movements



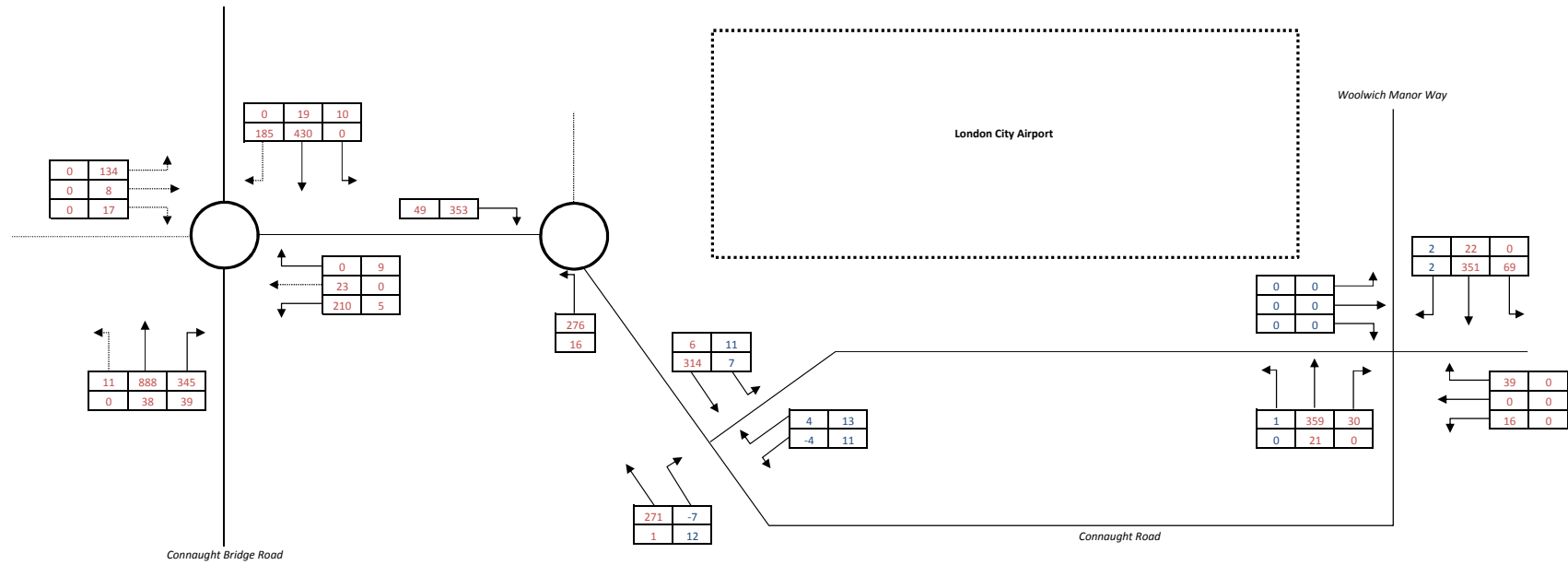
Traffic Figure 17: 2011 Total Existing LCY Trips: AM Peak - Turning Movements



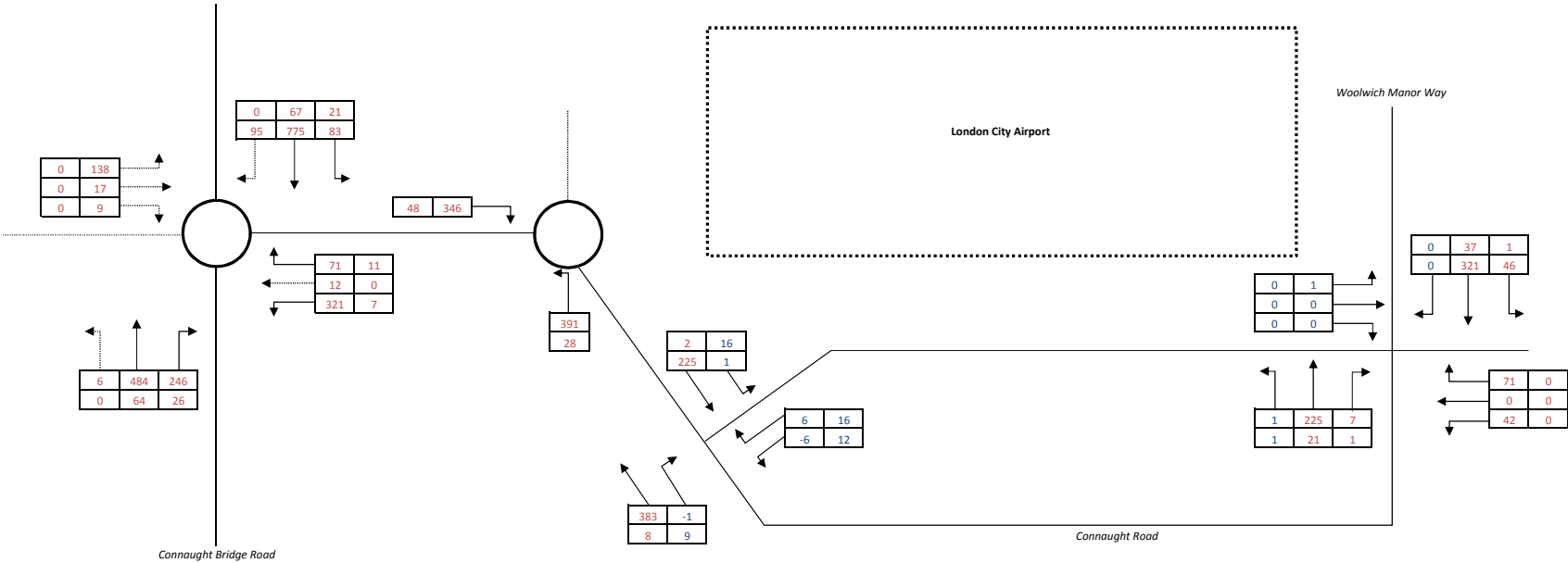
Traffic Figure 18: 2011 Total Existing LCY Trips: PM Peak - Turning Movements



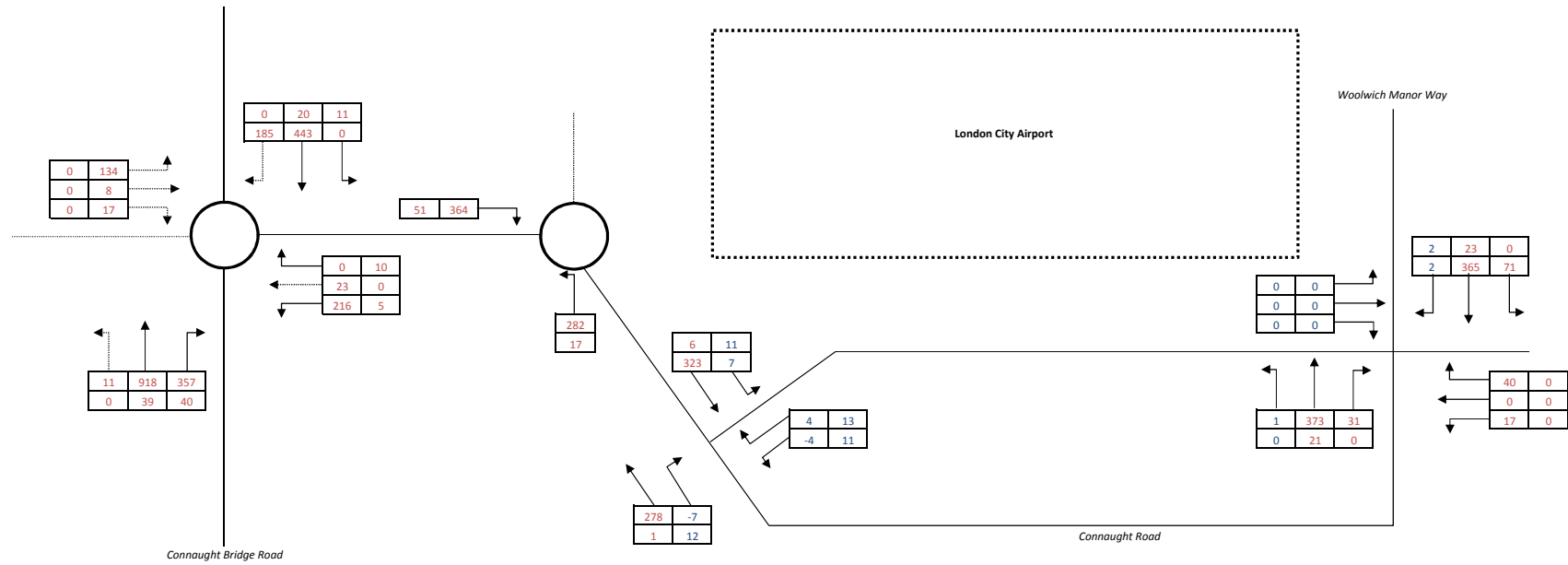
Traffic Figure 19: 2021 Base Traffic Flows (minus existing trips): Weekday AM Peak Hour - Turning Movements



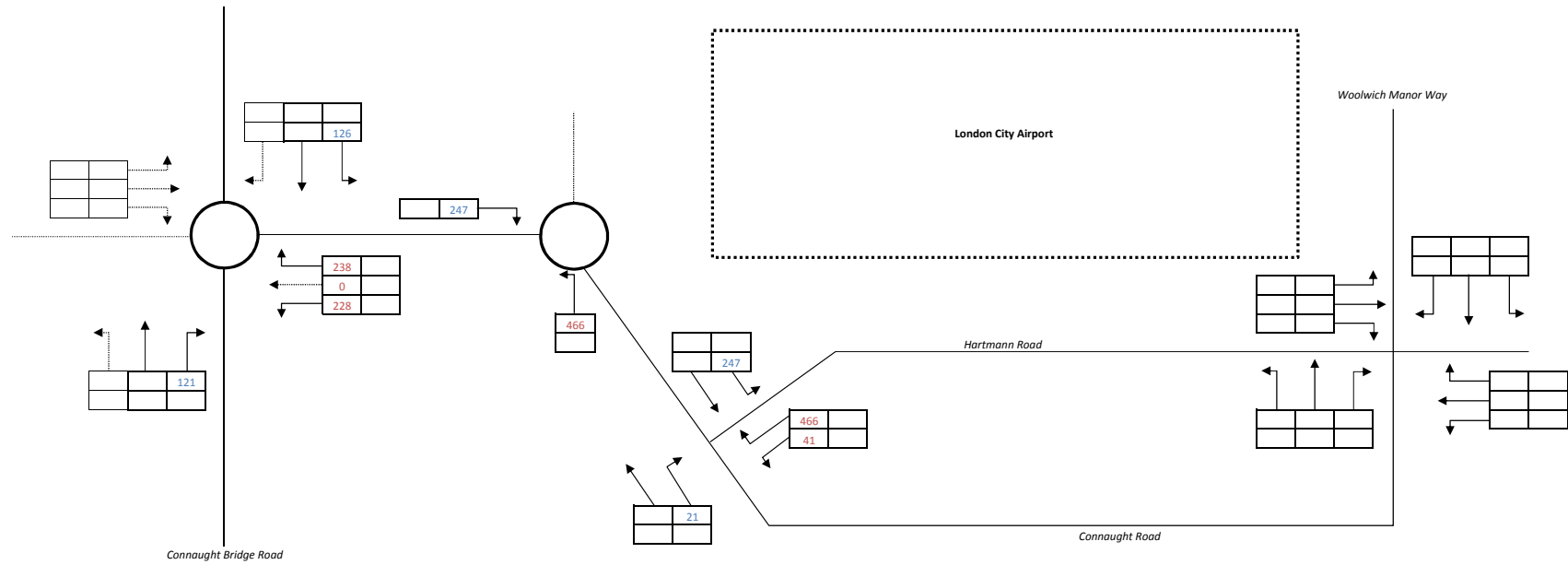
Traffic Figure 20: 2021 Base Traffic Flows (minus existing trips): Weekday PM Peak Hour - Turning Movements



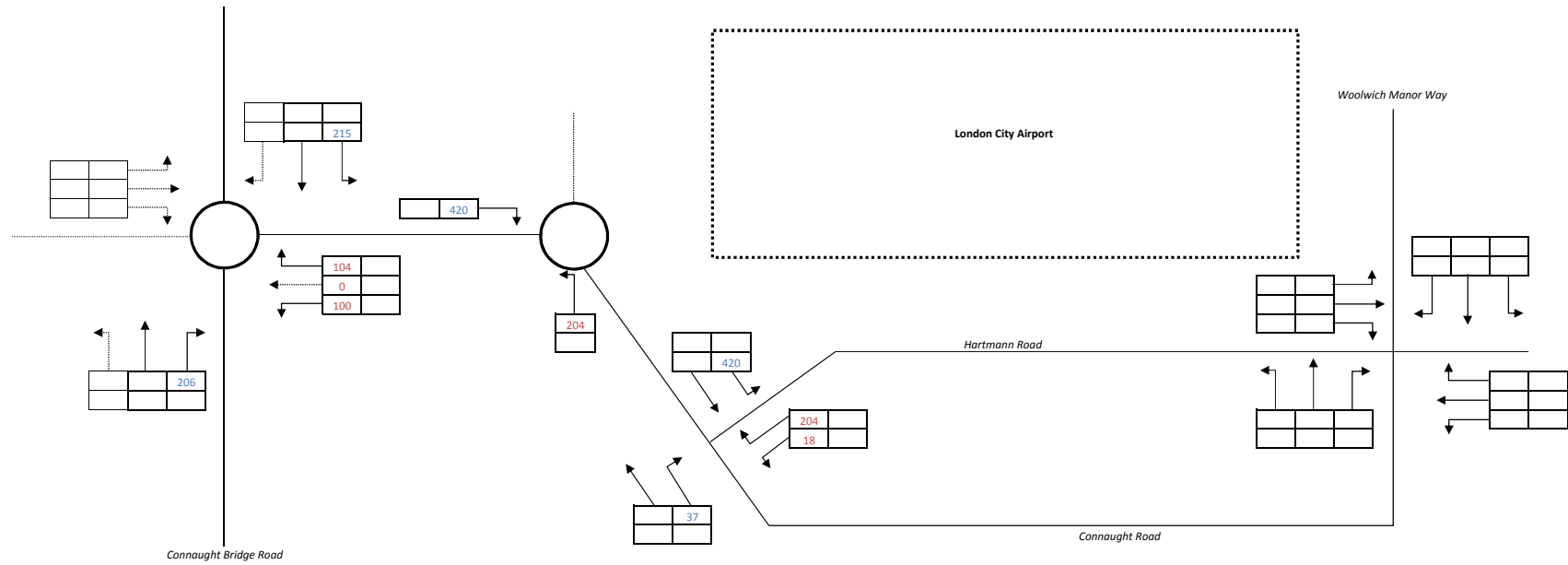
Traffic Figure 21: 2023 Base Traffic Flows (minus existing trips): Weekday AM Peak Hour - Turning Movements



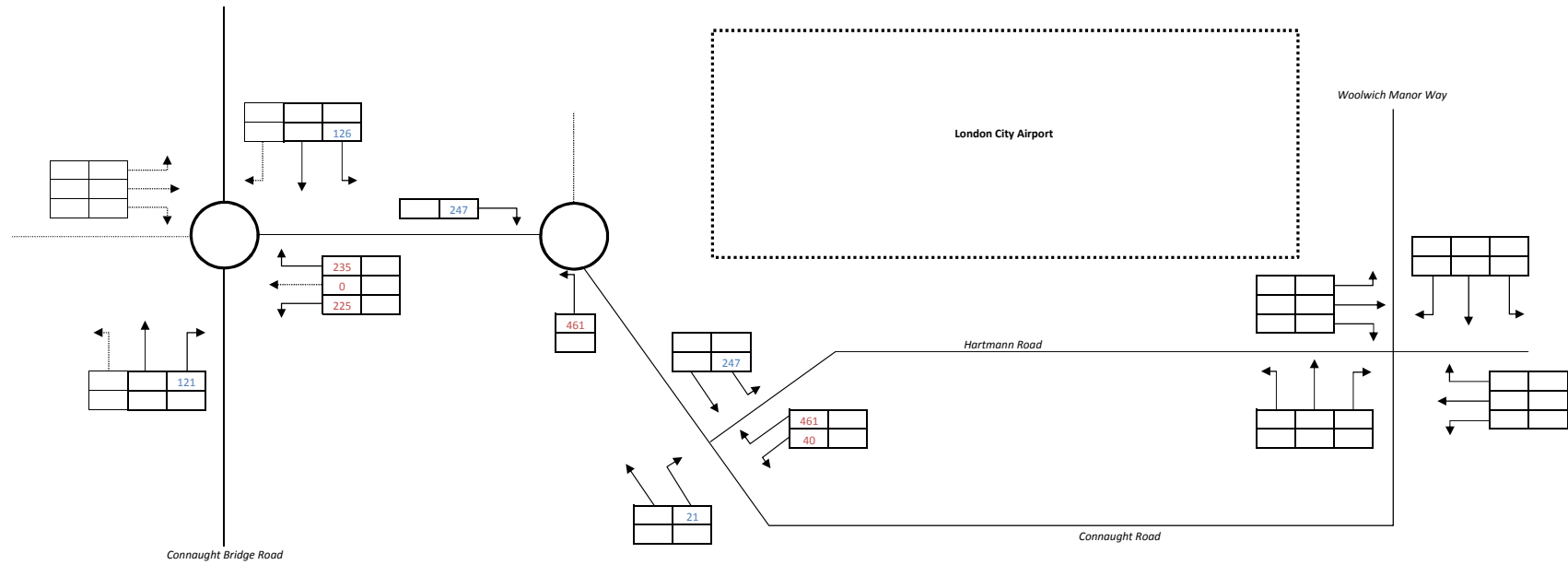
Traffic Figure 22: 2023 Base Traffic Flows (minus existing trips): Weekday PM Peak Hour - Turning Movements



