

Annex I

Residential Trip Generation

30821 Charlton Riverside
Residential trip rates

Canary Central
 Units

554

	CANARY CENTRAL Occupants In							CANARY CENTRAL Occupants Out												
	Car occupancy				Car passenger	Car driver	Motorcycle	Cycle	Walk / PT	Total people	Car occupancy				Car passenger	Car driver	Motorcycle	Cycle	Walk / PT	Total people
	1	2	3	4+							1	2	3	4+						
0700-0800	4	0	0	0	0	4	0	1	6	11	6	1	0	0	1	7	1	0	143	152
0800-0900	6	1	0	1	4	8	0	0	9	21	6	2	0	1	5	9	0	1	303	318
0900-1000	4	3	1	0	4	8	0	0	17	29	1	0	0	0	5	1	0	0	89	95
1600-1700	10	8	0	0	8	18	0	0	40	66	5	1	1	1	6	8	0	0	13	27
1700-1800	9	3	0	0	3	12	1	0	77	93	8	2	1	0	4	11	1	0	15	31
1800-1900	7	8	1	0	10	16	1	0	166	193	17	2	0	0	2	19	0	0	34	55

NWP BUILDING
 Units

559

	NWP BUILDING Occupants In							NWP BUILDING Occupants Out												
	Car occupancy				Car passenger	Car driver	Motorcycle	Cycle	Walk / PT	Total people	Car occupancy				Car passenger	Car driver	Motorcycle	Cycle	Walk / PT	Total people
	1	2	3	4+							1	2	3	4+						
0700-0800	6	1	0	0	1	7	2	2	27	39	12	5	1	0	7	18	1	1	155	182
0800-0900	8	2	0	0	2	10	0	0	15	27	10	4	0	0	4	14	1	0	232	251
0900-1000	11	2	1	0	4	14	0	0	20	38	13	5	0	0	5	18	0	0	93	116
1600-1700	9	6	0	0	6	15	0	0	20	41	14	5	0	0	5	19	0	0	23	47
1700-1800	9	7	0	0	7	16	2	0	67	92	3	6	0	1	9	10	1	0	37	57
1800-1900	14	7	4	3	24	28	0	1	114	167	15	3	3	1	12	22	0	0	43	77

KEMPTON CRT
 Units

80

	KEMPTON CRT Occupants In							KEMPTON CRT Occupants Out												
	Car occupancy				Car passenger	Car driver	Motorcycle	Cycle	Walk / PT	Total people	Car occupancy				Car passenger	Car driver	Motorcycle	Cycle	Walk / PT	Total people
	1	2	3	4+							1	2	3	4+						
0700-0800	1	0	0	0	0	1	0	0	2	3	2	0	1	0	2	3	0	2	17	24
0800-0900	2	1	0	0	1	3	0	0	6	10	0	1	0	0	1	1	0	3	53	58
0900-1000	0	1	0	0	1	1	0	1	4	7	1	0	0	0	0	1	0	1	14	16
1600-1700	0	0	0	0	0	0	0	1	9	10	0	0	0	0	0	0	2	8	10	
1700-1800	4	0	0	0	0	4	0	4	26	34	2	0	0	0	0	2	0	1	14	17
1800-1900	1	0	0	0	0	1	0	0	20	21	2	0	0	0	0	2	0	0	16	18

CITY WALK
 Units

110

	CITY WALK Occupants In							CITY WALK Occupants Out												
	Car occupancy				Car passenger	Car driver	Motorcycle	Cycle	Walk / PT	Total people	Car occupancy				Car passenger	Car driver	Motorcycle	Cycle	Walk / PT	Total people
	1	2	3	4+							1	2	3	4+						
0700-0800	0	0	0	0	0	0	1	3	5	0	0	0	0	0	0	0	0	1	19	20
0800-0900	0	0	0	0	0	0	0	1	1	1	0	1	0	0	1	1	2	4	42	50
0900-1000	5	0	0	0	0	5	2	0	5	12	1	1	0	0	1	2	3	1	9	16
1600-1700	0	0	0	0	0	0	0	17	17	17	1	0	0	0	0	1	1	0	12	14
1700-1800	3	0	0	0	0	3	1	3	12	19	1	0	0	0	0	1	1	0	8	10
1800-1900	4	0	0	0	0	4	0	2	18	24	0	0	0	0	0	0	0	2	11	13

BOW QUARTER
 Units

773

	BOW QUARTER Occupants In							BOW QUARTER Occupants Out												
	Car occupancy				Car passenger	Car driver	Motorcycle	Cycle	Walk / PT	Total people	Car occupancy				Car passenger	Car driver	Motorcycle	Cycle	Walk / PT	Total people
	1	2	3	4+							1	2	3	4+						
0700-0800	3	1	0	0	1	4	1	0	19	25	13	7	0	0	7	20	4	16	195	242
0800-0900	11	1	0	0	1	12	1	0	23	37	16	3	1	0	5	20	6	17	320	368
0900-1000	7	0	0	0	0	7	0	0	23	30	7	0	0	0	7	2	10	115	134	
1600-1700	9	3	0	0	3	12	2	1	41	59	6	1	0	0	1	7	0	3	35	46
1700-1800	11	4	0	0	4	15	1	7	90	117	4	0	0	0	4	4	1	1	28	34
1800-1900	15	6	0	0	6	21	2	16	194	239	9	2	0	0	2	11	1	2	55	71

Residential units per development

Site	Units
Canary Central	554
NPW Building	559
Kempton Crt	80
City Walk	110
Bow Quarter	773
Total	2076

Total Trips (taken from the 5 sites above)

	Occupants In							Occupants Out												
	Car occupancy				Car passenger	Car driver	Motorcycle	Cycle	Walk / PT	Total people	Car occupancy				Car passenger	Car driver	Motorcycle	Cycle	Walk / PT	Total people
	1	2	3	4+							1	2	3	4+						
0700-0800	14	2	0	0	2	16	4	4	57	83	33	13	2	0	17	48	7	19	529	620
0800-0900	27	5	0	1	8	33	1	0	54	96	32	11	1	1	16	45	9	25	950	1045
0900-1000	27	6	2	0	9	35	2	1	69	116	23	6	0	0	11	29	5	12	320	377
1600-1700	28	17	0	0	17	45	2	2	127	193	26	7	1	1	12	35	1	5	91	144
1700-1800	36	14	0	0	14	50	5	14	272	355	18	8	1	1	13	28	4	2	102	149
1800-1900	41	21	5	3	40	70	3	19	512	644	43	7	3	1	16	54	1	4	159	234

Trips Rates (derived from the 5 sites above)

	Occupants In							Occupants Out												
	Car occupancy				Car passenger	Car driver	Motorcycle	Cycle	Walk / PT	Total people	Car occupancy				Car passenger	Car driver	Motorcycle	Cycle	Walk / PT	Total people
	1	2	3	4+							1	2	3	4+						
0700-0800	0.007	0.001	0.000	0.000	0.001	0.008	0.002	0.002	0.027	0.040	0.016	0.006	0.001	0.000	0.008	0.023	0.003	0.009	0.255	0.299
0800-0900	0.013	0.002	0.000	0.000	0.004	0.016	0.000	0.000	0.026	0.046	0.015	0.005	0.000	0.000	0.008	0.022	0.004	0.012	0.458	0.503
0900-1000	0.013	0.003	0.001	0.000	0.004	0.017	0.001	0.000	0.033	0.056	0.011	0.003	0.000	0.000	0.005	0.014	0.002	0.006	0.154	0.182
1600-1700	0.013	0.008	0.000	0.000	0.008	0.022	0.001	0.001	0.061	0.093	0.013	0.003	0.000	0.000	0.006	0.017	0.000	0.002	0.044	0.069
1700-1800	0.017	0.007	0.000	0.000	0.007	0.024	0.002	0.007	0.131	0.171	0.009	0.004	0.000	0.000	0.006	0.013	0.002	0.001	0.049	0.072
1800-1900	0.020	0.010	0.002	0.001	0.019	0.034	0.001	0.009	0.247	0.310	0.021	0.003	0.001	0.000	0.008	0.026	0.000	0.002	0.077	0.113

Residential Trip generation**Units**

975

	0800 - 0900			17:00 - 18:00		
	In	Out	Total	In	Out	Total
Person trip rate	0.046	0.504	0.550	0.311	0.113	0.423
Persons trips	45	491	536	303	110	413

Mode	Mode share	0800 - 0900			17:00 - 18:00		
		In	Out	Total	In	Out	Total
Underground / Light Rail (via bus)	15.4%	6.9	75.6	82.5	46.7	16.9	63.6
Underground / Light Rail (via rail)	4.1%	1.8	20.1	22.0	12.4	4.5	16.9
Train	15.4%	6.9	75.4	82.3	46.5	16.9	63.4
Bus	25.5%	11.5	125.3	136.8	77.3	28.1	105.4
Taxi	0.2%	0.1	1.0	1.1	0.6	0.2	0.9
Motorcycle	0.6%	0.3	3.1	3.3	1.9	0.7	2.6
Car driver	27.8%	12.5	136.5	149.0	84.2	30.6	114.8
Car passenger	1.0%	0.5	5.1	5.6	3.1	1.1	4.3
Bicycle	1.9%	0.8	9.2	10.0	5.7	2.1	7.7
On Foot	7.5%	3.4	36.7	40.0	22.6	8.2	30.8
Other	0.6%	0.3	3.1	3.3	1.9	0.7	2.6
Total	100.0%	45.0	491.0	536.0	303.0	110.0	413.0

Proposed numbers with rounding errors corrected:

Mode	Mode share	0800 - 0900			17:00 - 18:00		
		In	Out	Total	In	Out	Total
Underground / Light Rail	15%	7	76	83	47	17	64
Underground / Light Rail	4%	2	20	22	12	4	16
Train	15%	7	75	82	46	17	63
Bus	26%	12	125	137	77	28	105
Taxi	0%	0	1	1	1	0	1
Motorcycle	1%	0	3	3	2	1	3
Car driver	28%	13	137	150	84	31	115
Car passenger	1%	0	5	5	3	1	4
Bicycle	2%	1	9	10	6	2	8
On Foot	7%	3	37	40	23	8	31
Other	1%	0	3	3	2	1	3
Total	100.0%	45	491	536	303	110	413

Mode share from Greenwich 004B LSOA

Annex J

Non-Residential Trip Generation

30821 Charlton Riverside

Proposed B1 trips

Number of employees
 85% of employees present
 within the building to take
 account of illness, meeting,

140
119

Mode share

The mode share for the proposed commercial staff is expected to be similar to existing staff in the local area. 2011 travel to work data for the workday population in Greenwich 004 has been examined. These have then been redistributed to take into account the proposed car parking provision.

