

WHITEFRIARS ACCESS AND PARKING ANALYSIS

WHITEFRIARS TRAFFIC STUDY

CITY OF LONDON



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Appendix A: Traffic flows and routes analysis

Appendix B: Kerbside activity analysis

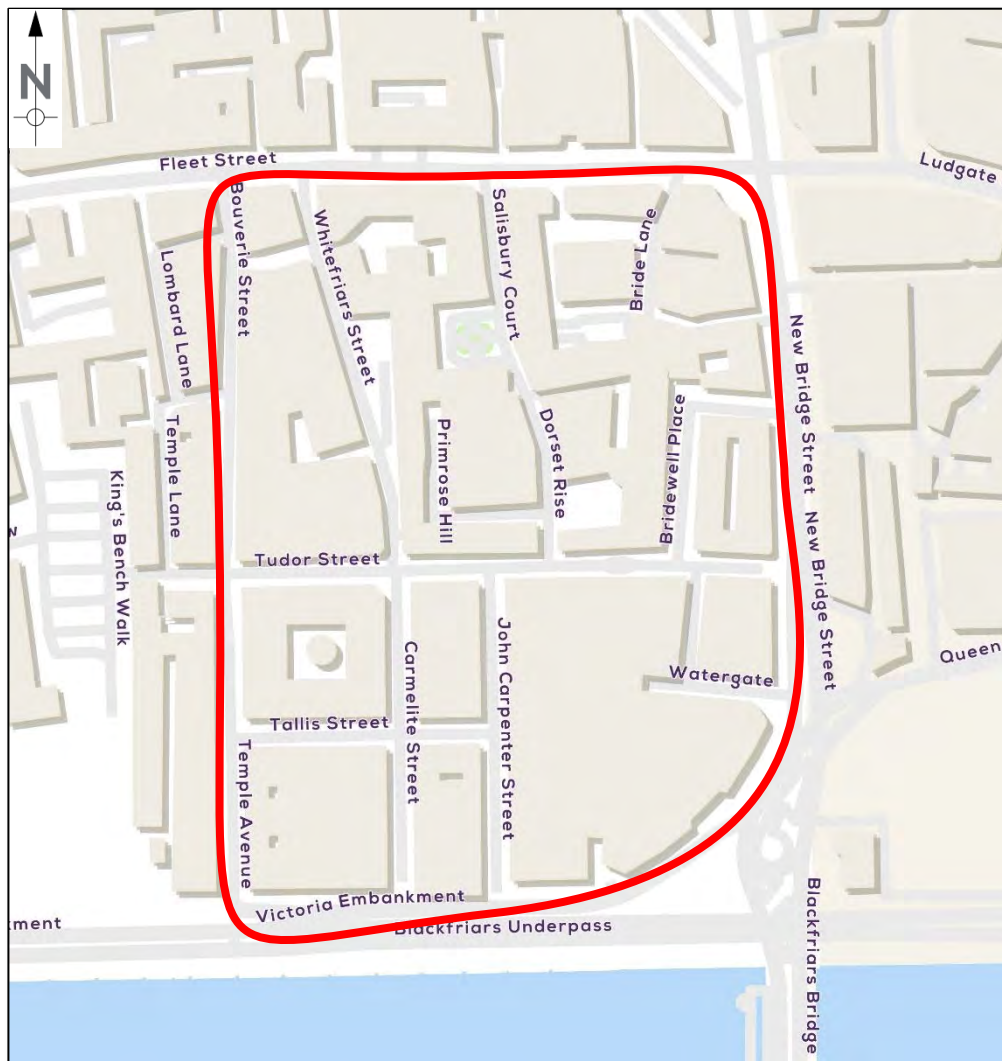
1 INTRODUCTION

1.1 Brief

1.1.1 NRP has been commissioned by City of London (CoL) to undertake a traffic study of the Whitefriars area to understand existing conditions and to identify opportunities for public realm improvements that would support the City's Healthy Street Strategy for the Fleet Street area.