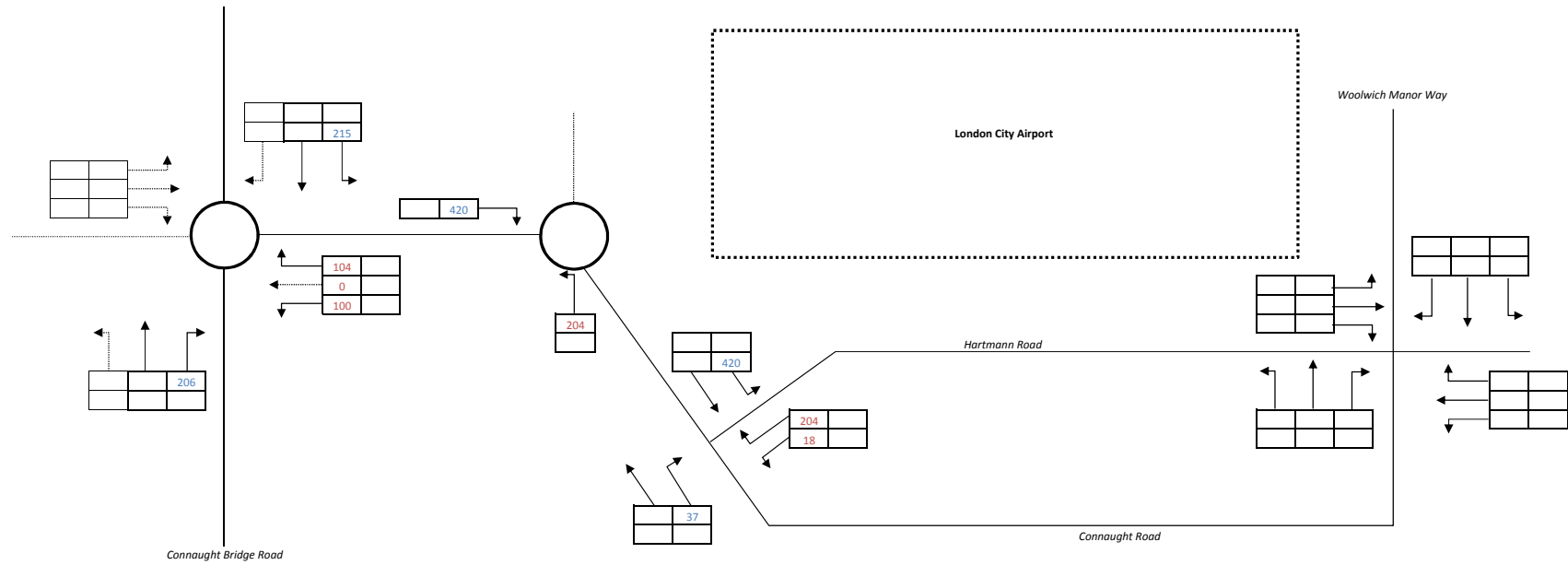
Traffic Figure 23: 2021 Passenger Trips - Without Development: AM Peak - Turning Movements



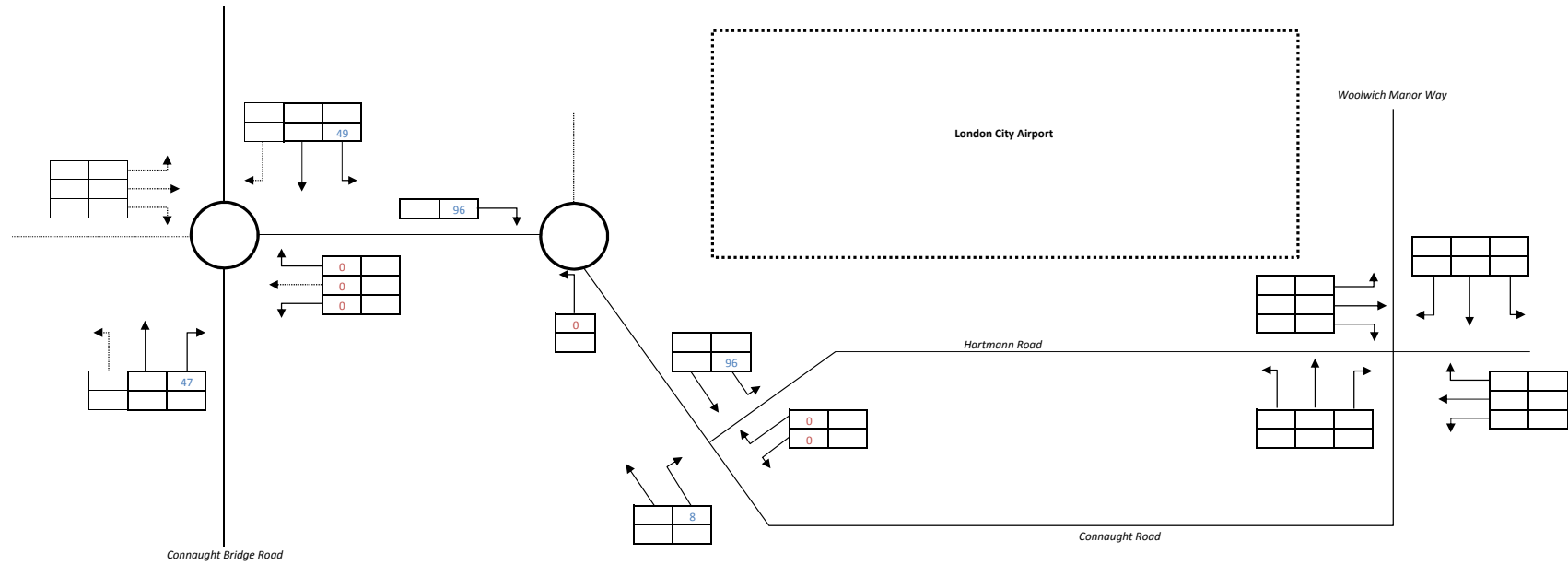
Traffic Figure 24: 2021 Passenger Trips - Without Development: PM Peak - Turning Movements



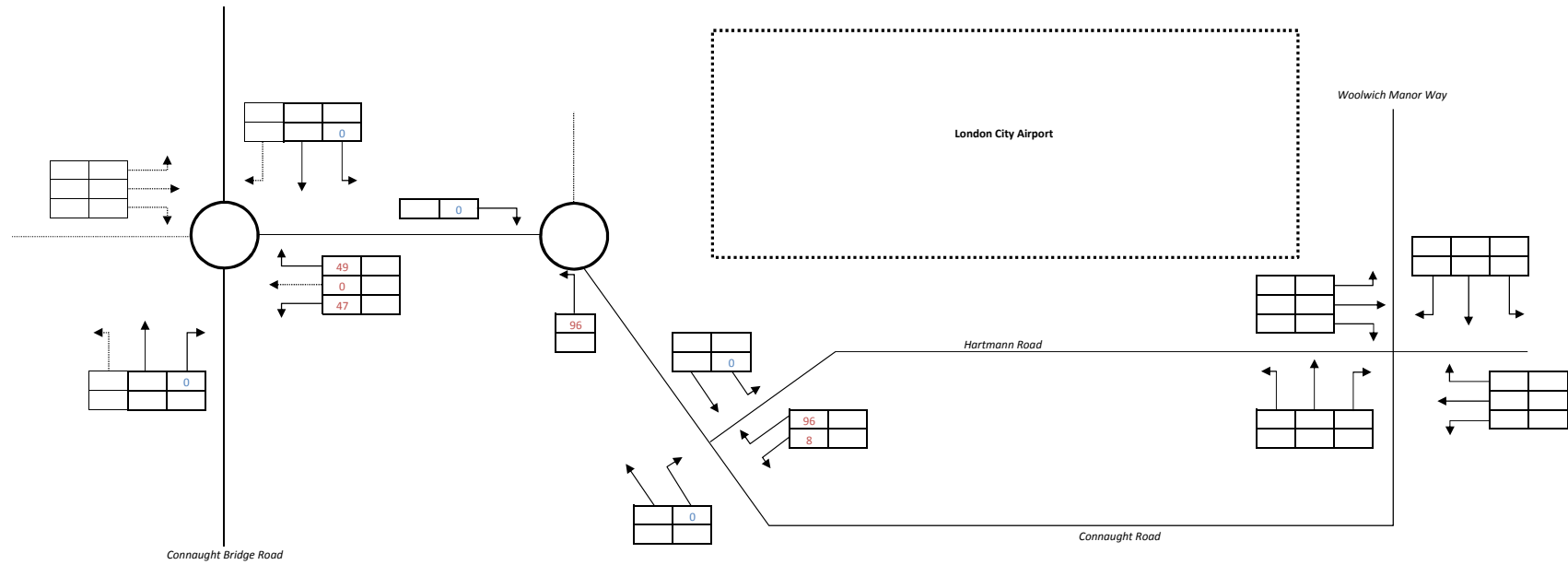
Traffic Figure 25: 2023 Passenger Trips - Without Development: AM Peak - Turning Movements



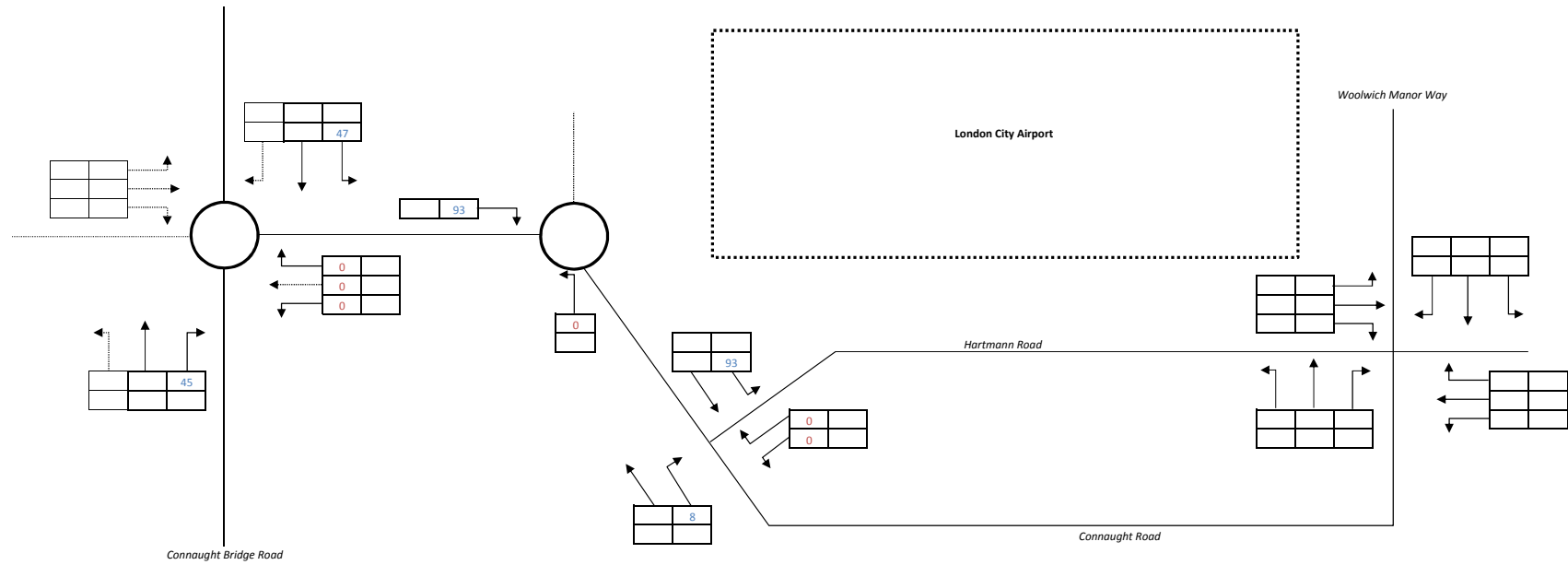
Traffic Figure 26: 2023 Passenger Trips - Without Development: PM Peak - Turning Movements



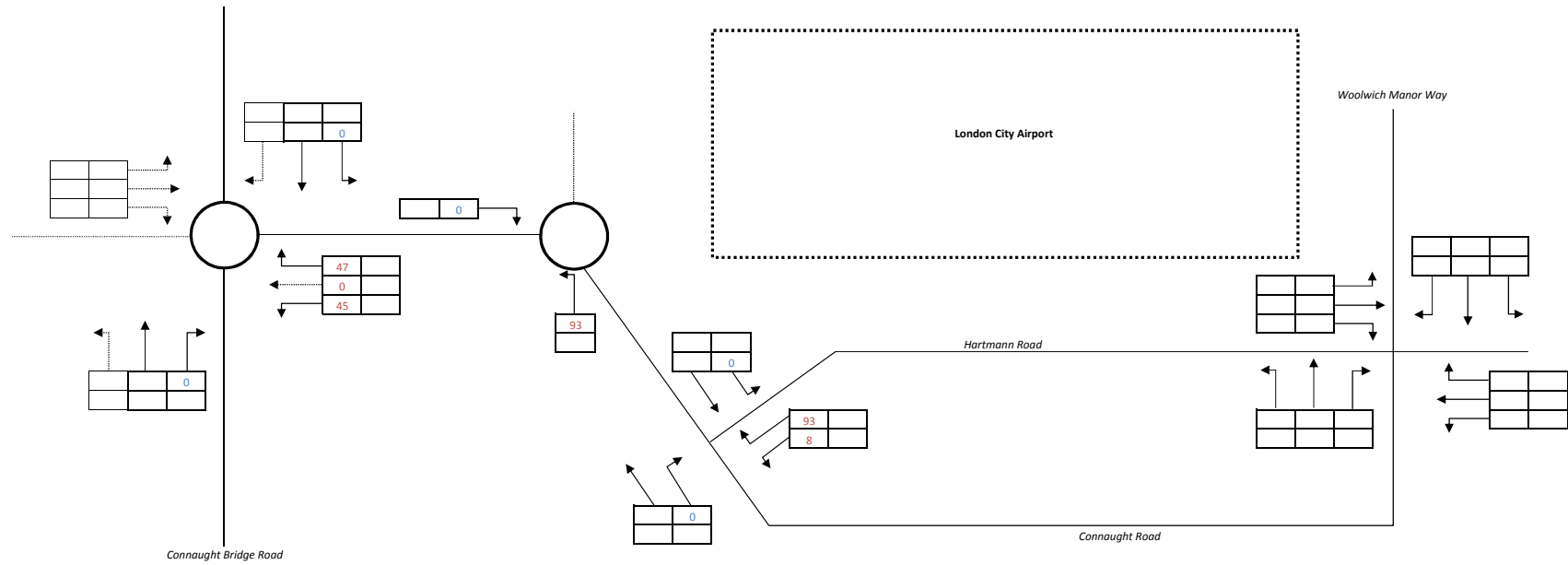
Traffic Figure 27: 2021 Staff Trips - Without Development: AM Peak - Turning Movements



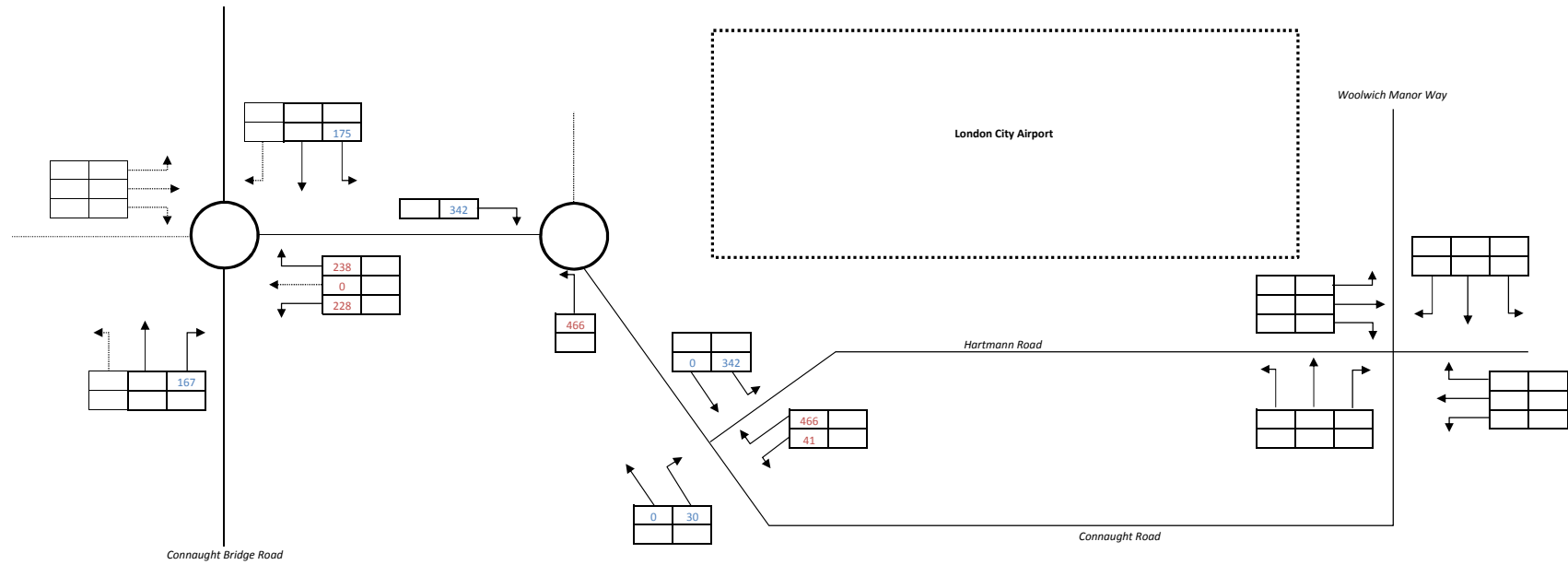
Traffic Figure 28: 2021 Staff Trips - Without Development: PM Peak - Turning Movements