Mode	Mode share	Re-distributed
Underground / light rail	6.9%	14.4%
Train	8.6%	18.1%
Bus	20.4%	42.7%
Taxi	0.2%	0.4%
Motorcycle	1.2%	2.6%
Car driver	49.1%	0.0%
Car passenger	3.2%	0.0%
Bicycle	1.9%	4.0%
On foot	8.1%	16.9%
Other	0.4%	0.9%
Total	100.0%	100.0%

Canary Wharf Employee Survey

	AM Peak		PM Peak	
	In	Out	In	Out
Employees	46.8%	10.0%	18.0%	35.3%

Source: Canary Wharf Employee Travel Survey 2007

	AM Peak		PM Peak	
	In	Out	In	Out
Proposed	56	12	21	42

Proposed commercial trips

Mode	Mode share	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Underground / light rail (via bus)	6.8%	3.8	0.8	5	1.5	3	4
Underground / light rail (via rail)	7.6%	4.2	0.9	5	1.6	3	5
Train	18.1%	10.1	2.2	12	3.9	8	11
Bus	42.7%	23.8	5.1	29	9.1	18	27
Taxi	0.4%	0.2	0.0	0	0.1	0	0
Motorcycle	2.6%	1.5	0.3	2	0.6	1	2
Car driver	0.0%	0.0	0.0	0	0.0	0	0
Car passenger	0.0%	0.0	0.0	0	0.0	0	0
Bicycle	4.0%	2.2	0.5	3	0.9	2	3
On foot	16.9%	9.4	2.0	11	3.6	7	11
Other	0.9%	0.5	0.1	1	0.2	0	1
Total	100.0%	56	12	68	21	42	63

Proposed numbers with rounding errors corrected:

Mode	Mode share	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Underground / light rail (via bus)	6.8%	4	1	5	1	3	4
Underground / light rail (via rail)	7.6%	4	1	5	2	3	5
Train	18.1%	10	2	12	4	8	12
Bus	42.7%	24	5	29	9	18	27
Taxi	0.4%	0	0	0	0	0	0
Motorcycle	2.6%	2	0	2	0	1	1
Car driver	0.0%	0	0	0	0	0	0
Car passenger	0.0%	0	0	0	0	0	0
Bicycle	4.0%	2	1	3	1	2	3
On foot	16.9%	9	2	11	4	7	11
Other	0.9%	1	0	1	0	0	0
Total	100.0%	56	12	68	21	42	63

30821 Charlton Riverside
Proposed A1-A5 trips

Number of employees

30

Mode share

The mode share for the proposed commercial staff is expected to be similar to existing staff in the local area. 2011 travel to work data for the workday population in Greenwich 004 has been examined. These have then been redistributed to take into account the proposed car parking provision.

Mode	Mode share	Re-distributed
Underground / light rail	6.9%	14.4%
Train	8.6%	18.1%
Bus	20.4%	42.7%
Taxi	0.2%	0.4%
Motorcycle	1.2%	2.6%
Car driver	49.1%	0.0%
Car passenger	3.2%	0.0%
Bicycle	1.9%	4.0%
On foot	8.1%	16.9%
Other	0.4%	0.9%
Total	100.0%	100.0%

Canary Wharf Employee Survey

	AM Peak		PM Peak	
	In	Out	In	Out
Employees	46.8%	10.0%	18.0%	35.3%

Source: Canary Wharf Employee Travel Survey 2007

	AM Peak		PM Peak	
	In	Out	In	Out
Proposed	14	3	5	11

Proposed commercial trips

Mode	Mode share	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Underground / light rail (via bus)	6.8%	1	0	1	0	1	1
Underground / light rail (via rail)	7.6%	1	0	1	0	1	1
Train	18.1%	3	1	3	1	2	3
Bus	42.7%	6	1	7	2	5	7
Taxi	0.4%	0	0	0	0	0	0
Motorcycle	2.6%	0	0	0	0	0	0
Car driver	0.0%	0	0	0	0	0	0
Car passenger	0.0%	0	0	0	0	0	0
Bicycle	4.0%	1	0	1	0	0	1
On foot	16.9%	2	1	3	1	2	3
Other	0.9%	0	0	0	0	0	0
Total	100.0%	14	3	16	5	11	15

Proposed numbers with rounding errors corrected:

Mode	Mode share	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Underground / light rail (via bus)	6.8%	1	0	1	0	1	1
Underground / light rail (via rail)	7.6%	1	0	1	1	1	2
Train	18.1%	3	1	4	1	2	3
Bus	42.7%	6	1	7	2	5	7
Taxi	0.4%	0	0	0	0	0	0
Motorcycle	2.6%	0	0	0	0	0	0
Car driver	0.0%	0	0	0	0	0	0
Car passenger	0.0%	0	0	0	0	0	0
Bicycle	4.0%	1	0	1	0	0	0
On foot	16.9%	2	1	3	1	2	3
Other	0.9%	0	0	0	0	0	0
Total	100.0%	14	3	17	5	11	16

D1 dentist

Staff

10

Mode	Mode share	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Underground / light rail (v)	6.8%	0.7		0.7		0.7	1
Underground / light rail (v)	7.6%	0.8		0.8		0.8	1
Train	18.1%	1.8		1.8		1.8	2
Bus	42.7%	4.3		4.3		4.3	4
Taxi	0.4%	0.0		0.0		0.0	0
Motorcycle	2.6%	0.3		0.3		0.3	0
Car driver	0.0%	0.0		0.0		0.0	0
Car passenger	0.0%	0.0		0.0		0.0	0
Bicycle	4.0%	0.4		0.4		0.4	0
On foot	16.9%	1.7		1.7		1.7	2
Other	0.9%	0.1		0.1		0.1	0
Total	100.0%	10.0		10.0		10.0	10.0

Proposed numbers with rounding errors corrected:

Mode	Mode share	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Underground / light rail (v)	6.8%	1	0	1	0	1	1
Underground / light rail (v)	7.6%	1	0	1	0	1	1
Train	18.1%	2	0	2	0	2	2
Bus	42.7%	4	0	4	0	4	4
Taxi	0.4%	0	0	0	0	0	0
Motorcycle	2.6%	0	0	0	0	0	0
Car driver	0.0%	0	0	0	0	0	0
Car passenger	0.0%	0	0	0	0	0	0
Bicycle	4.0%	0	0	0	0	0	0
On foot	16.9%	2	0	2	0	2	2
Other	0.9%	0	0	0	0	0	0
Total	100.0%	10	0	10	0	10	9

D1 nursery

Staff

22

Mode	Mode share	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Underground / light rail (via bus)	6.8%	1.5		1		1.5	1
Underground / light rail (via rail)	7.6%	1.7		2		1.7	2
Train	18.1%	4.0		4		4.0	4
Bus	42.7%	9.4		9		9.4	9
Taxi	0.4%	0.1		0		0.1	0
Motorcycle	2.6%	0.6		1		0.6	1
Car driver	0.0%	0.0		0		0.0	0
Car passenger	0.0%	0.0		0		0.0	0
Bicycle	4.0%	0.9		1		0.9	1
On foot	16.9%	3.7		4		3.7	4
Other	0.9%	0.2		0		0.2	0
Total	100.0%	22.0		22		22.0	22

Proposed numbers with rounding errors corrected:

Mode	Mode share	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Underground / light rail (via bus)	6.8%	1	0	1	0	1	1
Underground / light rail (via rail)	7.6%	2	0	2	0	2	2
Train	18.1%	4	0	4	0	4	4
Bus	42.7%	9	0	9	0	9	9
Taxi	0.4%	0	0	0	0	0	0
Motorcycle	2.6%	1	0	1	0	1	1
Car driver	0.0%	0	0	0	0	0	0
Car passenger	0.0%	0	0	0	0	0	0
Bicycle	4.0%	1	0	1	0	1	1
On foot	16.9%	4	0	4	0	4	4
Other	0.9%	0	0	0	0	0	0
Total	100.0%	22	0	22	0	22	22

Children

76

Mode	Mode share	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Underground / light rail (via bus)		0	0	0	0	0	0
Underground / light rail (via rail)							
Train		0	0	0	0	0	0
Bus		0	0	0	0	0	0
Taxi		0	0	0	0	0	0
Motorcycle		0	0	0	0	0	0
Car driver		0	0	0	0	0	0
Car passenger		0	0	0	0	0	0
Bicycle		0	0	0	0	0	0
On foot		144	72	216	72	144	216
Other		0	0	0	0	0	0
Total		144	72	216	72	144	216

Total

Mode	Mode share	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Underground / light rail (via bus)		1	0	1	0	1	1
Underground / light rail (via rail)		2	0	2	0	2	2
Train		4	0	4	0	4	4
Bus		9	0	9	0	9	9
Taxi		0	0	0	0	0	0
Motorcycle		1	0	1	0	1	1
Car driver		0	0	0	0	0	0
Car passenger		0	0	0	0	0	0
Bicycle		1	0	1	0	1	1
On foot		148	72	220	72	148	220
Other		0	0	0	0	0	0
Total		166	72	238	72	166	238

Annex K

Bus Analysis Report



Leopard Guernsey Anchor Propco Ltd

Anchor and Hope Lane Sites
Bus Analysis

30821/D010b
December 2016



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Appendices

A Bus Calculations



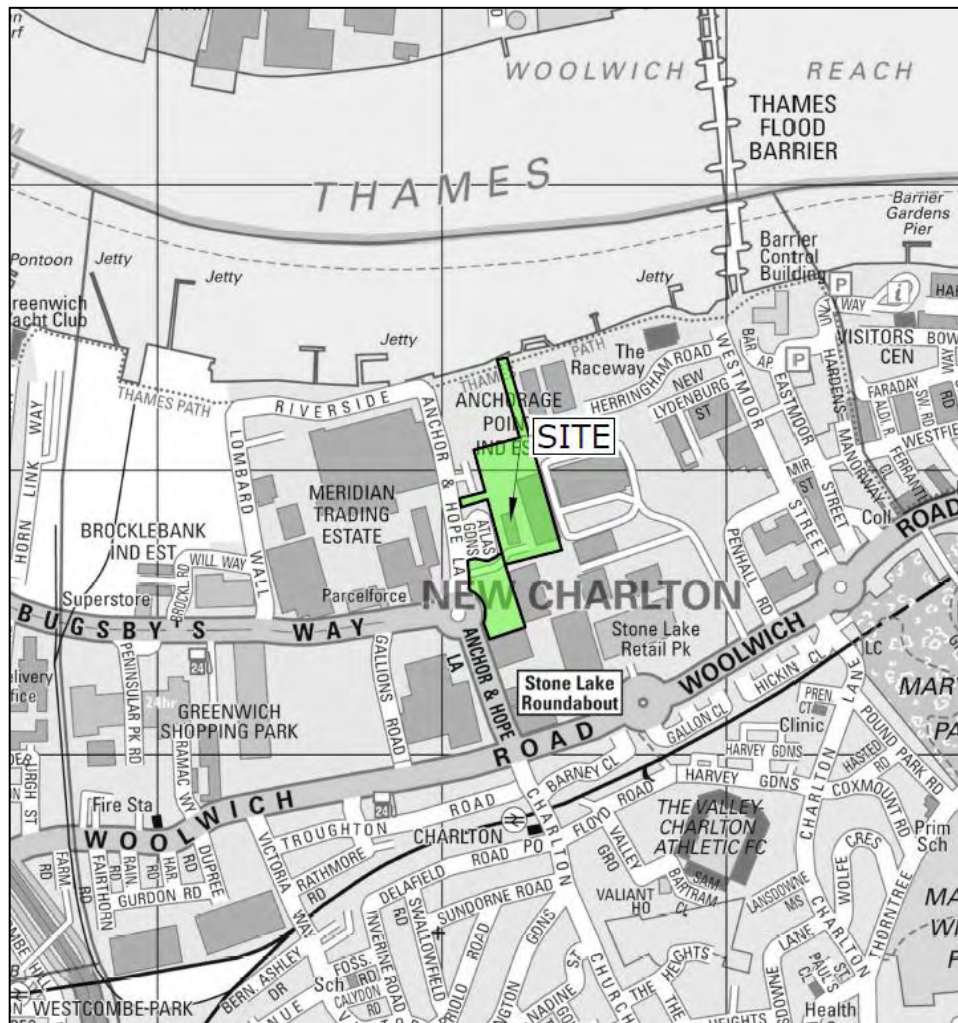
1 INTRODUCTION

1.1 Background Context

1.1.1 Transport Planning Practice (TPP) has been appointed by Leopard Guernsey Anchor Propco Ltd to provide transport advice in relation to the proposed redevelopment of the VIP Trading Estate and the VIP Industrial Estate site located on Anchor and Hope Lane within the Royal Borough of Greenwich (RBG).