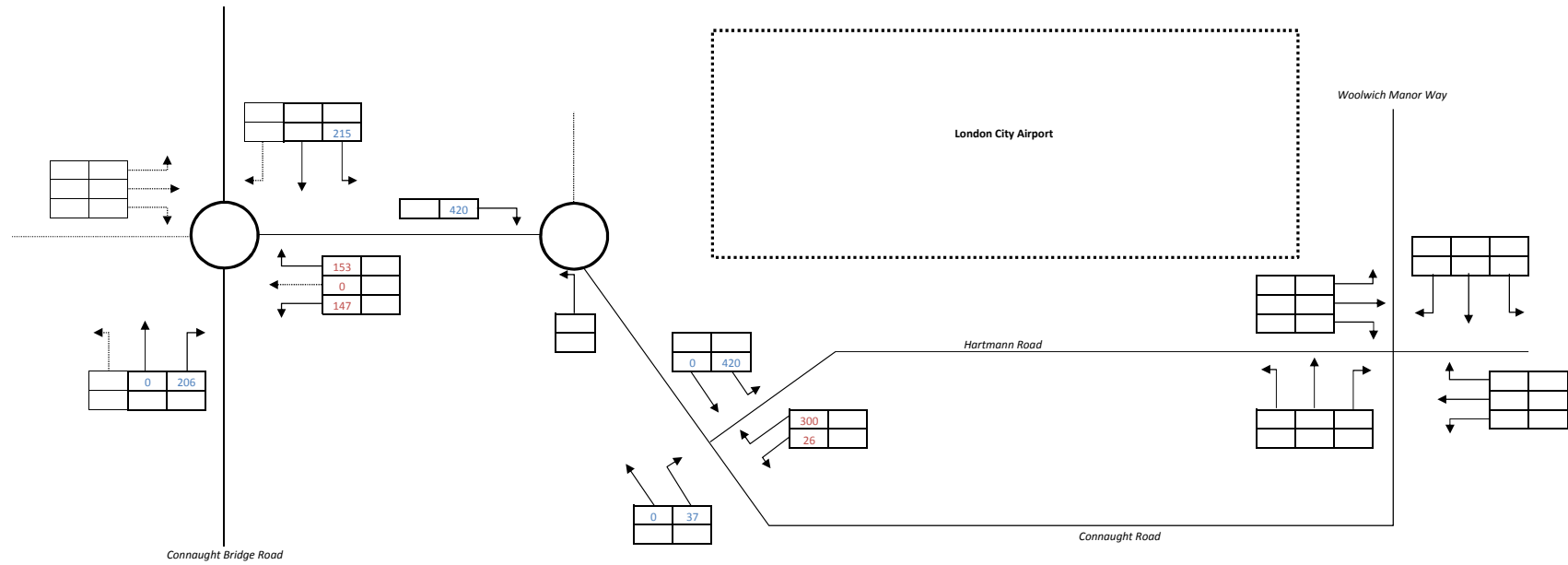
Traffic Figure 29: 2023 Staff Trips - Without Development: AM Peak - Turning Movements



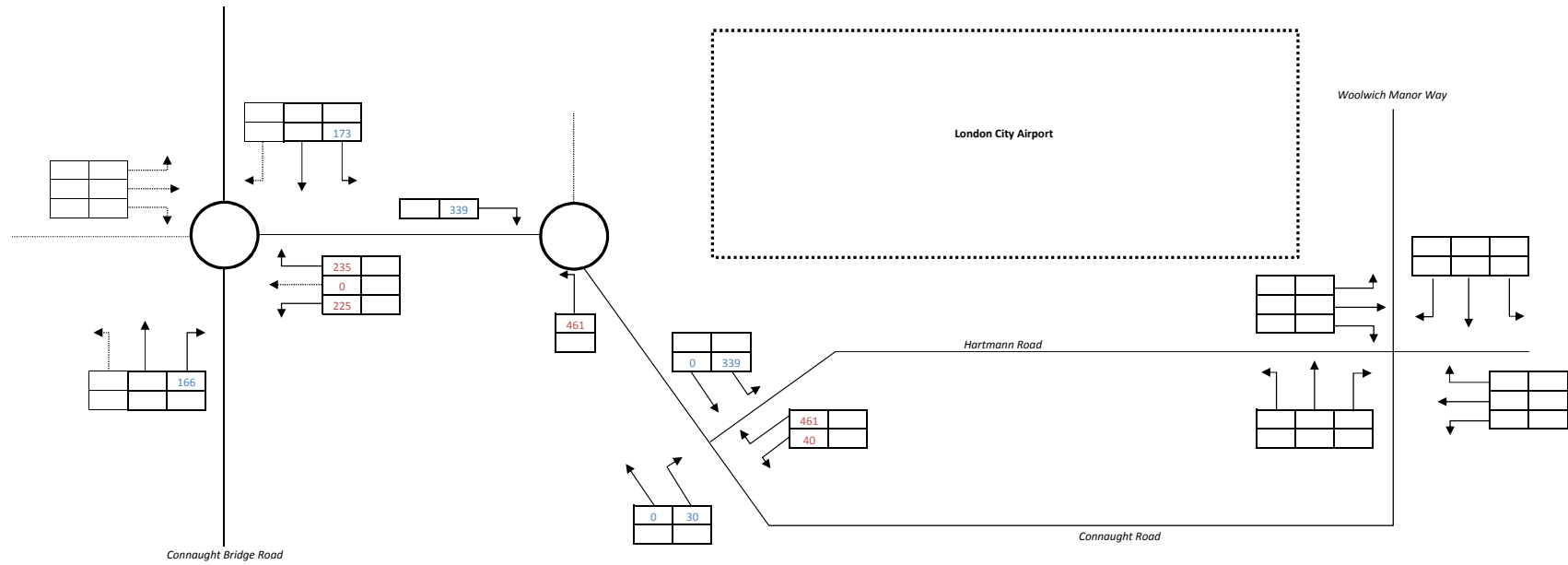
Traffic Figure 30: 2023 Staff Trips - Without Development: PM Peak - Turning Movements



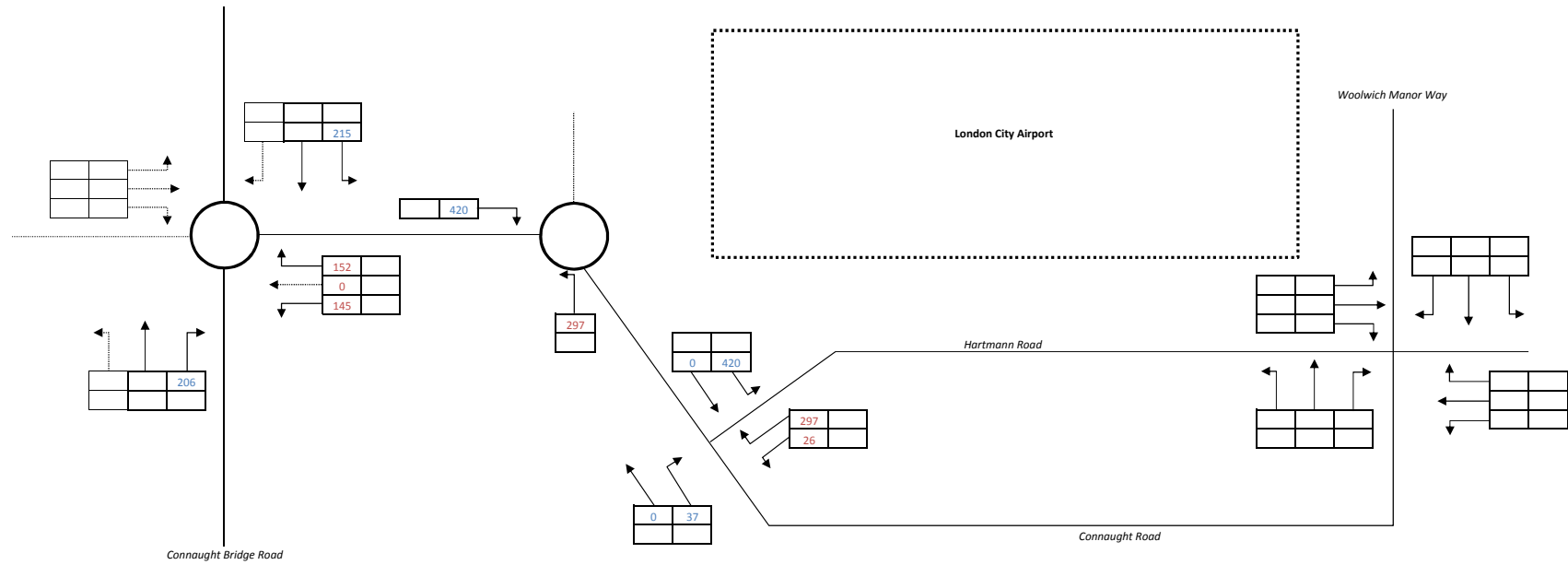
Traffic Figure 31: 2021 Total Trips - Without Development: AM Peak Hour - Turning Movements



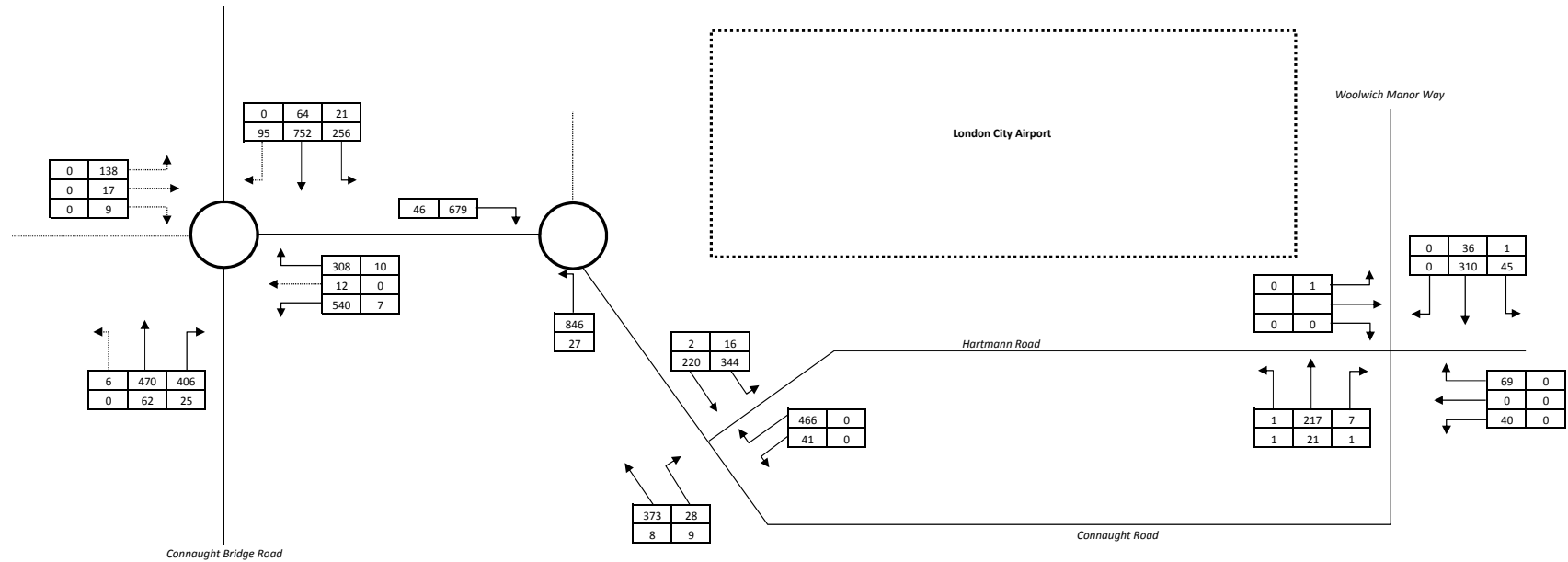
Traffic Figure 32: 2021 Total Trips - Without Development: PM Peak Hour - Turning Movements



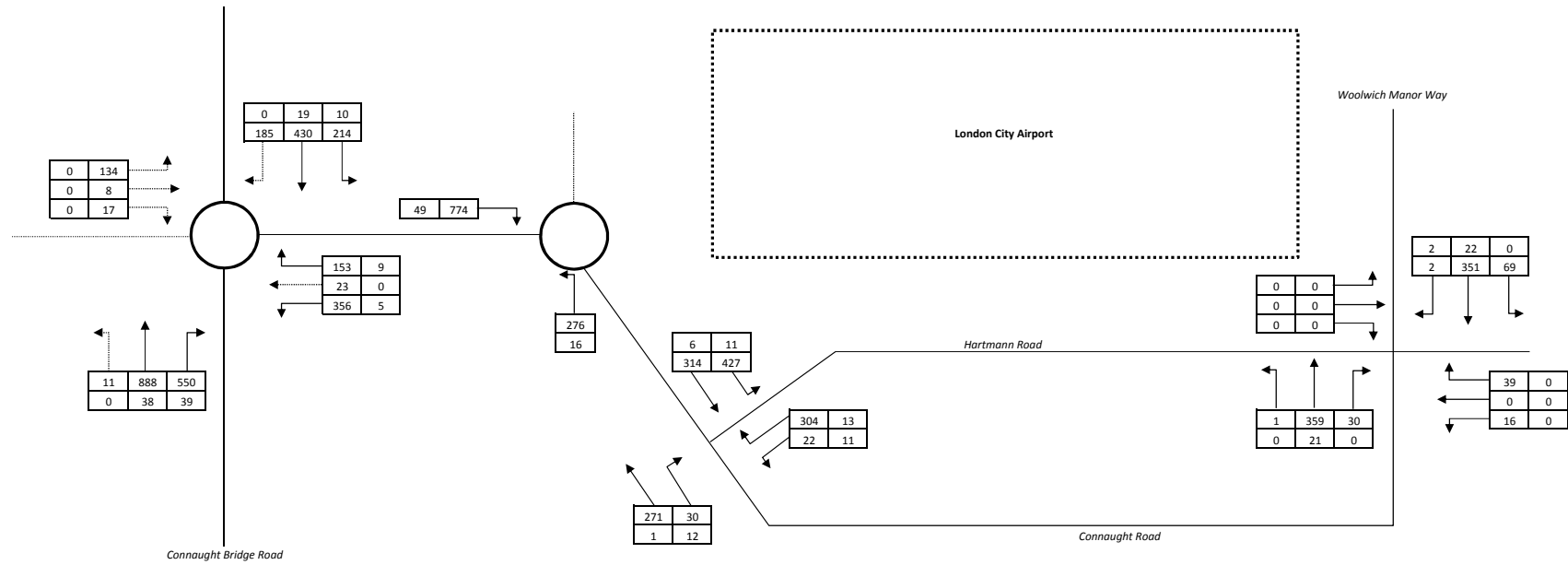
Traffic Figure 33: 2023 Total Trips - Without Development: AM Peak Hour - Turning Movements



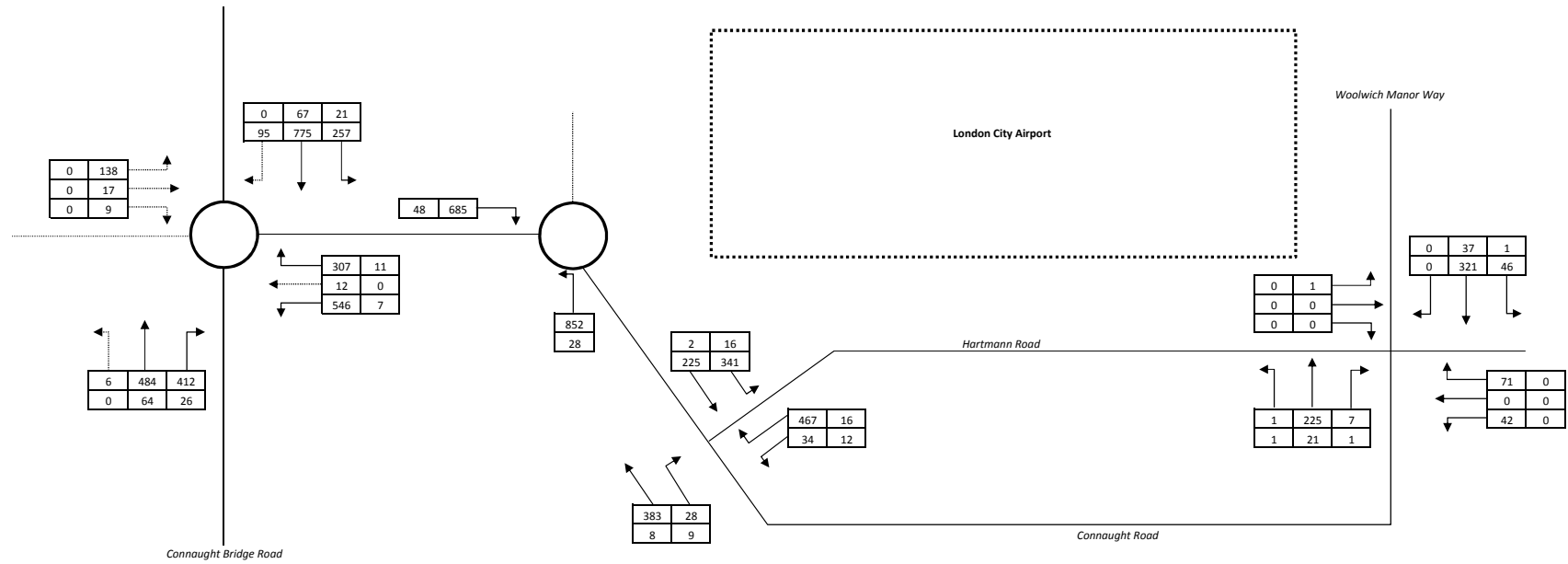
Traffic Figure 34: 2023 Total Trips - Without Development: PM Peak Hour - Turning Movements



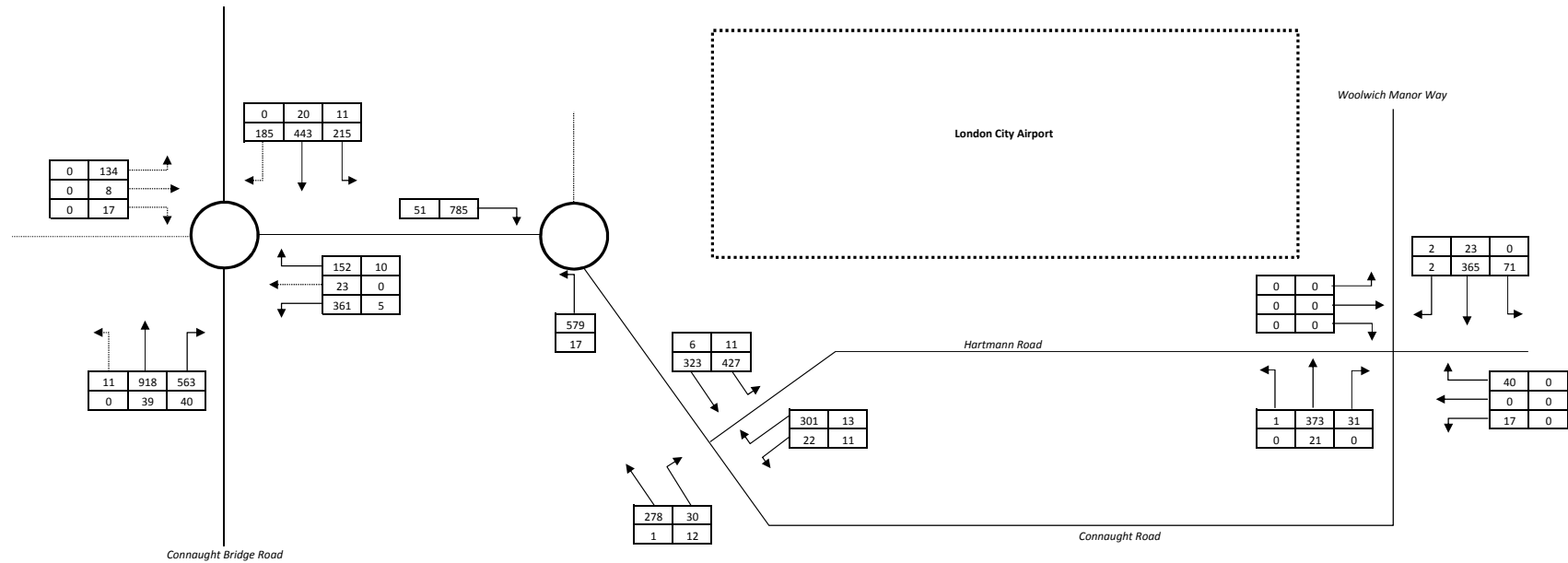
Traffic Figure 35: 2021 Base + Without Development Flows - AM Peak Hour - Turning Movements



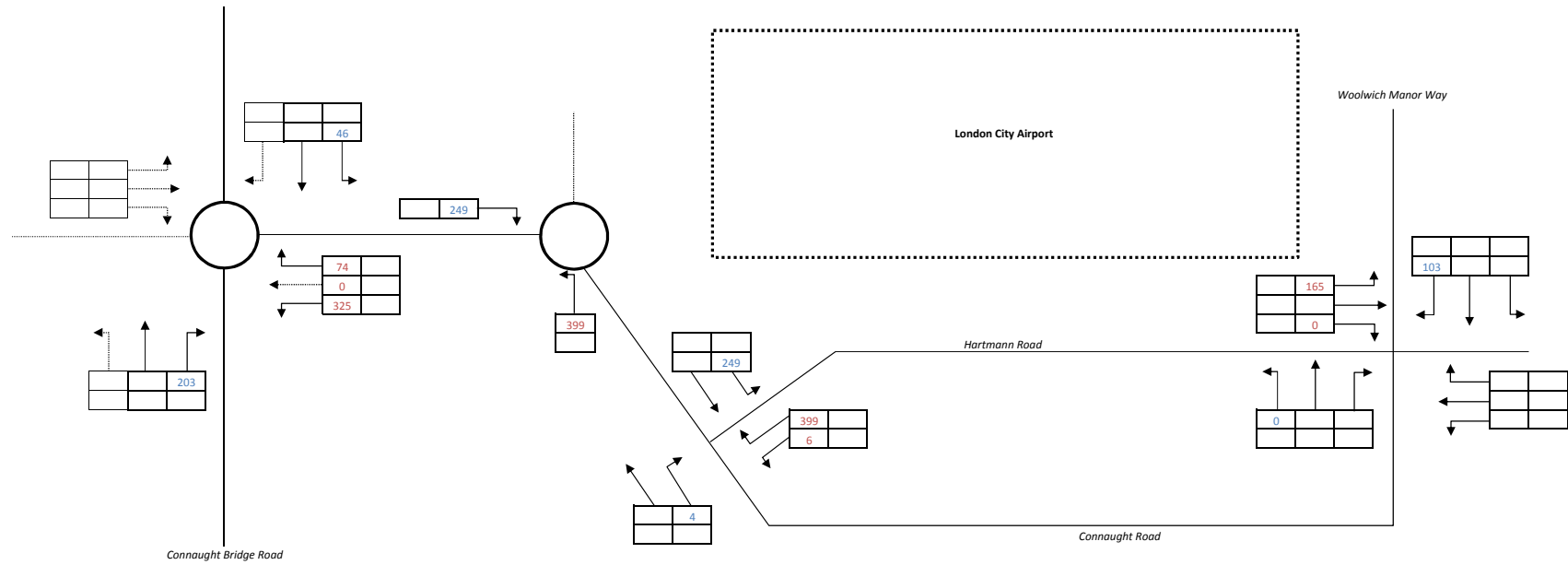
Traffic Figure 36: 2021 Base + Without Development Flows - PM Peak Hour - Turning Movements



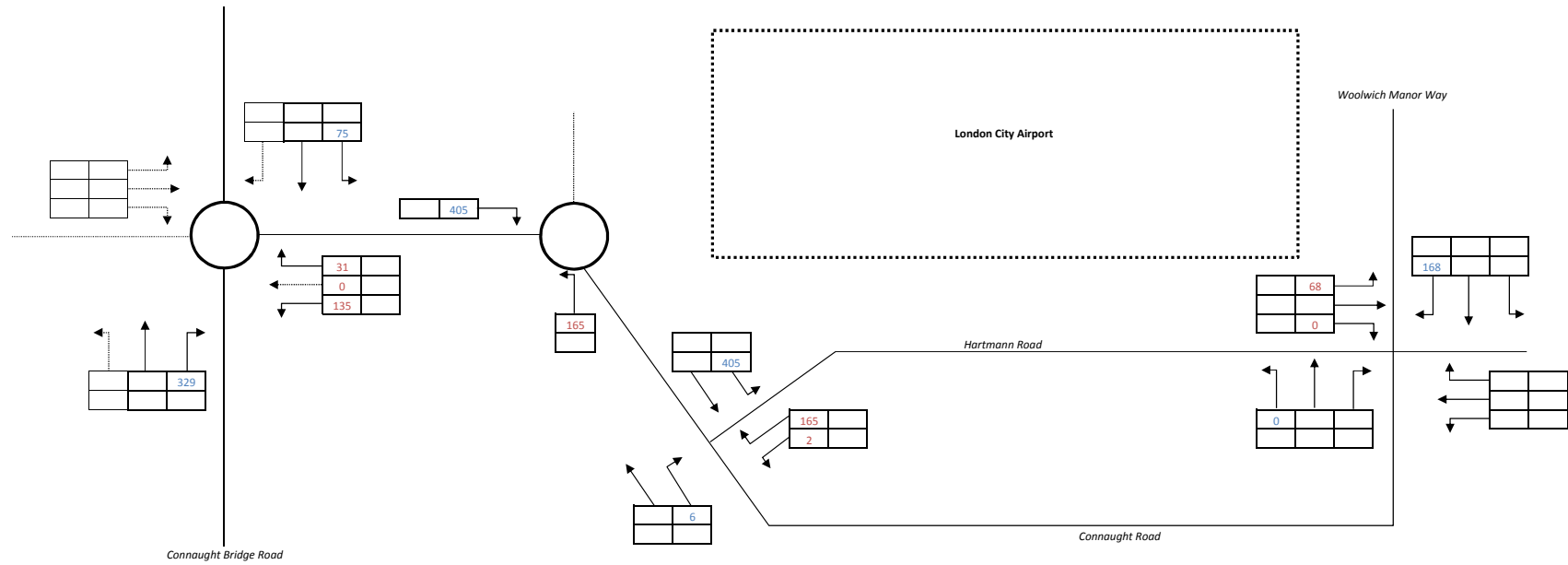
Traffic Figure 37: 2023 Base + Without Development Flows - AM Peak Hour - Turning Movements



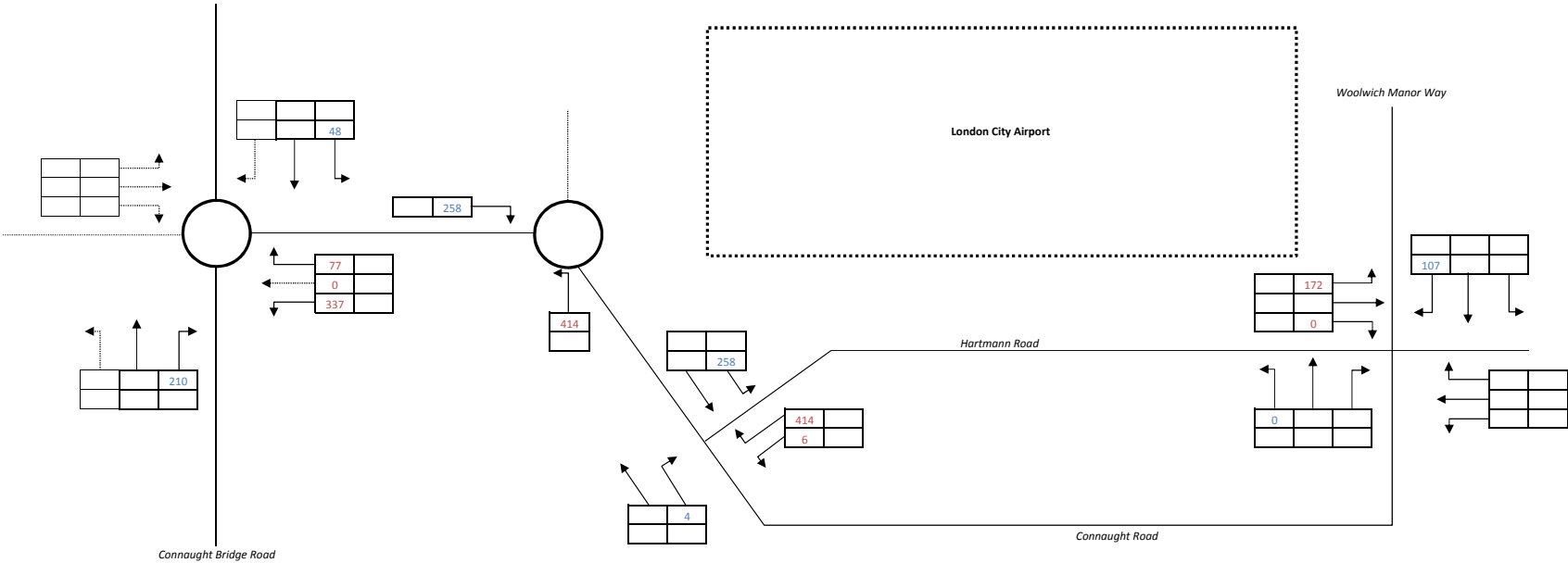
Traffic Figure 38: 2023 Base + Without Development Flows - PM Peak Hour - Turning Movements



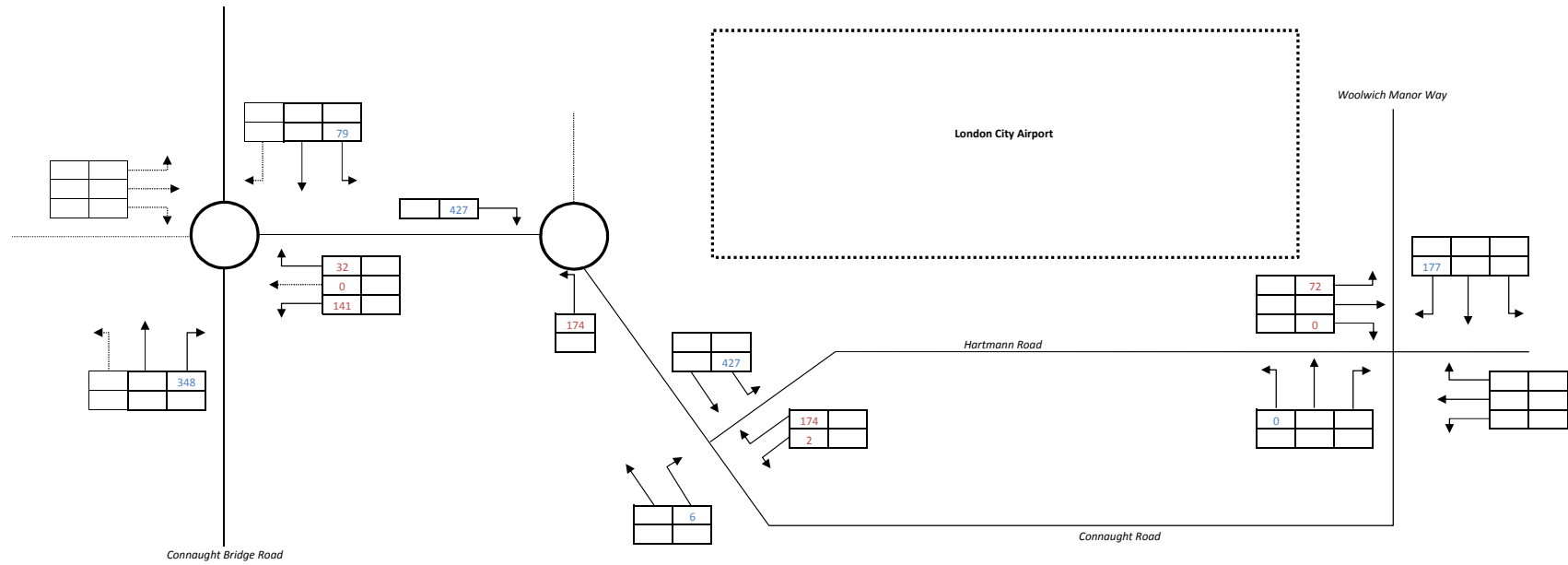
Traffic Figure 39: 2021 Passenger Trips - With Development: AM Peak - Turning Movements



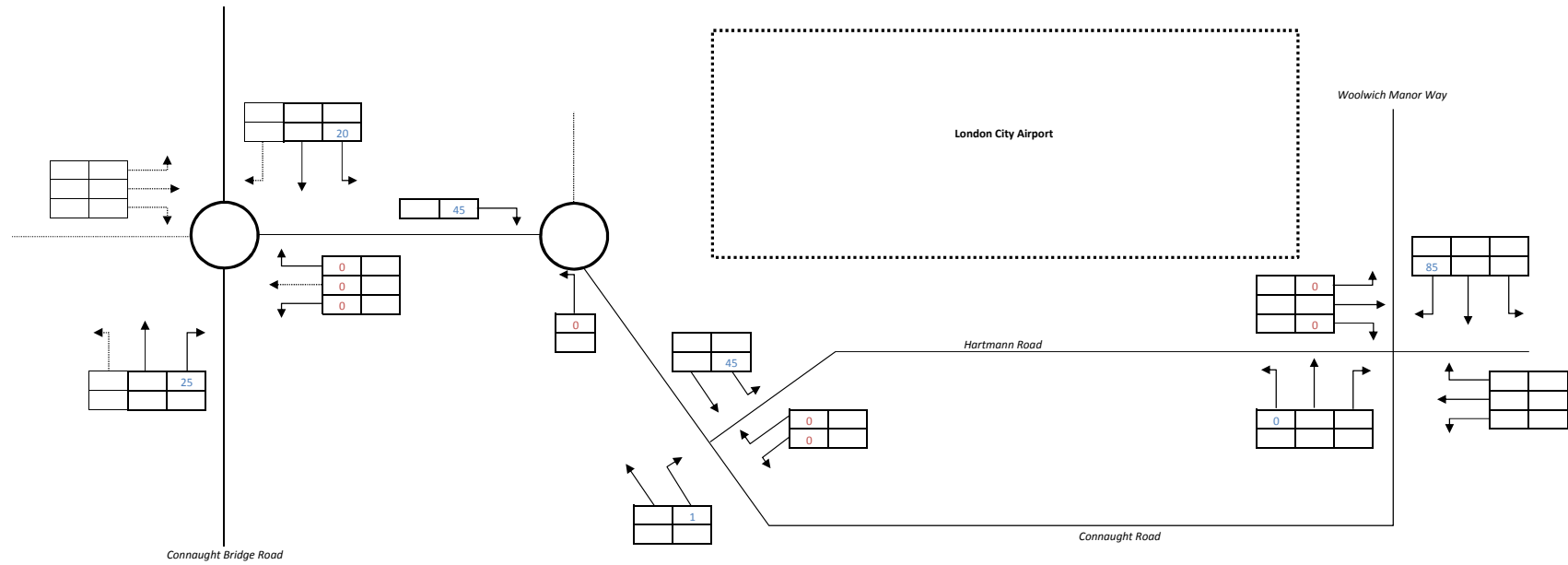
Traffic Figure 40: 2021 Passenger Trips - With Development: PM Peak - Turning Movements