1.1.2 The site sits within a currently predominately industrial area located between Woolwich Road (A206) and the southern bank of the River Thames. The main access to the site is from Anchor & Hope Lane which runs between Woolwich Road and Bugsby's Way. The site consists of two main areas with a strip connecting to Anchor & Hope Lane to the west and another to the north towards the Thames Path. Figure 1.1 shows the location of the site.

Figure 1.1 - Site Location



1.1.3 The proposed development will provide 975 units residential as well as commercial space (A1, A3, B1, D1 and D2 use classes). The opening year is expected to be 2023. The description of development is as follows:

"Demolition of existing buildings and erection of 9 buildings ranging from 2 to 28 storeys in height for Class C3 residential use, with Class B1 employment space and flexible uses comprising Class A1 (retail), Class A3 (Café / Restaurant), Class D1 (Community Use) and Class D2 (Leisure) at ground floor and first floor level, alterations to existing vehicular access and creation of new pedestrian access from Anchor and Hope Lane and the riverside, creation of new areas of open space and landscaping together with the provision of associated car parking, cycle space, refuse and recycling storage, plant and all other associated works".

1.1.4 The scheme will provide the following:

- 975 residential units provided within 9 buildings ranging in height from 2 to 28 storeys, including extensive private gardens and roof terraces;
- 1,560 sqm (GIA) of office space;
- Ancillary residential facilities including gym, swimming pool, changing rooms totalling 864 sqm (GIA);
- 690 sqm (GIA) of flexible retail/restaurant/café/leisure use;
- 407 sqm (GIA) of community uses;
- Extensive external public realm improvements and landscaping; and
- Parking, services, plant and circulation.

1.2 Report Purpose

1.2.1 An assessment has been undertaken to evaluate the level of bus trips which could be expected to be generated by the proposed development. This report sets out the trip generation methodology and distribution by journey purpose, for all bus trips generated from the development site associated with the following six time periods:

- 0400-0700 (Night time)
- 0700-1000 (AM peak)
- 1000-1600 (Day time)
- 1600-1900 (PM peak)
- 1900-2200 (Evening); and
- 2200-0400 (Night time).

1.2.2 This report is set out as follows and a copy of all of the calculations is contained within Appendix A.

- **Chapter 2: Existing travel patterns by bus** – summarises the existing residential travel patterns by bus in Inner London.
- **Chapter 3: Residential bus trip generation** – sets out the methodology for estimating residential bus trips for the proposed development.
- **Chapter 4: Residential bus trip distribution** – sets out how the residential bus trips for the proposed development have been distributed.
- **Chapter 5: Commercial staff bus trip generation** – sets out how the methodology for estimating staff bus trips for the proposed development.
- **Chapter 6: Commercial staff bus trip distribution** – sets out how the staff bus trips for the proposed development have been distributed.
- **Chapter 7: Total development bus trip distribution** – sets out the total developments bus trip distribution.

2 EXISTING RESIDENTIAL TRAVEL PATTERNS BY BUS

2.1 Introduction

2.1.1 This chapter sets out the analysis of the London Travel Demand Survey's (LTDS) for 2010-2013, including the daily profile of residential bus trips and journey purpose by bus. The full analysis of the data is included in Appendix A and summarised within this report.

2.2 Residential bus trips

2.2.1 The London Travel Demand Survey (LTDS) is a continuous household survey of the London area, covering all London boroughs and the City of London. Three years of LTDS data are combined (2010-2013) to provide average figures to ensure a large enough sample size to give robust results. This data has been examined for Inner London, excluding Central London:

- **Inner London** consists of London boroughs of Camden, Hackney, Hammersmith & Fulham, Haringey, Islington, Kensington & Chelsea, Lambeth, Lewisham, Newham, Southwark, Tower Hamlets, Wandsworth, the City of Westminster, and the City of London.
- **Central London** is defined as an area roughly rectangular in shape, bounded by Regent's Park to the north, Whitechapel to the east, Elephant & Castle and Vauxhall to the south, and Kensington Gardens to the west.

2.2.2 The LTDS has been used to determine the inbound and outbound total person trips, for all modes of transport and journey purposes, associated with all surveyed households in Inner London (excluding Central London). These are summarised in Table 2.1.

Table 2.1 - LTDS Total Person Trips for Inner London (excluding Central London)

Time Period	Total Person Trips from LTDS		
	Inbound	Outbound	Two-way
0400-0700	10,790	139,000	149,790
0700-1000	167,300	1,322,670	1,489,970
1000-1600	1,060,570	1,033,140	2,093,710
1600-1900	833,690	337,260	1,170,950
1900-2200	373,560	183,220	556,780
2200-0400	200,410	27,470	227,880

2.2.3 The proportions of LTDS total person trips which are bus trips have been derived for inbound and outbound journeys, per time period, for all surveyed households. The daily profile of residential bus trips over the day are shown in Table 2.2.

Table 2.2 - Daily Profile of Residential Bus Trips for Inner London (excluding Central London)

Time Period	% of LTDS Bus Trips to Total Person Trips	
	Inbound	Outbound
0400-0700	15%	24%
0700-1000	11%	22%
1000-1600	24%	25%
1600-1900	19%	15%
1900-2200	15%	13%
2200-0400	19%	10%

2.3 Residential journey purpose by bus

2.3.1 The LTDS data has been examined for journey purpose. The percentages of LTDS bus trips for each journey purpose (work, education, shopping and personal business, leisure, and other) associated with all inbound and outbound trips to and from households within Inner London, excluding Central London, have been calculated. The percentages in Table 2.2 have been split by journey purpose and the results are set out in Tables 2.3 and 2.4 below.

Table 2.3 - LTDS Inbound Journey Purpose by Bus

Time Period	Inbound				
	Work	Education	Shopping and personal business	Leisure	Other (inc Escort/Worship)
0400-0700	67%	0%	33%	0%	0%
0700-1000	15%	1%	31%	13%	41%
1000-1600	10%	24%	50%	10%	6%
1600-1900	33%	17%	29%	17%	4%
1900-2200	29%	4%	9%	48%	10%
2200-0400	31%	1%	4%	58%	6%

Table 2.4 - LTDS Outbound Journey Purpose by Bus

Time Period	Outbound				
	Work	Education	Shopping and personal business	Leisure	Other (inc Escort/Worship)
0400-0700	89%	2%	3%	5%	1%
0700-1000	39%	39%	10%	4%	7%
1000-1600	12%	5%	54%	22%	7%
1600-1900	13%	6%	28%	36%	17%
1900-2200	18%	0%	4%	62%	15%
2200-0400	47%	0%	13%	41%	0%

3 RESIDENTIAL BUS TRIP GENERATION

3.1 Introduction

3.1.1 This chapter sets out the methodology for estimating bus trips for the proposed 975 residential apartments.

3.2 Person trips

3.2.1 In order to determine the number of total person trips associated with the residential land use, the following peak period trip surveys have been used. This method has been agreed with TfL when scoping the Transport Assessment (TA).

- Canary Central, Lighterman's Road, E14 (April 2006) – 544 residential apartments (private & affordable);
- New Providence Wharf Building A, E14 (March 2006) – 559 residential apartments (private);
- Kempton Court, Whitechapel E1 (April 2006) – 80 residential apartments (private);
- City Walk, Shoreditch E2 (July 2006) – 110 residential apartments (private); and
- Bow Quarter, Bow E3 (July 2006) – 773 residential apartments and houses (private and affordable).

3.2.2 The surveys were undertaken between the hours of 0700 - 1000 (AM peak hour period) and 1600 - 1900 (PM peak hour period). Total person trip rates were then derived and applied to the proposed 975 units and these are summarised in Table 3.1. Further details of the trip generation are contained within the TA.

Table 3.1 - Total Development Person Trips in the Peak Periods

	Time period	Inbound	Outbound	Total two-way
AM	0700-0800	39	291	1097
	0800-0900	45	491	
	0900-1000	54	177	
PM	1600-1700	91	68	808
	1700-1800	167	70	
	1800-1900	302	110	

3.2.3 The total person trips associated with all the other time periods being assessed for this bus analysis have been calculated by applying a factor of 0.016% to LTDS data contained within Table 2.1. This factor is the average proportion of the peak period development trips to the LTDS peak period trips and has been derived by undertaking the following calculation:

$$\frac{\text{Total development person trips for the AM \& PM peak periods}}{\text{Total person trips in the LTDS data for the AM \& PM peak period}} = 0.016\%$$

3.2.4 The estimated total development person trips by time period over 24-hours are summarised in Table 3.2.

Table 3.2 - Total Development Person Trips

Time Period	Total Person Trips		
	Inbound	Outbound	Two - Way
0400-0700	8	100	108
0700-1000	138	959	1097
1000-1600	759	740	1499
1600-1900	560	248	808
1900-2200	267	131	398
2200-0400	143	20	163

Note: 0700-1000 and 1600-1900 person trips calculated based on surveys. Other time periods calculated by applying a factor of 0.056% to the LTDS data.

3.3 Residential bus trip generation

3.3.1 The residential bus trips for the proposed development have been estimated using the proportion of LTDS total person trips which are bus trips. These proportions (as set out in Table 2.2) have been applied to the total development person trips show in the above table.

3.3.2 The resulting daily profile of residential bus trips are shown in Table 3.3 below.

Table 3.3 - Total Development Residential Bus Trips

Time Period	Inbound	Outbound	Total
0400-0700	1	24	25
0700-1000	15	207	222
1000-1600	180	182	362
1600-1900	108	37	145
1900-2200	39	17	56
2200-0400	27	2	29

3.3.3 The total residential bus trips have then been split by journey purpose. This is based on the percentages of bus trips by journey purpose derived from the LTDS data (as set out in Tables 2.3 and 2.4). This provides a daily profile of

development bus trips by journey purpose and the results for inbound trips are summarised in Table 3.4 and outbound trips are summarised in Table 3.5.