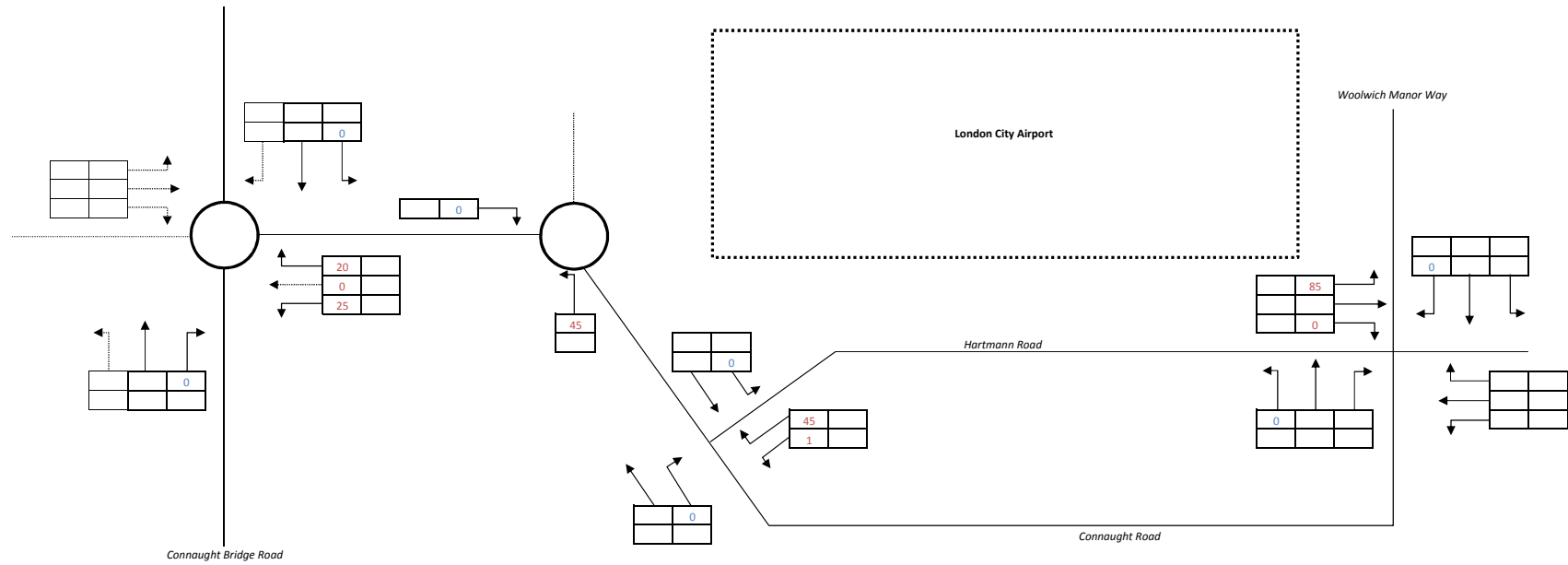
Traffic Figure 41: 2023 Passenger Trips - With Development: AM Peak - Turning Movements



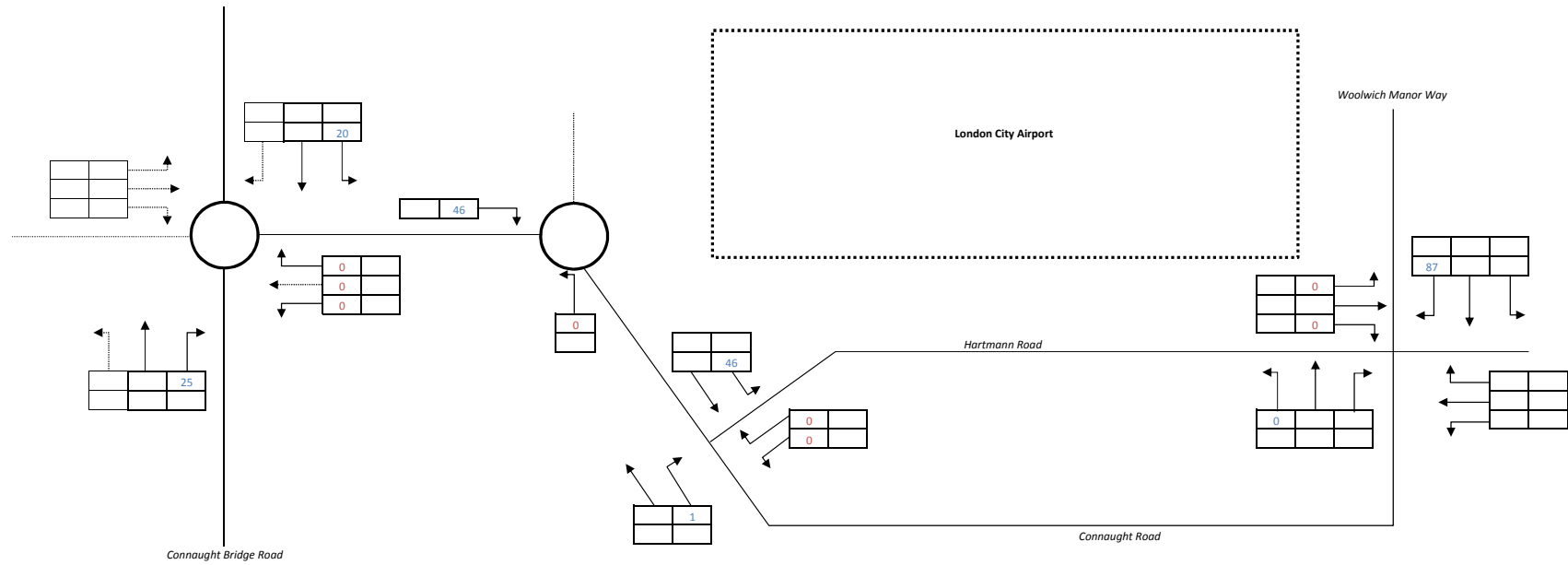
Traffic Figure 42: 2023 Passenger Trips - With Development: PM Peak - Turning Movements



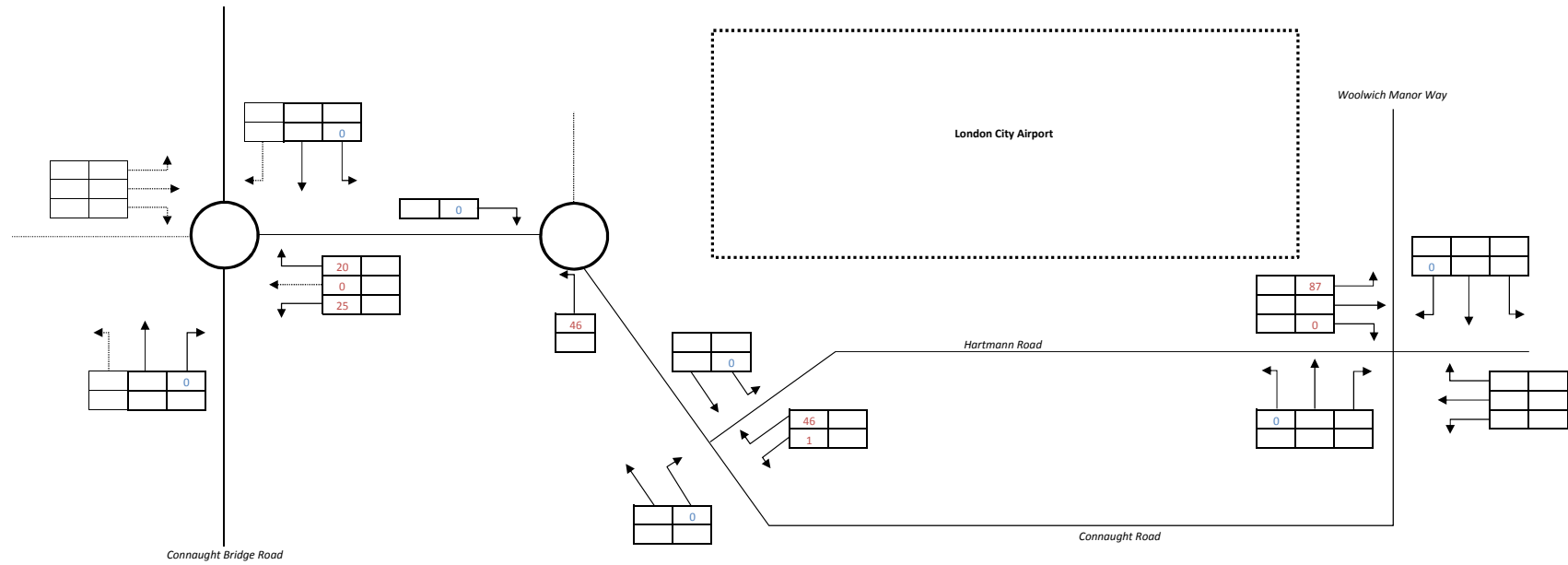
Traffic Figure 43: 2021 Staff Trips - With Development: AM Peak - Turning Movements



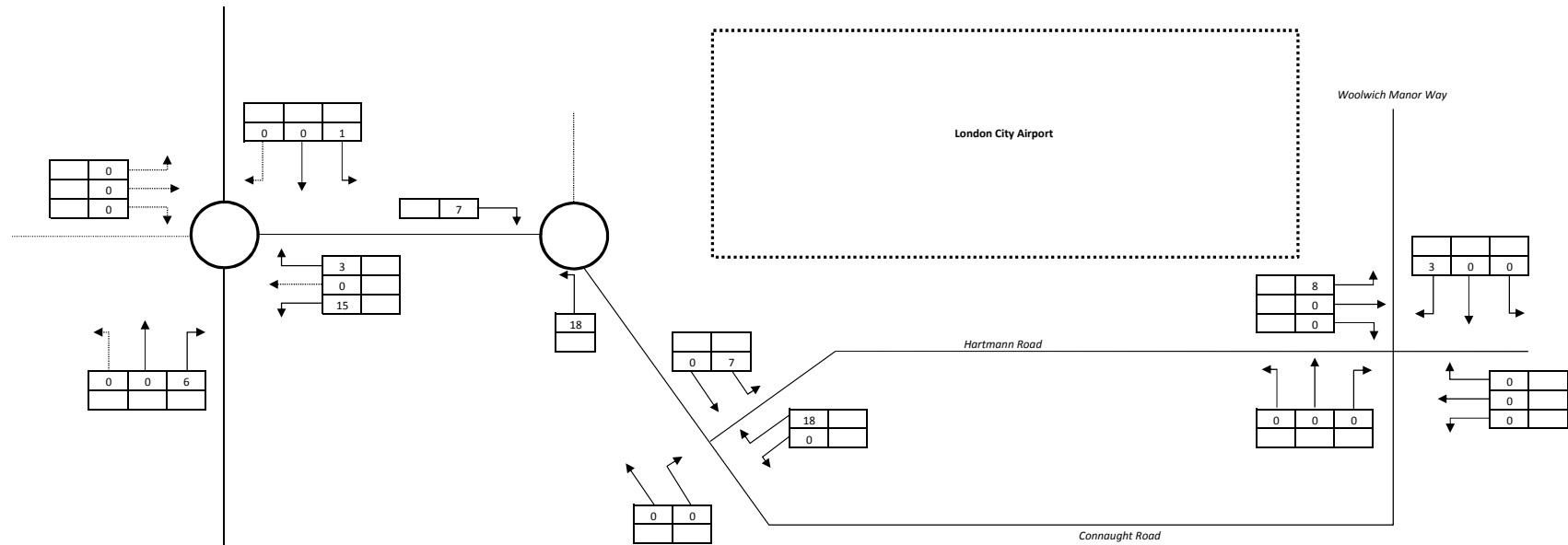
Traffic Figure 44: 2021 Staff Trips - With Development: PM Peak - Turning Movements



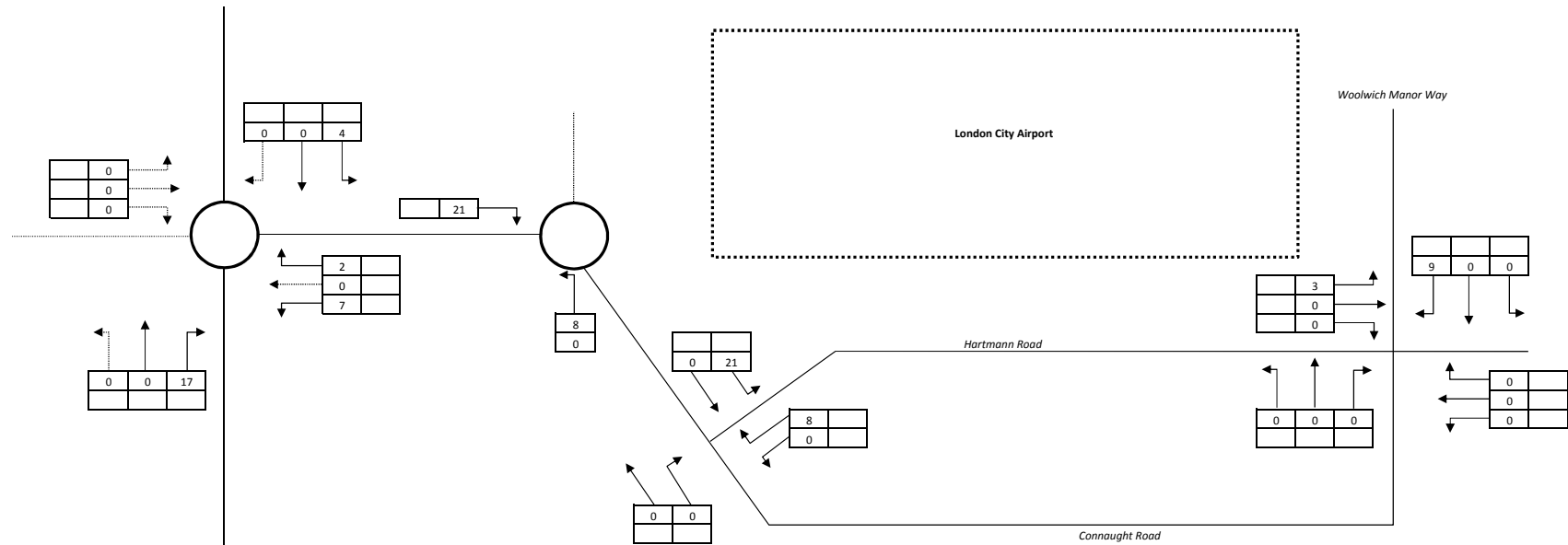
Traffic Figure 45: 2023 Staff Trips - With Development: AM Peak - Turning Movements



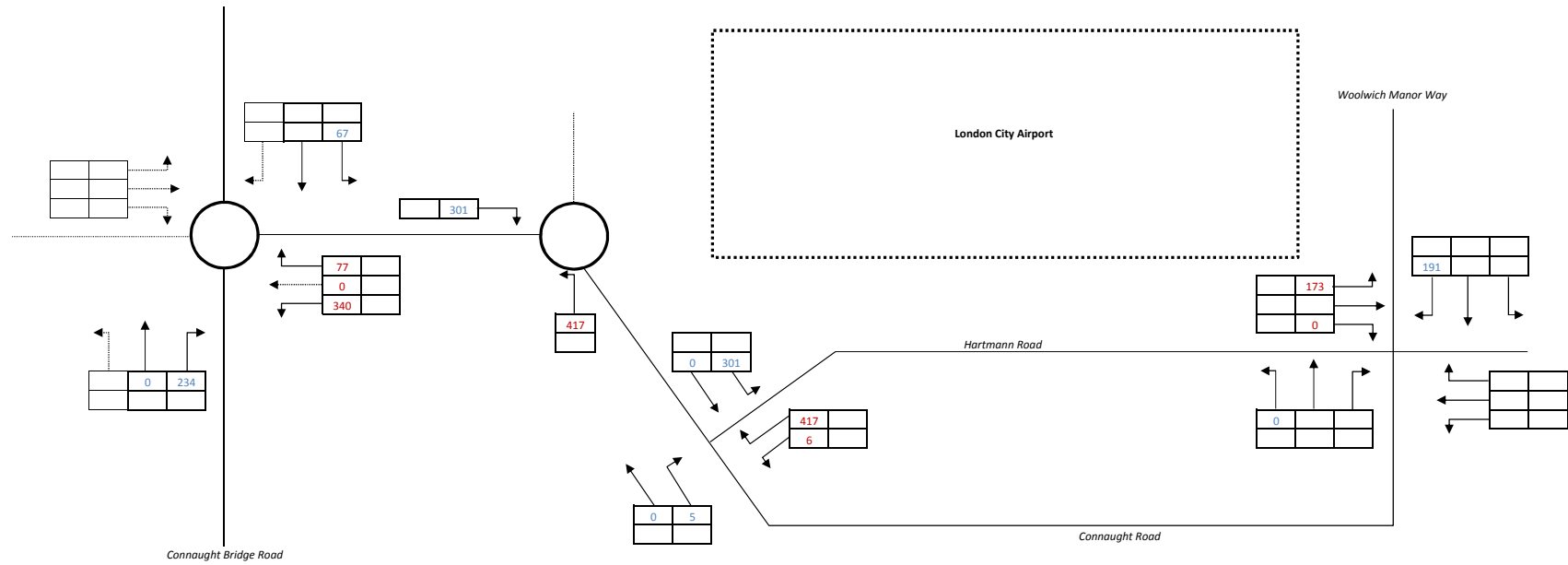
Traffic Figure 46: 2023 Staff Trips - With Development: PM Peak - Turning Movements