Table 3.4 - Daily Profile of Inbound Residential Bus Trips by Journey Purpose

Time Period	Inbound					Total
	Work	Education	Shopping and personal business	Leisure	Other (inc Escort/Worship)	
0400-0700	1	0	0	0	0	1
0700-1000	2	0	5	2	6	15
1000-1600	17	44	89	18	12	180
1600-1900	36	18	31	19	5	108
1900-2200	11	2	3	19	4	39
2200-0400	8	0	1	16	2	27

Table 3.5 - Daily Profile of Outbound Residential Bus Trips by Journey Purpose

Time Period	Outbound					Total
	Work	Education	Shopping and personal business	Leisure	Other (inc Escort/Worship)	
0400-0700	22	0	1	1	0	24
0700-1000	81	81	21	9	15	207
1000-1600	22	10	98	39	13	182
1600-1900	5	2	11	13	6	37
1900-2200	3	0	1	11	2	17
2200-0400	1	0	0	1	0	2

4 RESIDENTIAL BUS TRIP DISTRIBUTION

4.1.1 This chapter sets out the methodology used to distribute residential bus trips established in Chapter 3 for the proposed development.

4.2 Trip distribution proportions

4.2.1 The geographical location of local employment zones, secondary schools, shopping and leisure facilities from the site have been examined in order to determine the distribution of bus trips. The distribution of trips per journey purpose is summarised in Table 4.1 below.

Table 4.1 - Distribution of Bus Trips by Direction and Purpose

Journey Purpose	West	East	North	South
Work	50%	30%	0%	20%
Education	20%	50%	0%	30%
Shopping and personal business	50%	40%	0%	10%
Leisure	45%	35%	0%	20%
Other	40%	30%	0%	30%

4.3 Residential bus trip distribution

4.3.1 The bus distribution percentages in the above table have been applied to the daily profile of development bus trips (Tables 3.4 and 3.5). The results are shown in Table 4.2, 4.3 and 4.4.

Table 4.2 - Distribution of Residential Inbound Bus Trips

Time Period	Inbound			
	West	East	North	South
0400-0700	1	0	0	0
0700-1000	7	5	0	3
1000-1600	75	72	0	33
1600-1900	47	40	0	21
1900-2200	18	13	0	8
2200-0400	12	9	0	6

Table 4.3 - Distribution of Residential Outbound Bus Trips

Time Period	Outbound			
	West	East	North	South
0400-0700	12	7	0	5
0700-1000	77	81	0	49
1000-1600	85	68	0	29
1600-1900	17	13	0	7
1900-2200	8	6	0	3
2200-0400	1	1	0	0

Table 4.4 - Distribution of Residential Two-way Bus Trips

Time Period	Two-way			
	West	East	North	South
0400-0700	12	8	0	5
0700-1000	85	86	0	52
1000-1600	159	141	0	61
1600-1900	64	54	0	28
1900-2200	26	19	0	12
2200-0400	13	10	0	6

5 COMMERCIAL STAFF BUS TRIP GENERATION

5.1 Introduction

5.1.1 This chapter sets out the methodology for estimating staff bus trips generated from the proposed commercial land use. It should be noted that the proposed community health club and retail elements of the proposed development are expected to be ancillary to the residential part of the development and would not become a 'destination'. Therefore, customers would be expected to arrive on foot. Hence, the reason for considering staff bus trips only.

5.2 Commercial staff bus trips

5.2.1 LTDS data was considered suitable to use for commercial staff trips. It is estimated that the proposed commercial uses would have a daily staffing of 203 employees on a typical day. The resulting daily profile of staff trips are shown in Table 5.1 below.

Table 5.1 - Total Development Commercial Staff Trips

Time Period	Inbound	Outbound	Total
0400-0700	33	2	35
0700-1000	124	6	130
1000-1600	32	45	77
1600-1900	8	96	104
1900-2200	4	31	35
2200-0400	2	23	25

5.2.2 Table 5.1 shows that the proposed commercial uses are expected to generate 203 two-way employee trips throughout the entire day. To calculate the number of staff who would travel to the site by bus the 2011 Census 'method of travel to work data' for the Lower Layer Super Output Area of Greenwich 004 was used. The mode share data was adjusted to remove vehicular trips and account for 'second leg' bus trips made to the site from Greenwich. The staff mode share has been calculated to be 49.5%. Table 5.2 presents the expected number of staff who travel to the site by bus during each time period.

Table 5.2 - Total Development Commercial Staff Bus Trips

Time Period	Inbound	Outbound	Total
0400-0700	16	1	17
0700-1000	61	3	64
1000-1600	16	23	39
1600-1900	4	47	51
1900-2200	2	15	17
2200-0400	1	11	12

6 COMMERCIAL STAFF BUS TRIP DISTRIBUTION

6.1.1 This chapter sets out the methodology used to distribute commercial staff bus trips established in Chapter 5 for the proposed commercial uses.

6.2 Trip distribution proportions

6.2.1 Census 2011 'place of work' data has been analysed for employees working within Greenwich to obtain the proposed bus trip distribution which is presented in Table 6.1 below.

Table 6.1 - Distribution of Bus Trips by Direction

	West	East	North	South
Trip distribution by %	30	40	0	30

6.3 Staff bus trip distribution

6.3.1 The bus distribution percentages in the above table have been applied to the daily profile of development bus trips in Tables 6.2, 6.3 and 6.4.

Table 6.2 - Distribution of Staff Inbound Bus Trips

Time Period	Inbound			
	West	East	North	South
0400-0700	10	13	0	10
0700-1000	37	50	0	37
1000-1600	10	13	0	10
1600-1900	2	3	0	2
1900-2200	1	2	0	1
2200-0400	1	1	0	1

Table 6.3 - Distribution of Staff Outbound Bus Trips

Time Period	Outbound			
	West	East	North	South
0400-0700	1	1	0	1
0700-1000	2	2	0	2
1000-1600	14	18	0	14
1600-1900	29	38	0	29
1900-2200	9	12	0	9
2200-0400	7	9	0	7

Table 6.4 - Distribution of Staff Two-way Bus Trips

Time Period	Two-way			
	West	East	North	South
0400-0700	11	14	0	11
0700-1000	39	52	0	39
1000-1600	24	31	0	24
1600-1900	31	41	0	31
1900-2200	10	15	0	10
2200-0400	8	10	0	8

7 TOTAL DEVELOPMENT BUS TRIP DISTRIBUTION

7.1.1 This chapter combines the residential and commercial staff bus trip distribution to generate the total bus trip distribution for the entire development. Tables 7.1, 7.2 and 7.3 provide a summary of the proposed bus trip distribution for the development.

Table 7.1 - Distribution of proposed Inbound Bus Trips

Time Period	Inbound			
	West	East	North	South
0400-0700	11	13	0	10
0700-1000	44	55	0	40
1000-1600	85	85	0	43
1600-1900	49	43	0	23
1900-2200	19	15	0	9
2200-0400	13	10	0	7

Table 7.2 - Distribution of proposed Outbound Bus Trips

Time Period	Outbound			
	West	East	North	South
0400-0700	13	8	0	6
0700-1000	79	83	0	51
1000-1600	99	86	0	43
1600-1900	46	51	0	36
1900-2200	17	18	0	12
2200-0400	8	10	0	7

Table 7.3 - Distribution of proposed Two-way Bus Trips

Time Period	Two-way			
	West	East	North	South
0400-0700	23	22	0	16
0700-1000	124	138	0	91
1000-1600	183	172	0	85
1600-1900	95	95	0	59
1900-2200	36	34	0	22
2200-0400	21	20	0	14

7.1.2 Tables 7.1, 7.2 and 7.3 above provide Transport for London with the information they require in order to assess the effects of the development proposals on their current and future bus network.

Appendix A

Bus Calculations

London Travel Demand Survey 2010-2013 (Inner London, excluding Central London)

0400-0700 (Inbound)

Mode	01 Usual workplace	02 Other work related	03 Education	04 Shopping and personal business	05 Leisure	06 Other (inc Escort/Worship)	Total
01 National Rail/Overground	0						0
02 Underground/DLR	350			410			760
03 Bus (+sch/wk bus/coach/tram)	1050			520	0		1570
04 Taxi/Other							
05 Car (+ van/lorry/mcycle)	2400	390		530		1310	4630
06 Walk/Cycle				870	2960	0	3830
Total	3800	390		2330	2960	1310	10790

0400-0700 (Outbound)

Mode	01 Usual workplace	02 Other work related	03 Education	04 Shopping and personal business	05 Leisure	06 Other (inc Escort/Worship)	Total
01 National Rail/Overground	12620	5600	720		370		19310
02 Underground/DLR	23180	4510	260		190	690	28830
03 Bus (+sch/wk bus/coach/tram)	24780	5340	810	1020	1780	200	33930
04 Taxi/Other	900	270		340	320	740	2570
05 Car (+ van/lorry/mcycle)	16930	10300	80	830	1350	3300	32790
06 Walk/Cycle	13740	2100	360	860	4100	410	21570
Total	92150	28120	2230	3050	8110	5340	139000

0700-1000 (Inbound)

Mode	01 Usual workplace	02 Other work related	03 Education	04 Shopping and personal business	05 Leisure	06 Other (inc Escort/Worship)	Total
01 National Rail/Overground	390	190				1030	1610
02 Underground/DLR	2000	1340		270	1130	880	5620
03 Bus (+sch/wk bus/coach/tram)	2130	520	180	5620	2280	7430	18160
04 Taxi/Other							
05 Car (+ van/lorry/mcycle)	1190	150		5660	3080	29840	39920
06 Walk/Cycle	2220	1180	770	21290	12080	64450	101990
Total	7930	3380	950	32840	18570	103630	167300

0700-1000 (Outbound)

Mode	01 Usual workplace	02 Other work related	03 Education	04 Shopping and personal business	05 Leisure	06 Other (inc Escort/Worship)	Total
01 National Rail/Overground	84720	13480	13070	3160	2730	2450	119610
02 Underground/DLR	161210	30620	26650	7130	4290	2960	232860
03 Bus (+sch/wk bus/coach/tram)	90850	21450	111360	29000	12310	21190	286160
04 Taxi/Other	2900	1980	210	1280	440	380	7190
05 Car (+ van/lorry/mcycle)	65700	33000	37270	19070	17580	55650	228270
06 Walk/Cycle	102460	21360	157710	36260	26090	104700	448580
Total	507840	121890	346270	95900	63440	187330	1322670

1000-1600 (Inbound)

Mode	01 Usual workplace	02 Other work related	03 Education	04 Shopping and personal business	05 Leisure	06 Other (inc Escort/Worship)	Total
01 National Rail/Overground	4650	6090	5530	4140	4950	820	26180
02 Underground/DLR	9350	5970	8770	14180	6110	2780	47160
03 Bus (+sch/wk bus/coach/tram)	14490	9590	61050	124260	25500	16030	250920
04 Taxi/Other	0	350	230	8110	1460	160	10310
05 Car (+ van/lorry/mcycle)	21870	17060	21970	80140	26010	44250	211300
06 Walk/Cycle	19440	10290	125720	189030	85560	84660	514700
Total	69800	49350	223270	419860	149590	148700	1060570