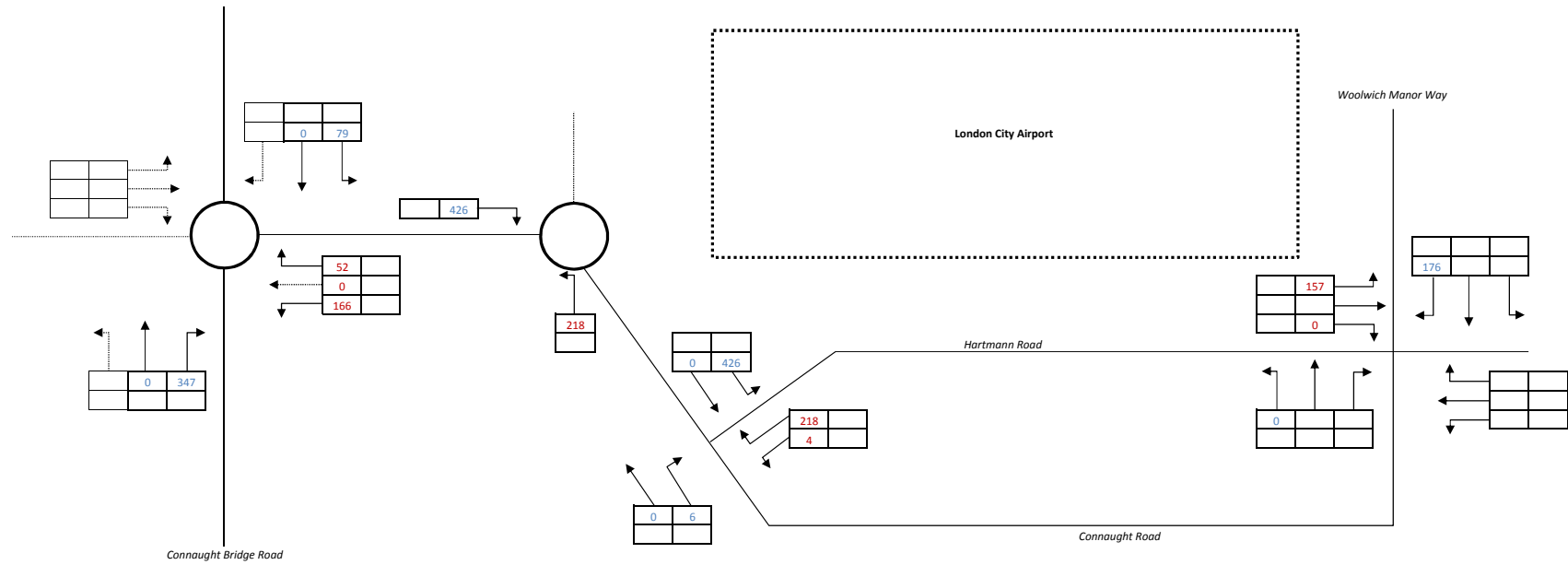
Traffic Figure 47: Hotel - AM Peak



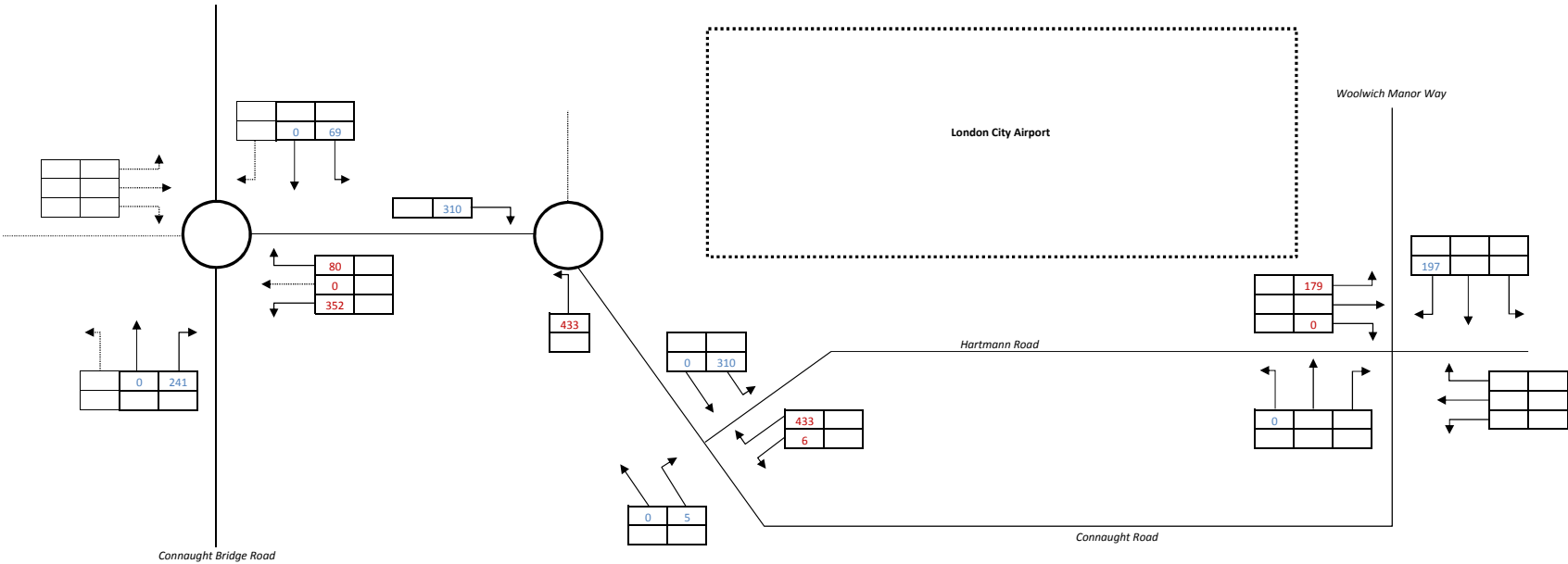
Traffic Figure 48: Hotel - PM Peak



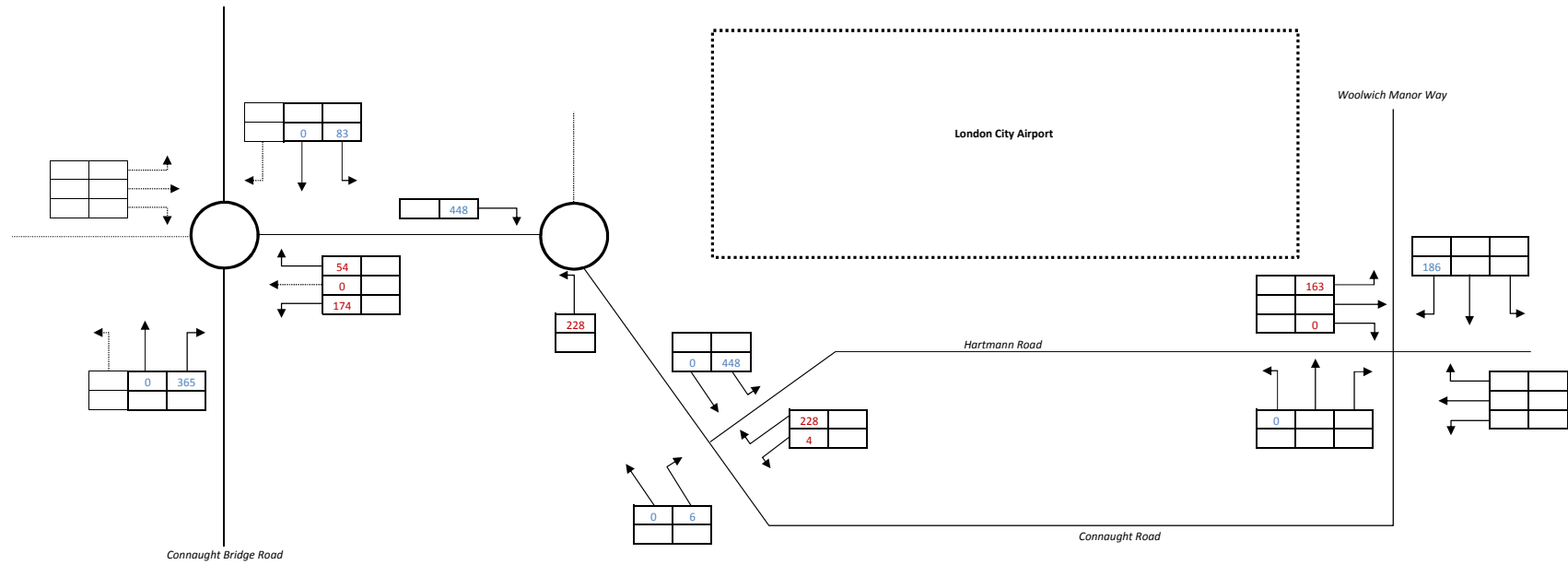
Traffic Figure 49: 2021 Total Development Traffic Flows: Weekday AM Peak Hour - Turning Movements



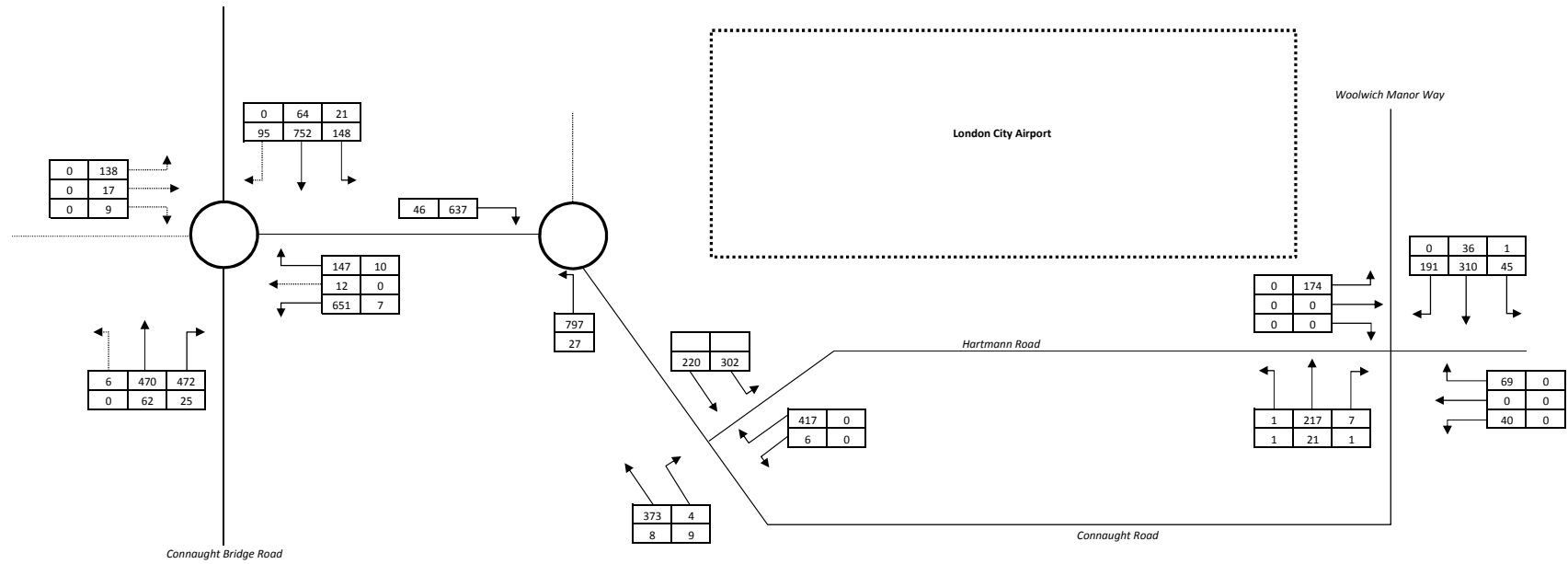
Traffic Figure 50: 2021 Total Development Traffic Flows: Weekday PM Peak Hour - Turning Movements



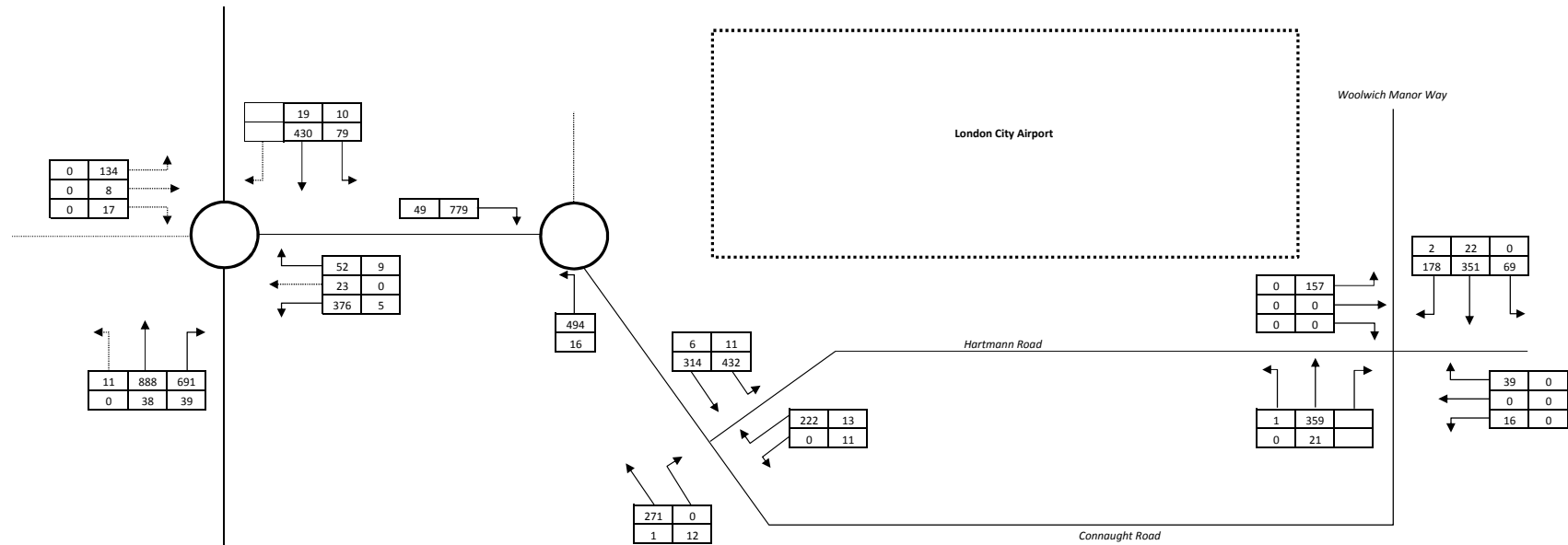
Traffic Figure 51: 2023 Total Development Traffic Flows: Weekday AM Peak Hour - Turning Movements



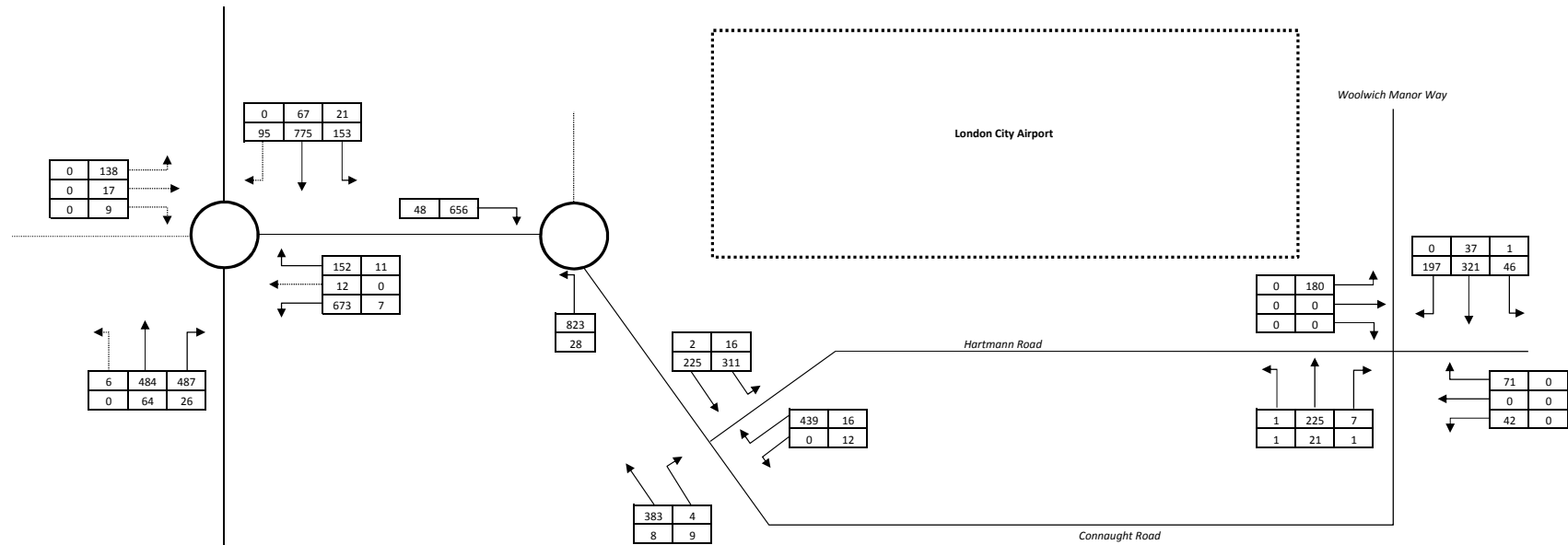
Traffic Figure 52: 2023 Total Development Traffic Flows: Weekday PM Peak Hour - Turning Movements



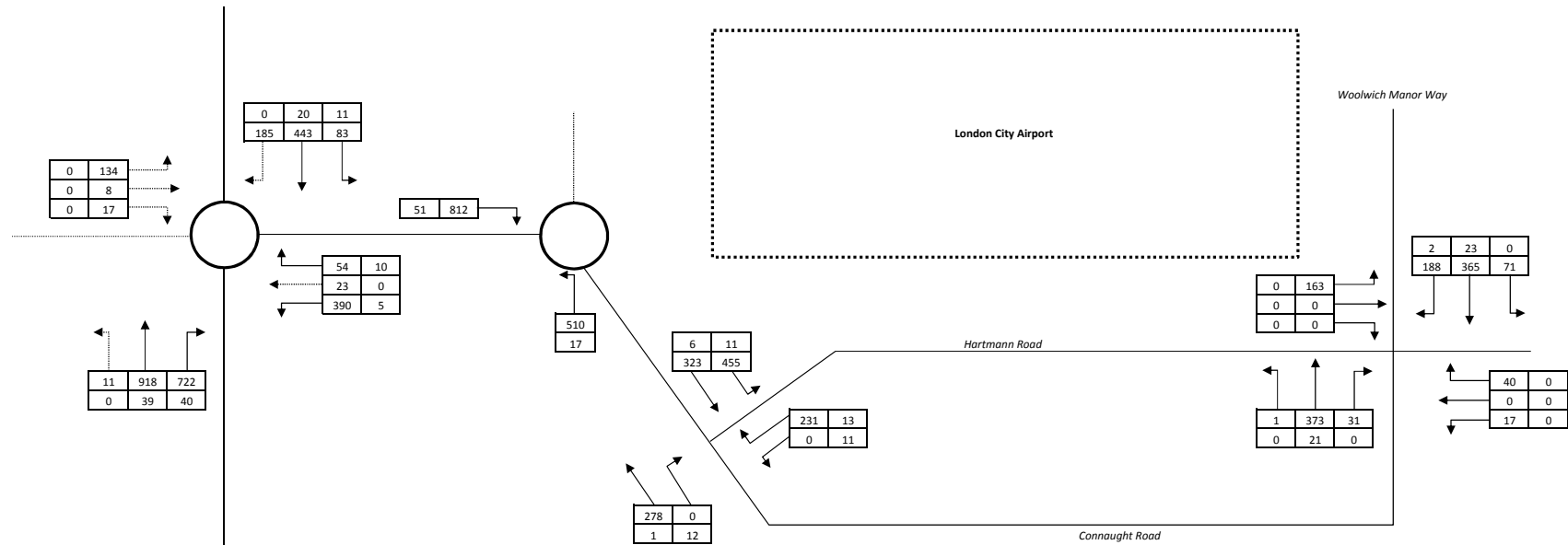
Traffic Figure 53: 2021 Base + Development Traffic Flows: Weekday AM Peak Hour - Turning Movements



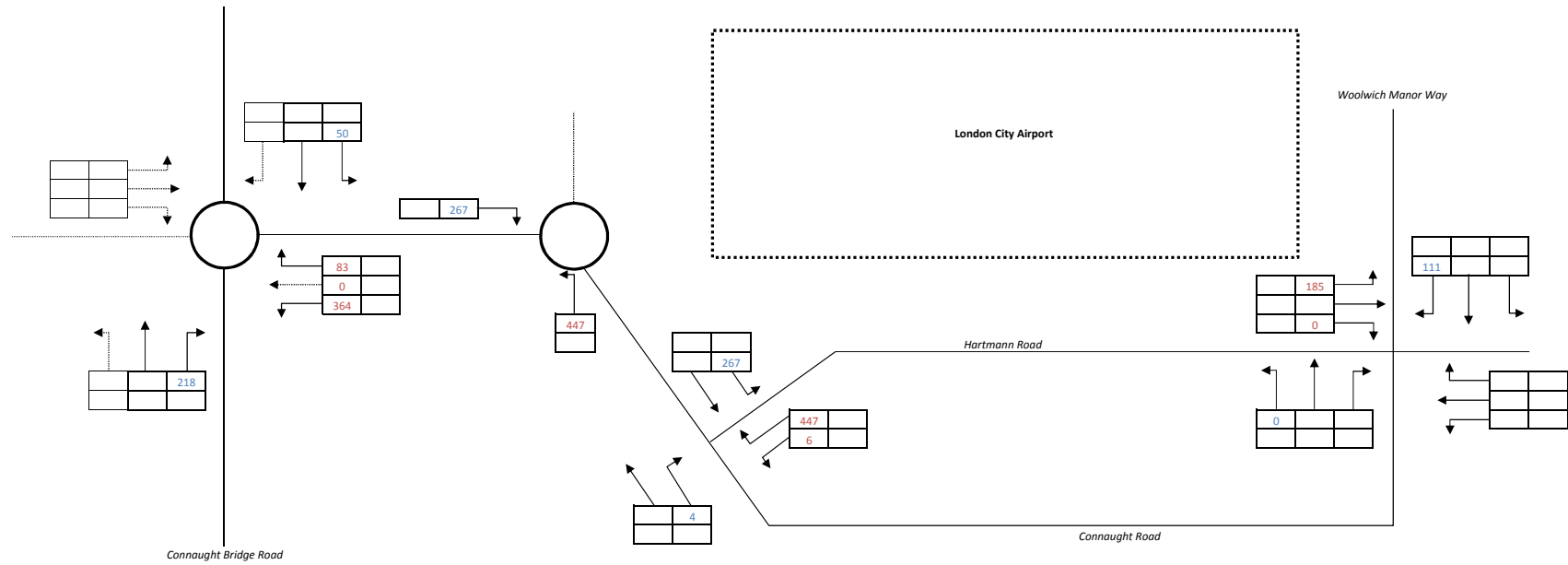
Traffic Figure 54: 2021 Base + Development Traffic Flows: Weekday PM Peak Hour - Turning Movements



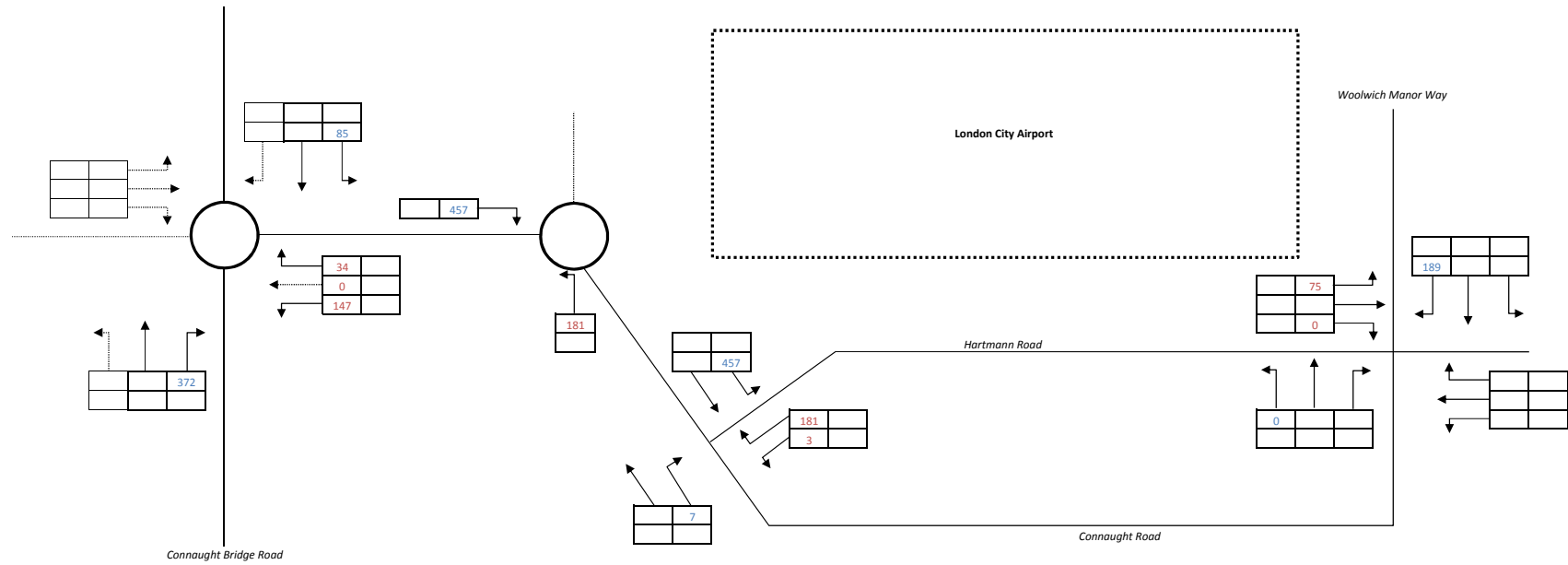
Traffic Figure 55: 2023 Base + Development Traffic Flows: Weekday AM Peak Hour - Turning Movements



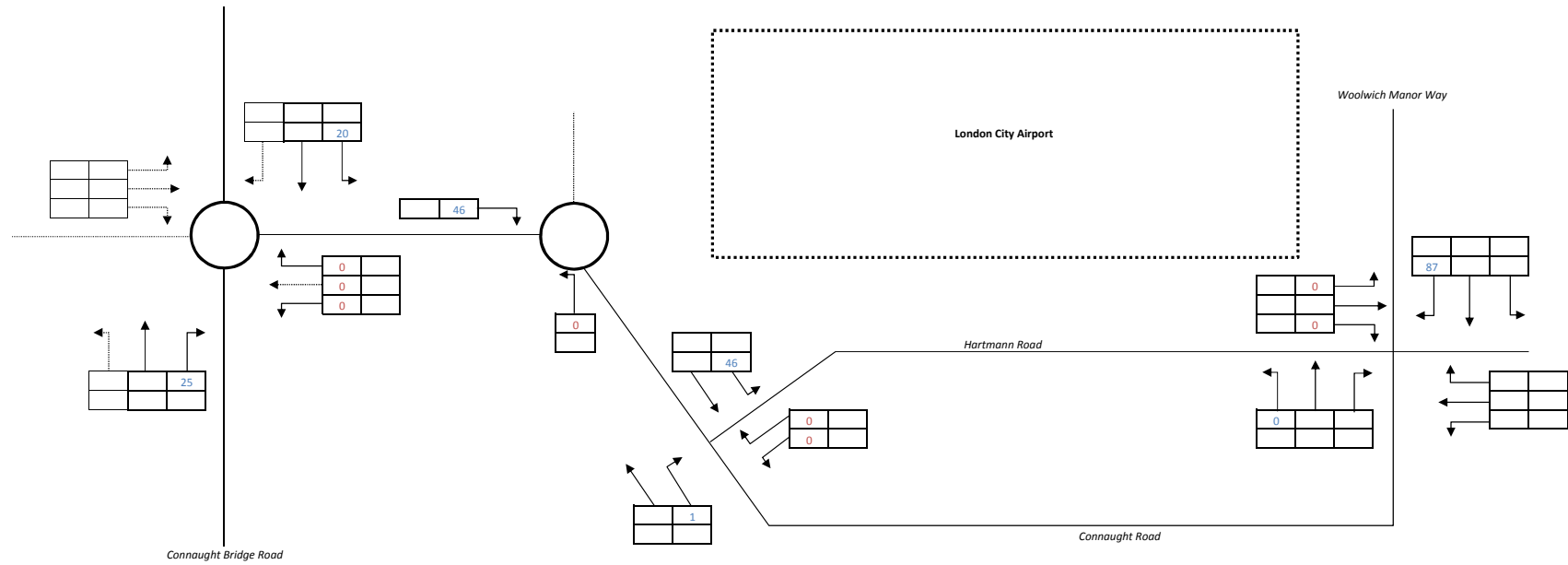
Traffic Figure 56: 2023 Base + Development Traffic Flows: Weekday PM Peak Hour - Turning Movements



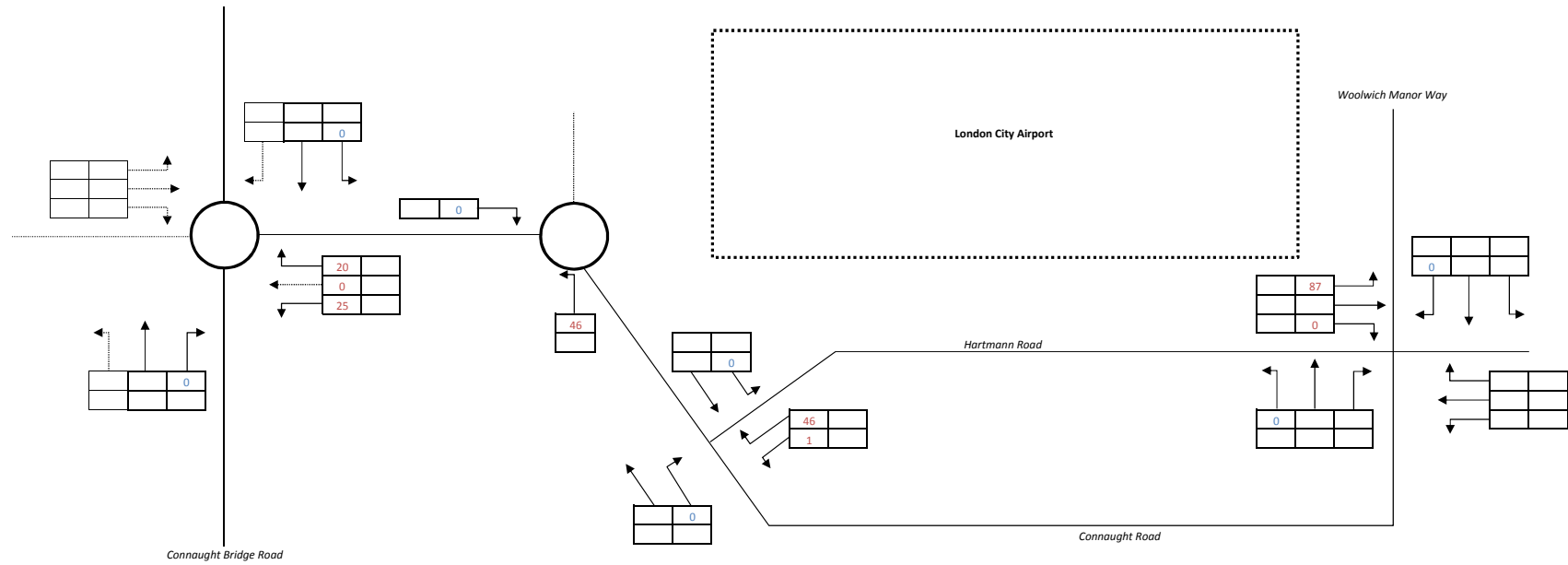
Traffic Figure 57: 2023 Passenger Trips - With Development: AM Peak - Turning Movements



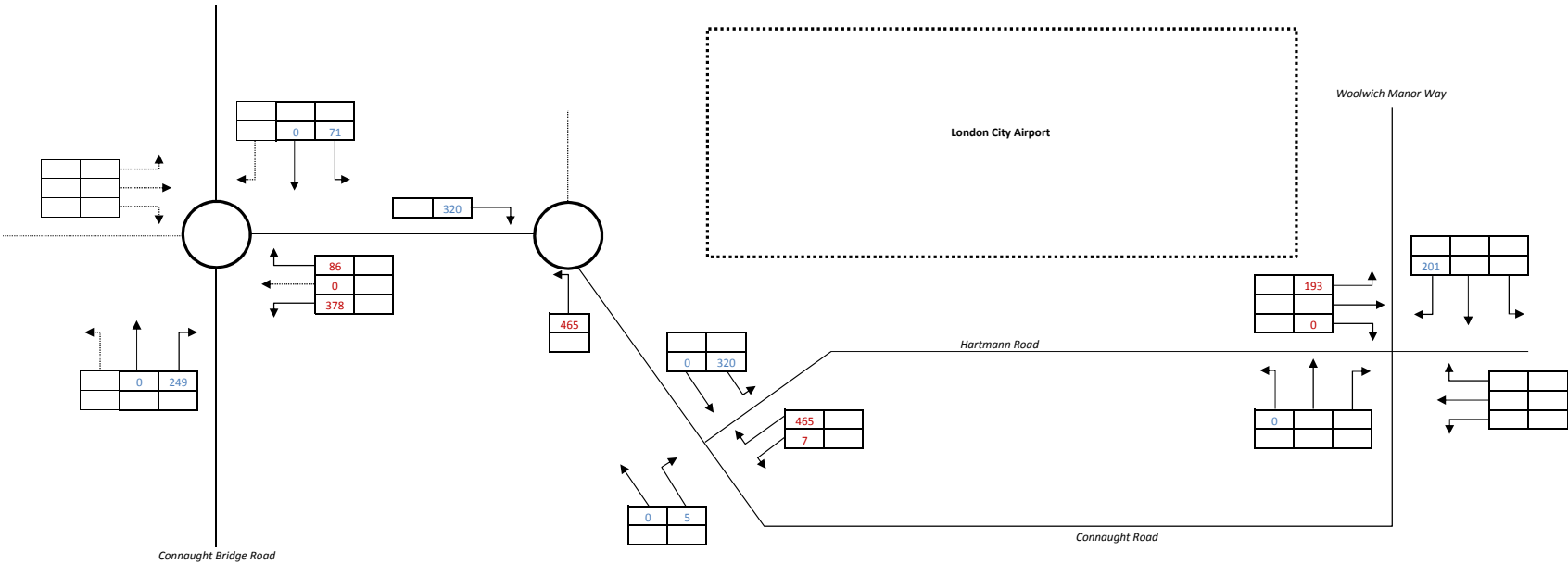
Traffic Figure 58: 2023 Passenger Trips - With Development: PM Peak - Turning Movements