1000-1600 (Outbound)

Mode	01 Usual workplace	02 Other work related	03 Education	04 Shopping and personal business	05 Leisure	06 Other (inc Escort/Worship)	Total
01 National Rail/Overground	4040	3380	1390	7570	14580	720	31680
02 Underground/DLR	18180	16890	12370	28500	19330	6510	101780
03 Bus (+sch/wk bus/coach/tram)	19110	10780	13460	136910	55010	18540	253810
04 Taxi/Other	440	960	470	4180	2810	280	9140
05 Car (+ van/lorry/mcycle)	13470	13370	1280	88460	50160	41490	208230
06 Walk/Cycle	17610	17740	13610	194730	98000	86810	428500
Total	72850	63120	42580	460350	239890	154350	1033140

1600-1900 (Inbound)

Mode	01 Usual workplace	02 Other work related	03 Education	04 Shopping and personal business	05 Leisure	06 Other (inc Escort/ Worship)	Total
01 National Rail/Overground	47670	13150	3250	1730	5940	160	71900
02 Underground/DLR	71560	22470	13950	8010	9800	690	126480
03 Bus (+sch/wk bus/coach/tram)	43100	10200	27010	46020	28110	6870	161310
04 Taxi/Other	0	810		2020	230	540	3600
05 Car (+ van/lorry/mcycle)	61100	30030	13340	35150	22650	34180	196450
06 Walk/Cycle	50550	16050	27080	82320	71050	26900	273950
Total	273980	92710	84630	175250	137780	69340	833690

1600-1900 (Outbound)

Mode	01 Usual workplace	02 Other work related	03 Education	04 Shopping and personal business	05 Leisure	06 Other (inc Escort/ Worship)	Total
01 National Rail/Overground	570	200	100	620	7890	880	10260
02 Underground/DLR	3270	4030	1390	4480	15980	1850	31000
03 Bus (+sch/wk bus/coach/tram)	3670	2970	3240	14400	18340	8470	51090
04 Taxi/Other	120	310		800	1190	0	2420
05 Car (+ van/lorry/mcycle)	8600	4300	2580	14670	32720	26870	89740
06 Walk/Cycle	4320	4030	1960	63450	61870	17120	152750
Total	20550	15840	9270	98420	137990	55190	337260

1900-2200 (Inbound)

Mode	01 Usual workplace	02 Other work related	03 Education	04 Shopping and personal business	05 Leisure	06 Other (inc Escort/ Worship)	Total
01 National Rail/Overground	10650	2160	760	2590	7510		23670
02 Underground/DLR	14890	3700	1740	2930	17460	1580	42300
03 Bus (+sch/wk bus/coach/tram)	10540	5340	2200	4840	26350	5740	55010
04 Taxi/Other	190	330		1650	3300	270	5740
05 Car (+ van/lorry/mcycle)	21750	7310	2330	19200	43750	20370	114710
06 Walk/Cycle	14510	5450	4530	38710	58310	10620	132130
Total	72530	24290	11560	69920	156680	38580	373560

1900-2200 (Outbound)

Mode	01 Usual workplace	02 Other work related	03 Education	04 Shopping and personal business	05 Leisure	06 Other (inc Escort/ Worship)	Total
01 National Rail/Overground	490	190		1090	2950		4720
02 Underground/DLR	1130	270			11210		12610
03 Bus (+sch/wk bus/coach/tram)	3040	1410		1050	15110	3750	24360
04 Taxi/Other	130	180			7600	0	7910
05 Car (+ van/lorry/mcycle)	3770	1320		6600	30020	13780	55490
06 Walk/Cycle	1200	720		23820	45210	7180	78130
Total	9760	4090		32560	112100	24710	183220

2200-0400 (Inbound)

Mode	01 Usual workplace	02 Other work related	03 Education	04 Shopping and personal business	05 Leisure	06 Other (inc Escort/ Worship)	Total
01 National Rail/Overground	1330	500		380	7920	0	10130
02 Underground/DLR	5960	4630	310	950	15140	570	27560
03 Bus (+sch/wk bus/coach/tram)	10170	1300	390	1620	21630	2370	37480
04 Taxi/Other	1710	0		750	14400	370	17230
05 Car (+ van/lorry/mcycle)	5940	4420	130	3230	34930	8910	57560
06 Walk/Cycle	4030	1090	160	6240	33020	5910	50450
Total	29140	11940	990	13170	127040	18130	200410

2200-0400 (Outbound)

Mode	01 Usual workplace	02 Other work related	03 Education	04 Shopping and personal business	05 Leisure	06 Other (inc Escort/ Worship)	Total
01 National Rail/Overground					180		180
02 Underground/DLR	0				920		920
03 Bus (+sch/wk bus/coach/tram)	800	480		350	1120		2750
04 Taxi/Other				270	1110		1380
05 Car (+ van/lorry/mcycle)	1960	780		770	2650	2770	8930
06 Walk/Cycle	210			3050	5670	4380	13310
Total	2970	1260		4440	11650	7150	27470

Residential Bus Trip Generation

Residential units 975

Total Development Person Trips

Time period	Total trip rates in	Total trip rates out	Total person in	Total person out
0700-0800	0.040	0.299	39	291
0800-0900	0.046	0.503	45	491
0900-1000	0.056	0.182	54	177
1600-1700	0.093	0.069	91	68
1700-1800	0.171	0.072	167	70
1800-1900	0.310	0.113	302	110

Total Person Trips

Time Period	Total Person Trips from LTDS (Inner London)			Total Proposed Person Trips		
	Inbound	Outbound	Two - Way	Inbound	Outbound	Two - Way
0400-0700	10790	139000	149790	8	100	107
0700-1000	167300	1322670	1489970	139	959	1098
1000-1600	1060570	1033140	2093710	759	740	1499
1600-1900	833690	337260	1170950	560	248	807
1900-2200	373560	183220	556780	267	131	399
2200-0400	200410	27470	227880	143	20	163

0.072%

Bus Trips

Time Period	Proportion of Total Person Trips that are Bus Trips*		Development Bus Trips		
	Inbound	Outbound	Inbound	Outbound	Two - Way
0400-0700	15%	24%	1	24	25
0700-1000	11%	22%	15	207	223
1000-1600	24%	25%	180	182	361
1600-1900	19%	15%	108	37	146
1900-2200	15%	13%	39	17	57
2200-0400	19%	10%	27	2	29

* From London Travel Demand Survey 2010-2013 for Inner London

Mode Split per Journey Purpose*

Time Period	Inbound (destination)					Outbound (origin)				
	Work	Education	Shopping and personal business	Leisure	Other (inc Escort/Worship)	Work	Education	Shopping and personal business	Leisure	Other (inc Escort/Worship)
0400-0700	67%	0%	33%	0%	0%	89%	2%	3%	5%	1%
0700-1000	15%	1%	31%	13%	41%	39%	39%	10%	4%	7%
1000-1600	10%	24%	50%	10%	6%	12%	5%	54%	22%	7%
1600-1900	33%	17%	29%	17%	4%	13%	6%	28%	36%	17%
1900-2200	29%	4%	9%	48%	10%	18%	0%	4%	62%	15%
2200-0400	31%	1%	4%	58%	6%	47%	0%	13%	41%	0%

* From London Travel Demand Survey 2010-2013 for Inner London

Bus Trips per Journey Purpose

Time Period	Inbound (destination)					Total	Outbound (origin)					Total
	Work	Education	Shopping and personal business	Leisure	Other (inc Escort/Worship)		Work	Education	Shopping and personal business	Leisure	Other (inc Escort/Worship)	
0400-0700	0.75	0.00	0.37	0.00	0.00	1.12	21.56	0.58	0.73	1.27	0.14	24.29
0700-1000	2.19	0.15	4.65	1.89	6.15	15.04	81.43	80.74	21.03	8.93	15.36	207.49
1000-1600	17.24	43.70	88.96	18.26	11.48	179.63	21.40	9.64	98.01	39.38	13.27	181.70
1600-1900	35.79	18.14	30.90	18.88	4.61	108.32	4.87	2.38	10.57	13.46	6.22	37.49
1900-2200	11.37	1.57	3.46	18.86	4.11	39.38	3.19	0.00	0.75	10.82	2.68	17.44
2200-0400	8.21	0.28	1.16	15.48	1.70	26.83	0.92	0.00	0.25	0.80	0.00	1.97

Residential Bus Trip Distribution

Bus Trip / Journey Purpose

Time Period	Inbound (destination)					Total
	Work	Education	Shopping & personal business	Leisure	Other (inc Escort/Worship)	
0400-0700	1	0	0	0	0	1
0700-1000	2	0	5	2	6	15
1000-1600	17	44	89	18	11	180
1600-1900	36	18	31	19	5	108
1900-2200	11	2	3	19	4	39
2200-0400	8	0	1	15	2	27

Time Period	Outbound (origin)					Total
	Work	Education	Shopping & personal business	Leisure	Other (inc Escort/Worship)	
0400-0700	22	1	1	1	0	24
0700-1000	81	81	21	9	15	207
1000-1600	21	10	98	39	13	182
1600-1900	5	2	11	13	6	37
1900-2200	3	0	1	11	3	17
2200-0400	1	0	0	1	0	2

Journey Purpose - Work

West	50%
East	30%

Time Period	Inbound			Outbound			Two-way		
	West	East	Total	West	East	Total	West	East	Total
0400-0700	0	0	1	11	6	22	11	7	18
0700-1000	1	1	2	41	24	81	42	25	67
1000-1600	9	5	17	11	6	21	19	12	31
1600-1900	18	11	36	2	1	5	20	12	33
1900-2200	6	3	11	2	1	3	7	4	12
2200-0400	4	2	8	0	0	1	5	3	7

Journey Purpose - Education

West	20%
East	50%

Time Period	Inbound			Outbound			Two-way		
	West	East	Total	West	East	Total	West	East	Total
0400-0700	0	0	0	0	0	1	0	0	0
0700-1000	0	0	0	16	40	81	16	40	57
1000-1600	9	22	44	2	5	10	11	27	37
1600-1900	4	9	18	0	1	2	4	10	14
1900-2200	0	1	2	0	0	0	0	1	1
2200-0400	0	0	0	0	0	0	0	0	0

Journey Purpose - Shopping & Personal business

West 50%
East 40%

Time Period	Inbound			Outbound			Two-way		
	West	East	Total	West	East	Total	West	East	Total
0400-0700	0	0	0	0	0	1	1	0	1
0700-1000	2	2	5	11	8	21	13	10	23
1000-1600	44	36	89	49	39	98	93	75	168
1600-1900	15	12	31	5	4	11	21	17	37
1900-2200	2	1	3	0	0	1	2	2	4
2200-0400	1	0	1	0	0	0	1	1	1

Journey Purpose - Leisure

West 45%
East 35%

Time Period	Inbound			Outbound			Two-way		
	West	East	Total	West	East	Total	West	East	Total
0400-0700	0	0	0	1	0	1	1	0	1
0700-1000	1	1	2	4	3	9	5	4	9
1000-1600	8	6	18	18	14	39	26	20	46
1600-1900	8	7	19	6	5	13	15	11	26
1900-2200	8	7	19	5	4	11	13	10	24
2200-0400	7	5	15	0	0	1	7	6	13

Journey Purpose - Other

West 40%
East 30%

Time Period	Inbound			Outbound			Two-way		
	West	East	Total	West	East	Total	West	East	Total
0400-0700	0	0	0	0	0	0	0	0	0
0700-1000	2	2	6	6	5	15	9	6	15
1000-1600	5	3	11	5	4	13	10	7	17
1600-1900	2	1	5	2	2	6	4	3	8
1900-2200	2	1	4	1	1	3	3	2	5
2200-0400	1	1	2	0	0	0	1	1	1

Total Trips in Each Direction

Time Period	Inbound			Outbound			Two-way		
	West	East	Total	West	East	Total	West	East	Total
0400-0700	1	0	1	11.89	7.54	19	12.45	7.91	20.37
0700-1000	7	5	12	77.54	80.94	158	84.30	86.05	170.35
1000-1600	75	72	147	84.66	68.21	152.87	159.31	140.65	299.95
1600-1900	47	40	87	16.74	13.45	30.19	64.05	53.61	117.66
1900-2200	18	13	31	7.91	5.85	13.76	25.77	19.27	45.04
2200-0400	12	9	234	0.94	0.66	1.60	13.33	9.65	22.98

Residential Bus Trip Distribution

Bus Trip / Journey Purpose

Time Period	Inbound (destination)					Total
	Work	Education	Shopping & personal business	Leisure	Other (inc Escort/Worship)	
0400-0700	1	0	0	0	0	1
0700-1000	2	0	5	2	6	15
1000-1600	17	44	89	18	11	180
1600-1900	36	18	31	19	5	108
1900-2200	11	2	3	19	4	39
2200-0400	8	0	1	15	2	27

Time Period	Outbound (origin)					Total
	Work	Education	Shopping & personal business	Leisure	Other (inc Escort/Worship)	
0400-0700	22	1	1	1	0	24
0700-1000	81	81	21	9	15	207
1000-1600	21	10	98	39	13	182
1600-1900	5	2	11	13	6	37
1900-2200	3	0	1	11	3	17
2200-0400	1	0	0	1	0	2

Journey Purpose - Work

North	0%
South	20%

Time Period	Inbound			Outbound			Two-way		
	North	South	Total	North	South	Total	North	South	Total
0400-0700	0	0	1	0	4	22	0	4	4
0700-1000	0	0	2	0	16	81	0	17	17
1000-1600	0	3	17	0	4	21	0	8	8
1600-1900	0	7	36	0	1	5	0	8	8
1900-2200	0	2	11	0	1	3	0	3	3
2200-0400	0	2	8	0	0	1	0	2	2

Journey Purpose - Education

North	0%
South	30%

Time Period	Inbound			Outbound			Two-way		
	North	South	Total	North	South	Total	North	South	Total
0400-0700	0	0	0	0	0	1	0	0	0
0700-1000	0	0	0	0	24	81	0	24	24
1000-1600	0	13	44	0	3	10	0	16	16
1600-1900	0	5	18	0	1	2	0	6	6
1900-2200	0	0	2	0	0	0	0	0	0
2200-0400	0	0	0	0	0	0	0	0	0

Journey Purpose - Shopping & Personal business

North 0%
 South 10%

Time Period	Inbound			Outbound			Two-way		
	North	South	Total	North	South	Total	North	South	Total
0400-0700	0	0	0	0	0	1	0	0	0
0700-1000	0	0	5	0	2	21	0	3	3
1000-1600	0	9	89	0	10	98	0	19	19
1600-1900	0	3	31	0	1	11	0	4	4
1900-2200	0	0	3	0	0	1	0	0	0
2200-0400	0	0	1	0	0	0	0	0	0

Journey Purpose - Leisure

North 0%
 South 20%

Time Period	Inbound			Outbound			Two-way		
	North	South	Total	North	South	Total	North	South	Total
0400-0700	0	0	0	0	0	1	0	0	0
0700-1000	0	0	2	0	2	9	0	2	2
1000-1600	0	4	18	0	8	39	0	12	12
1600-1900	0	4	19	0	3	13	0	6	6
1900-2200	0	4	19	0	2	11	0	6	6
2200-0400	0	3	15	0	0	1	0	3	3

Journey Purpose - Other

North 0%
 South 30%

Time Period	Inbound			Outbound			Two-way		
	North	South	Total	North	South	Total	North	South	Total
0400-0700	0	0	0	0	0	0	0	0	0
0700-1000	0	2	6	0	5	15	0	6	6
1000-1600	0	3	11	0	4	13	0	7	7
1600-1900	0	1	5	0	2	6	0	3	3
1900-2200	0	1	4	0	1	3	0	2	2
2200-0400	0	1	2	0	0	0	0	1	1

Total Trips in Each Direction

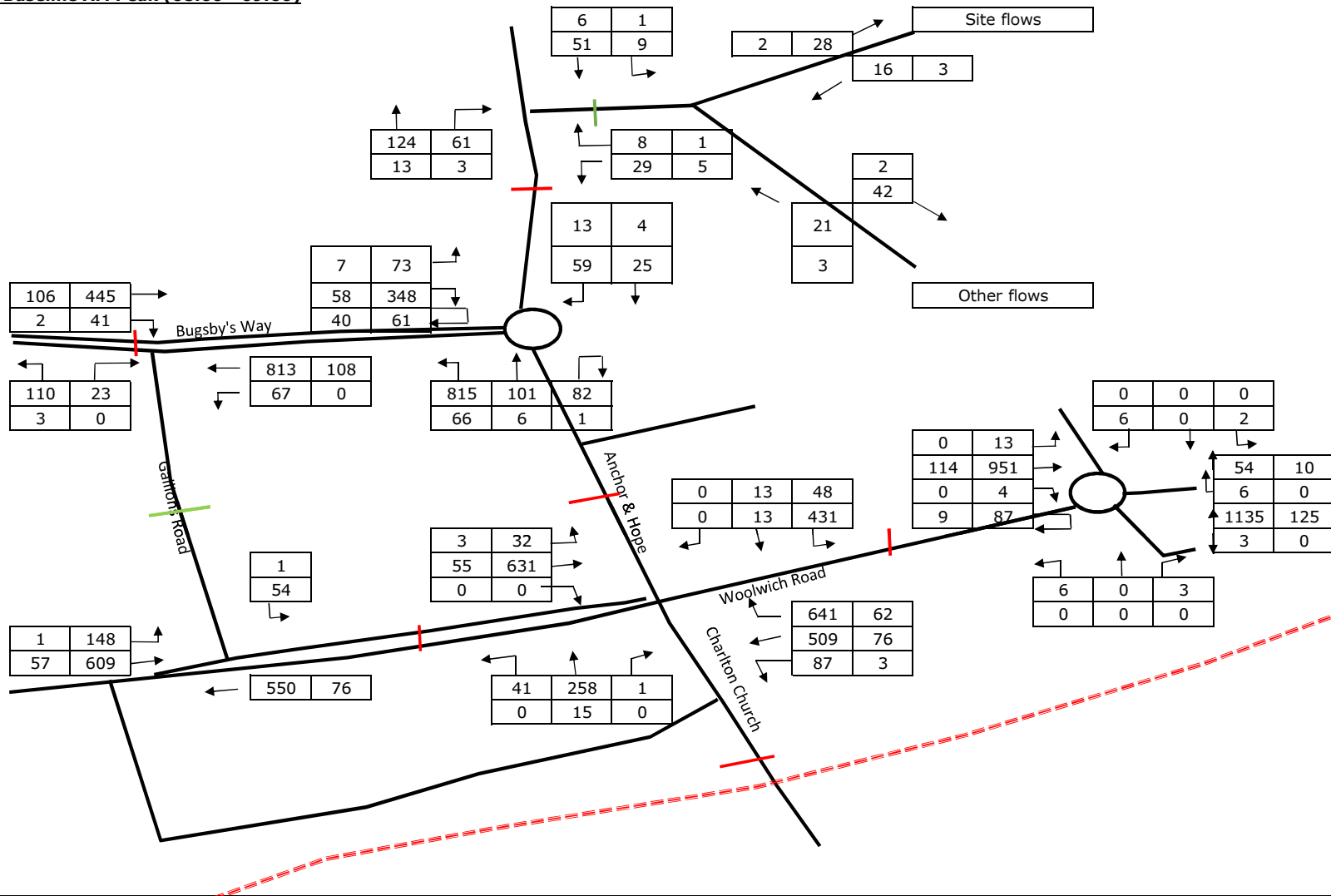
Time Period	Inbound			Outbound			Two-way		
	North	South	Total	North	South	Total	North	South	Total
0400-0700	0	0	0	0.00	4.86	5	0.00	5.04	5.04
0700-1000	0	3	3	0.00	49.01	49	0.00	52.18	52.18
1000-1600	0	33	33	0.00	28.83	29	0.00	61.38	61.38
1600-1900	0	21	21	0.00	7.30	7	0.00	28.15	28.15
1900-2200	0	8	8	0.00	3.68	4	0.00	11.78	11.78
2200-0400	0	5	0	0.00	0.37	0	0.00	5.82	5.82