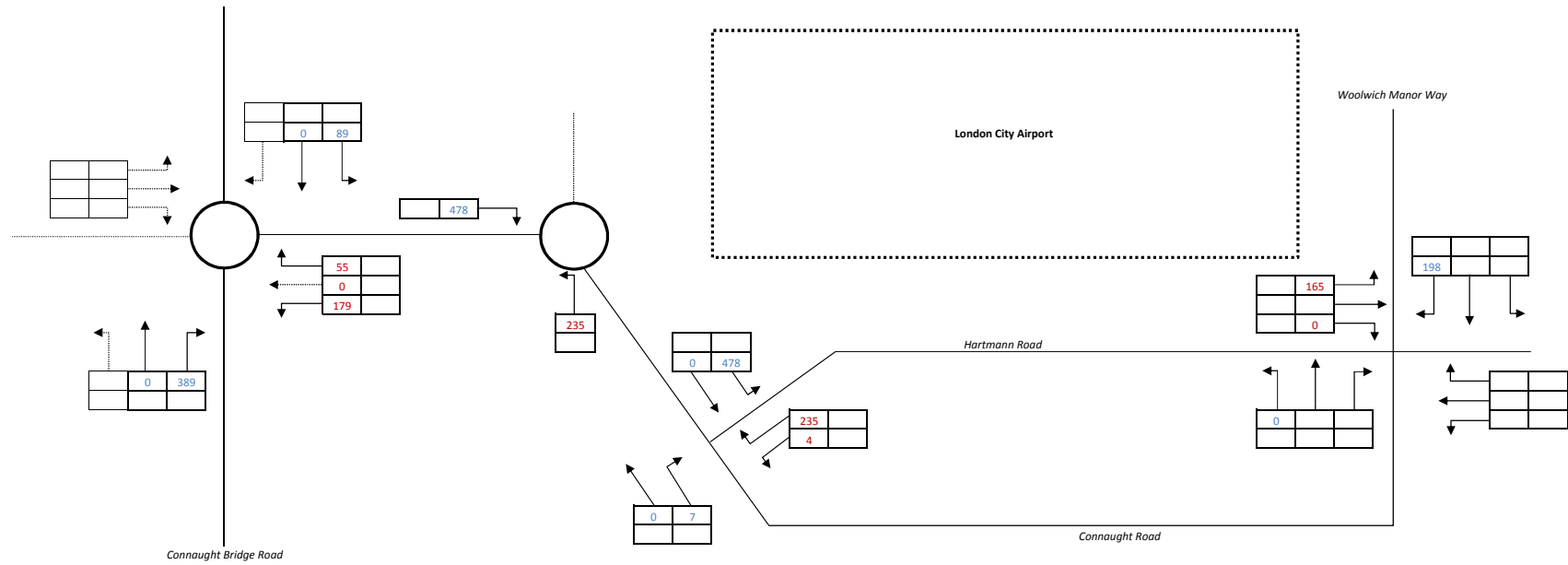
Traffic Figure 59: 2023 Staff Trips - With Development: AM Peak - Turning Movements



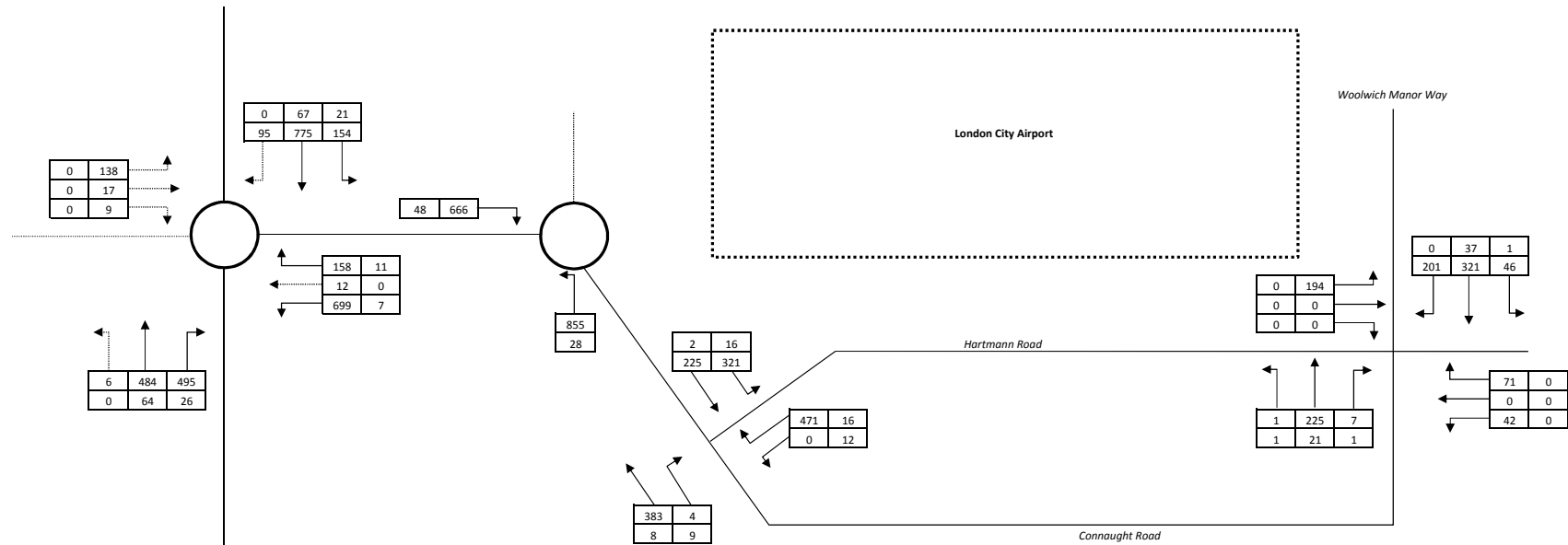
Traffic Figure 60: 2023 Staff Trips - With Development: PM Peak - Turning Movements



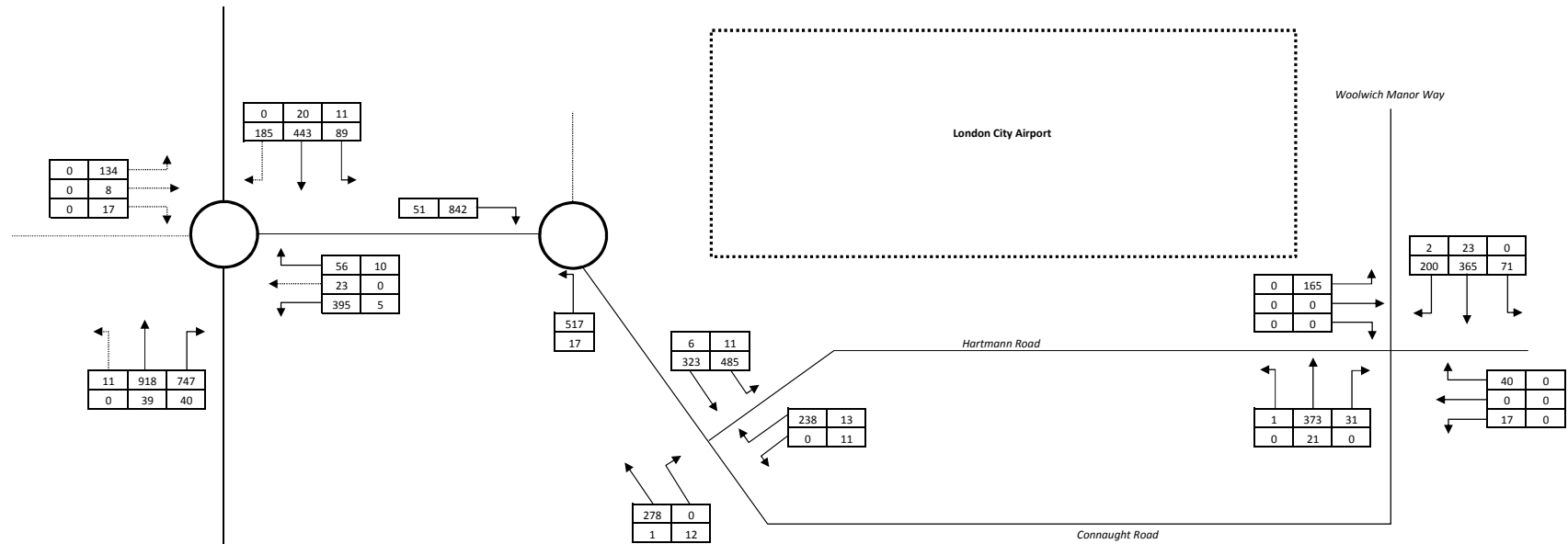
Traffic Figure 61: 2023 Total Development Traffic Flows: Weekday AM Peak Hour - Turning Movements



Traffic Figure 62: 2023 Total Development Traffic Flows: Weekday PM Peak Hour - Turning Movements

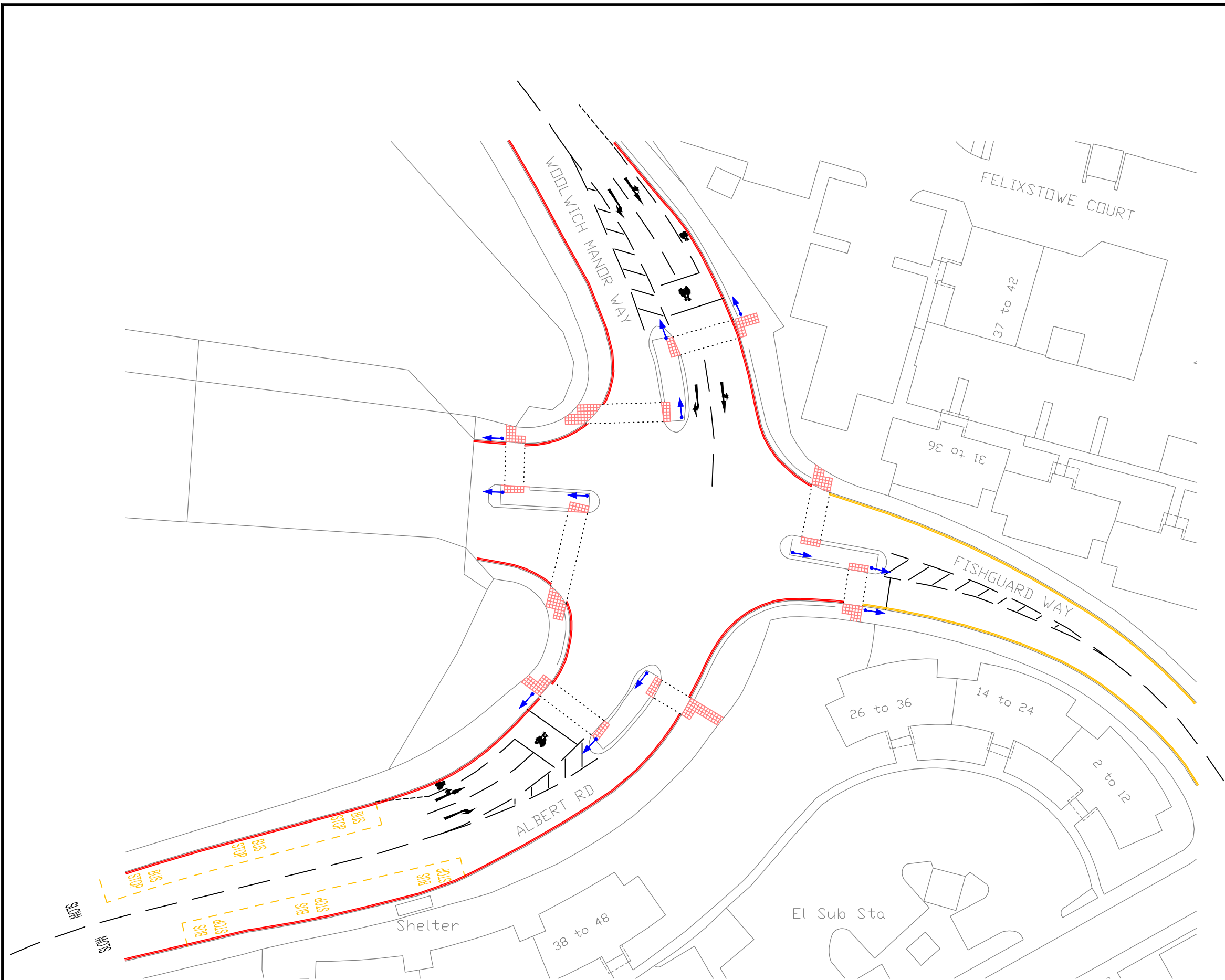


Traffic Figure 63: 2023 Base + Development Traffic Flows: Weekday AM Peak Hour - Turning Movements



Traffic Figure 64: 2023 Base + Development Traffic Flows: Weekday PM Peak Hour - Turning Movements

DRAWINGS



Notes:

- 1. This is not a construction drawing and is intended for illustrative purposes only.
- 2. White lining is indicative only.

REV.	DETAILS	DRAWN	CHECKED	DATE

CLIENT:

London City Airport Ltd

PROJECT:

City Airport ESD

DRAWING TITLE:

Existing Junction Layout

SCALES:

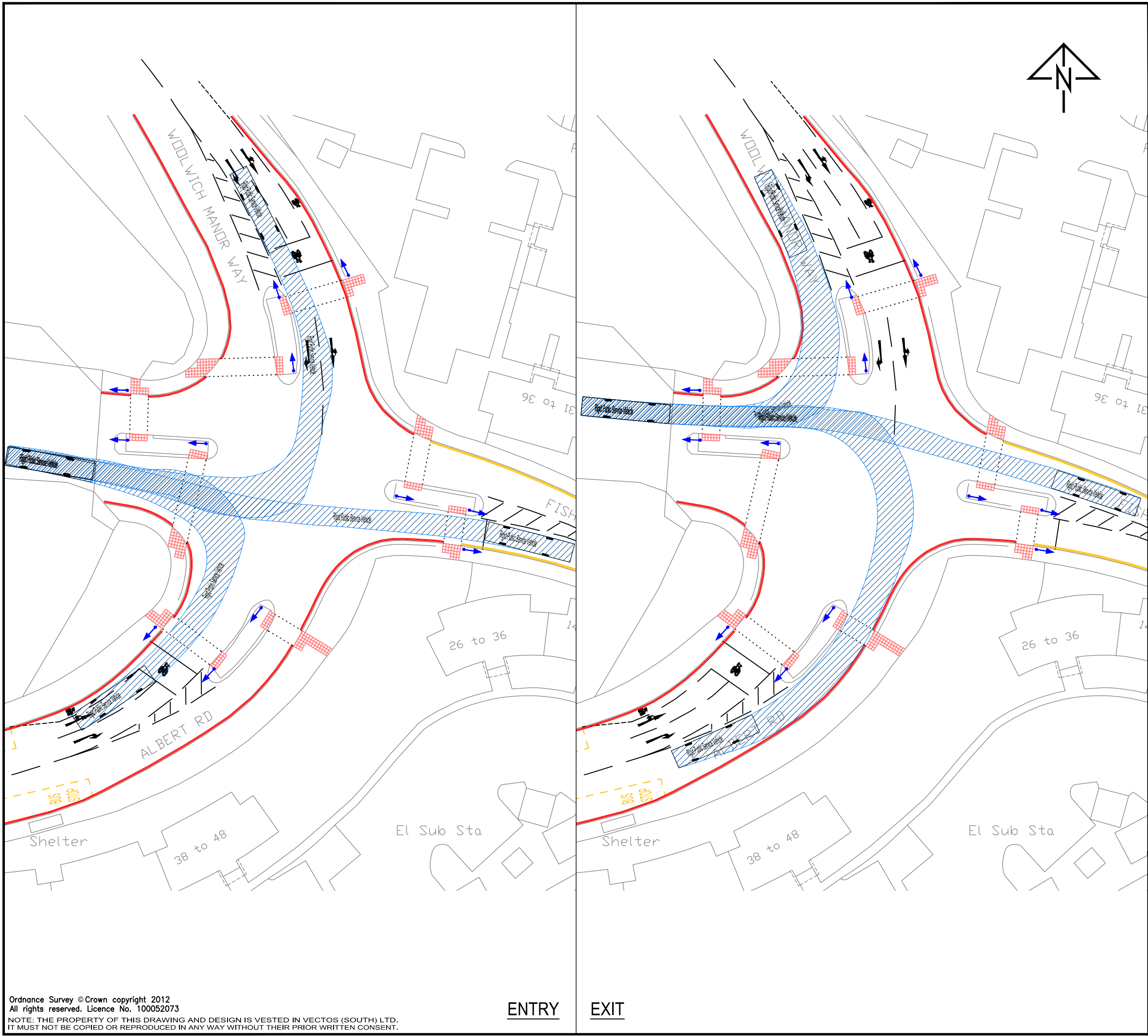
1:500 at A3

DRAWN:	JM	CHECKED:	EG	DATE:	23/01/2013
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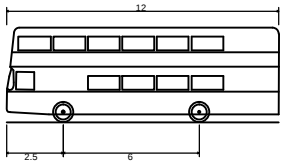


Network Building, 97 Tottenham Court Road, London W1T 4TP
t: 020 7580 7373 e: enquiries@vectos.co.uk

DRAWING NUMBER:	110116A/SK/01	REVISION:	.
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- Notes:
1. This is not a construction drawing and is intended for illustrative purposes only.
 2. White lining is indicative only.



Rigid Public Service Vehicle
Overall Length 12.000m
Overall Width 2.550m
Overall Body Height 4.173m
Min Body Ground Clearance 0.344m
Track Width 2.550m
Lock to Lock Time 4.00s
Kerb to Kerb Turning Radius 10.500m

REV.	DETAILS	DRAWN	CHECKED	DATE
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CLIENT:

London City Airport Ltd

PROJECT:

City Airport ESD

DRAWING TITLE:

Swept Path
Bus

SCALES:

1:500 at A3

DRAWN:	JM	CHECKED:	EG	DATE:	01/02/2013
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DRAWING NUMBER:

110116A/AT/A01

REVISION:

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ENTRY

EXIT