Annex L

Traffic Flow Diagrams

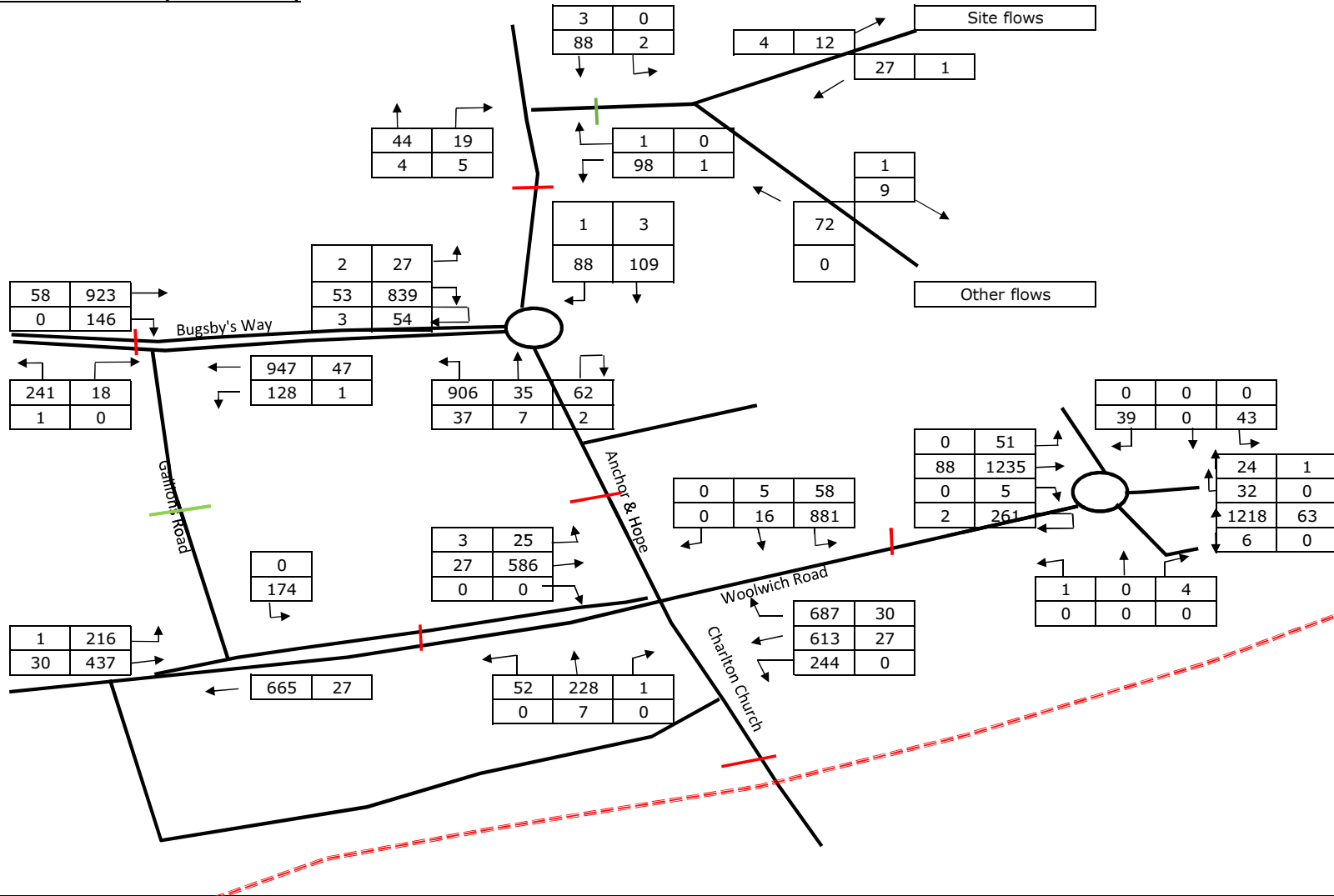
30821 - Charlton Riverside

2016 Baseline AM Peak (08:00 - 09:00)



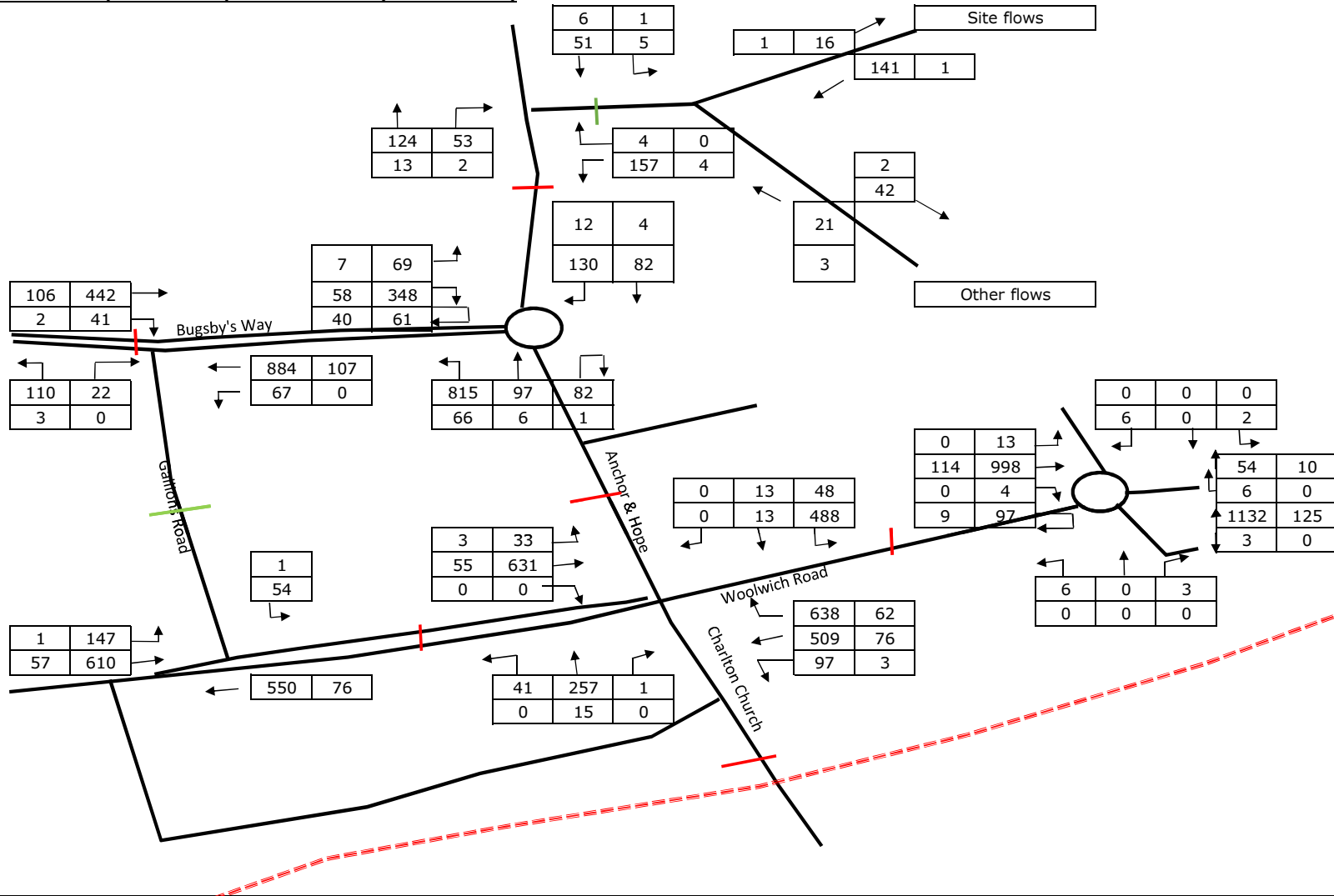
30821 - Charlton Riverside

2016 Baseline PM Peak (17:00 - 18:00)



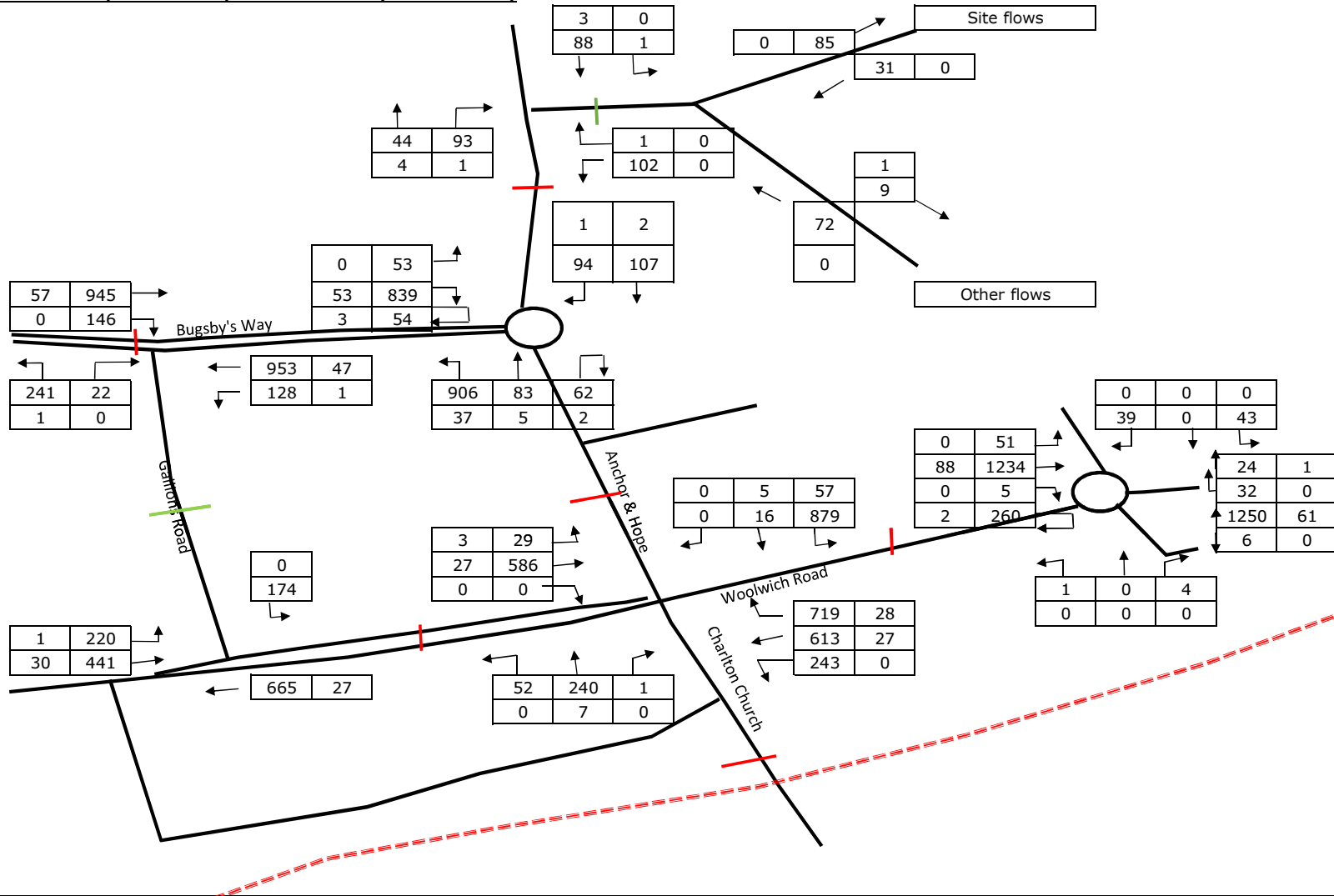
30821 - Charlton Riverside

Baseline Plus Proposed Development - AM Peak (08:00 - 09:00)



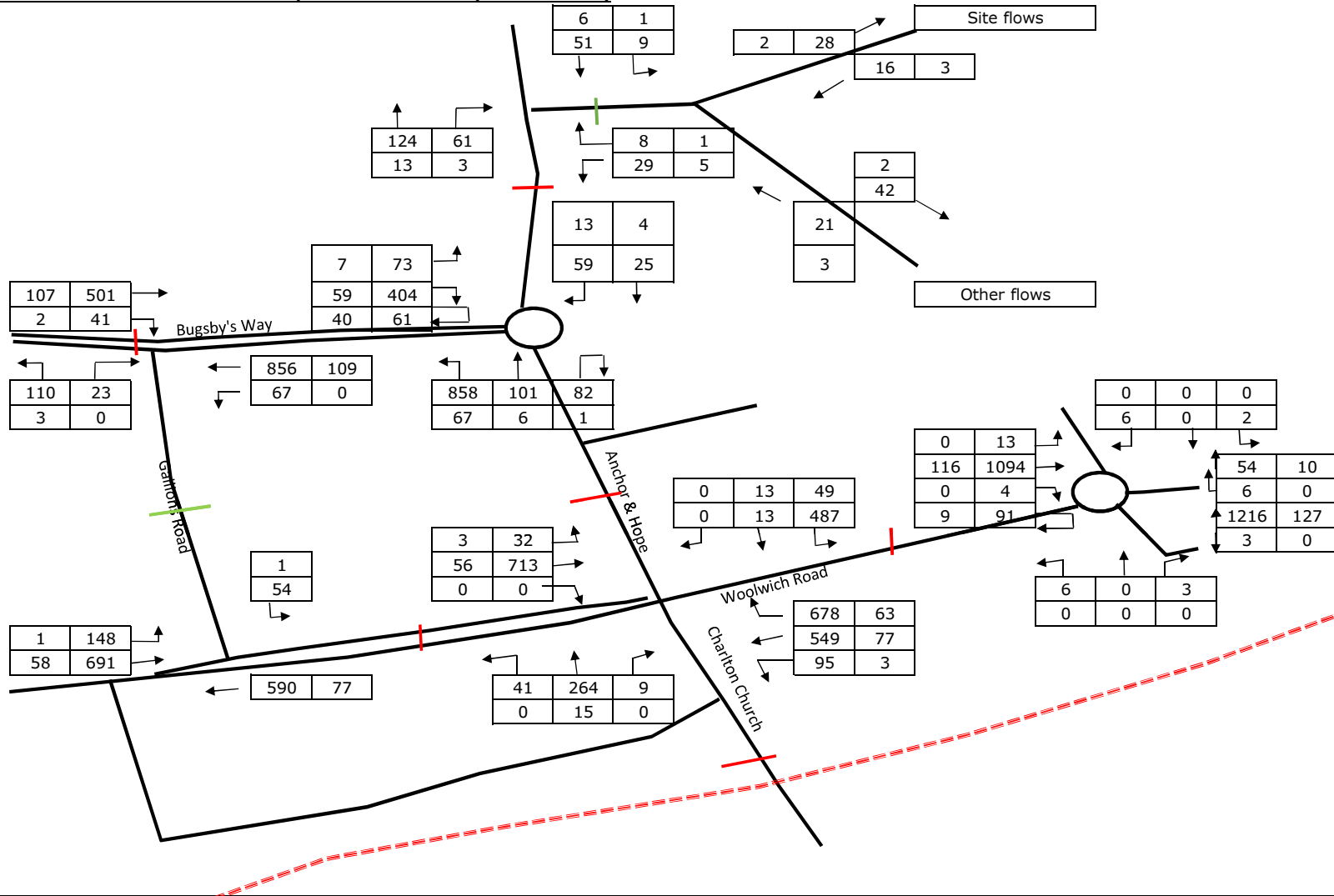
30821 - Charlton Riverside

Baseline Plus Proposed Development - PM Peak (17:00 - 18:00)



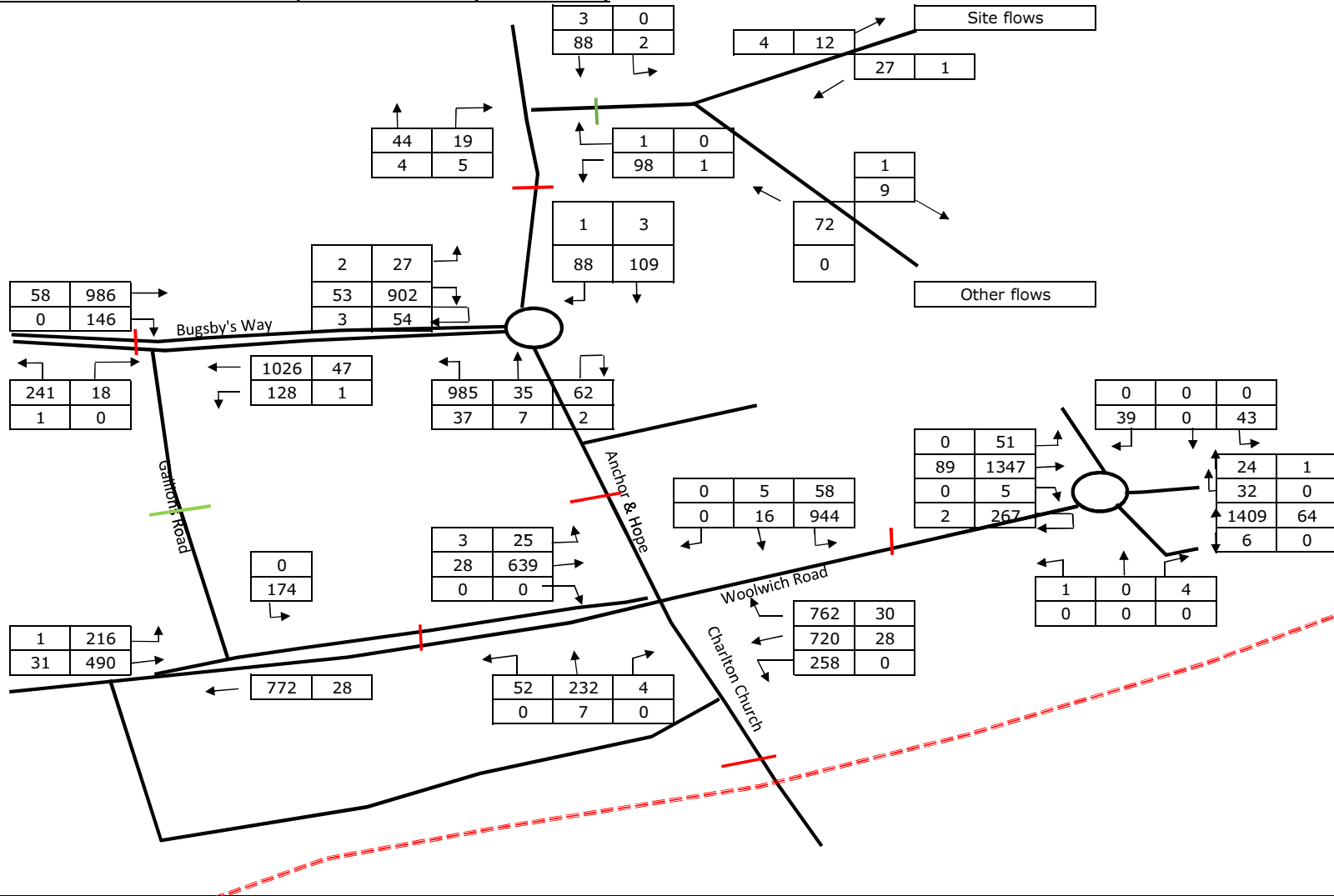
30821 - Charlton Riverside

Baseline Plus Other Cumulative Developments - AM Peak - (08:00 - 09:00)



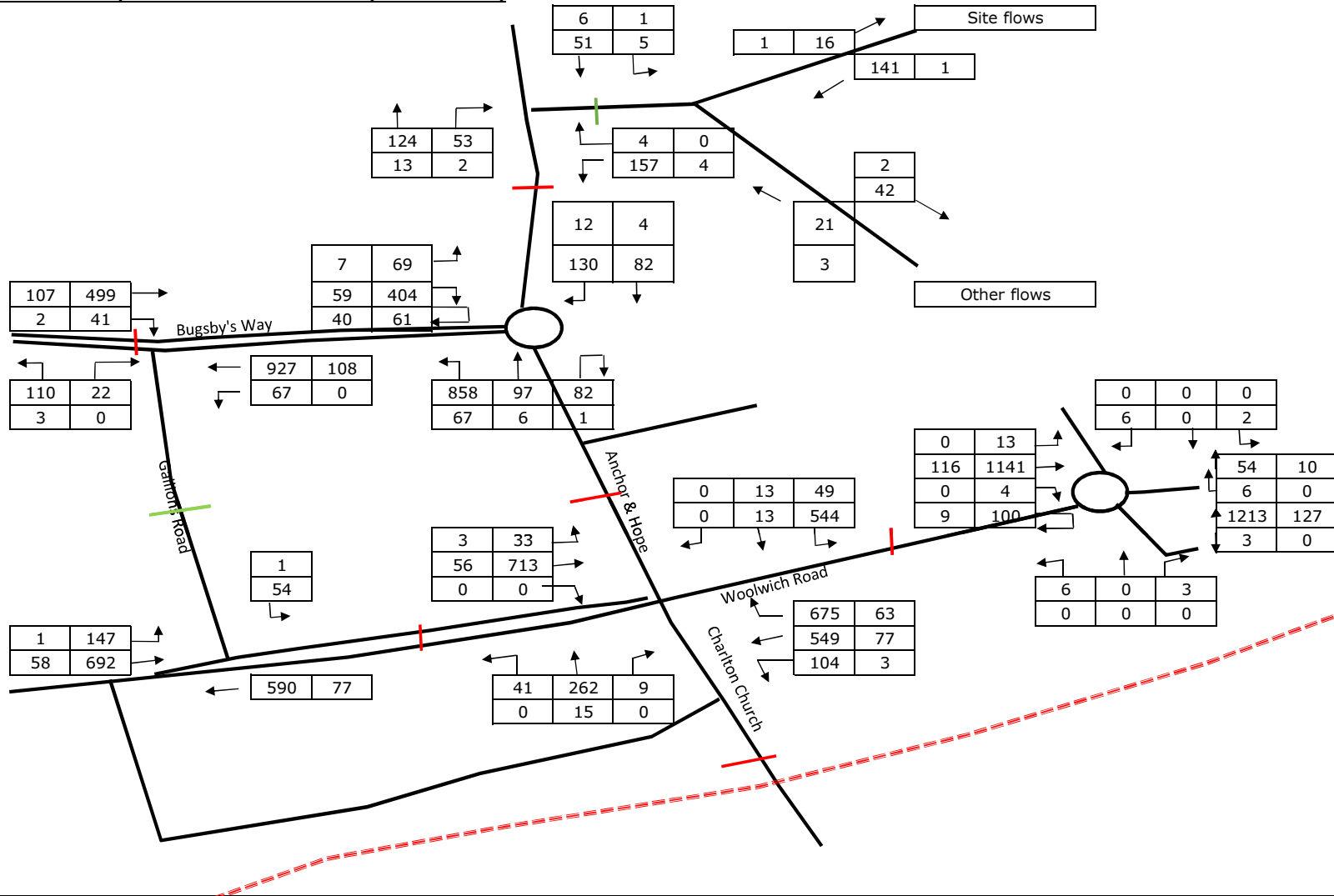
30821 - Charlton Riverside

Baseline Plus Other Cumulative Developments - PM Peak - (17:00 - 18:00)



30821 - Charlton Riverside

Cumulative Development Scenario - AM Peak - (08:00 - 09:00)



30821 - Charlton Riverside

Cumulative Development Scenario - PM Peak - (17:00 - 18:00)