1.1.2 The study area for the traffic analysis is shown in Figure 1-1.

Figure 1-1: Whitefriars study area



2 TRAFFIC FLOWS

2.1 Traffic survey

2.1.1 NDC were commissioned by NRP/ CoL to undertake surveys to record traffic flows at a number of junctions within the Whitefriars study area. The survey dates and times were as follows:

- Wednesday 22nd March, Thursday 23rd March and Saturday 25th March 2023
- 07:00-10:00, 12:00-14:00, 16:00-19:00

2.1.2 The surveys were required to ascertain the number of vehicles within the Whitefriars area, and derive the volume of traffic using the streets as a through route, with no apparent purpose within the area.

2.1.3 Junction counts were undertaken at the following locations:

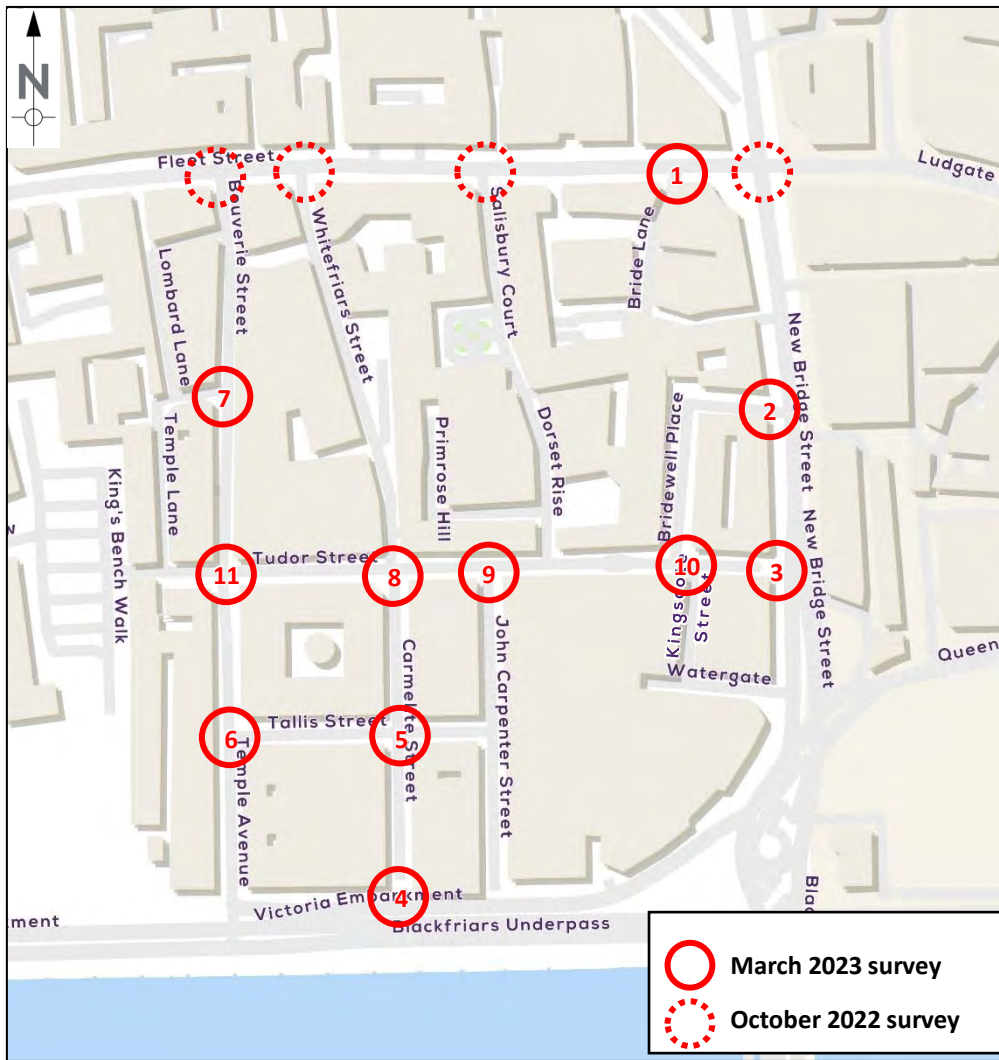
- Fleet Street/ Bride Lane
- New Bridge Street/ Bridewell Place
- New Bridge Street/ Tudor Street
- Carmelite Street/ Victoria Embankment
- Carmelite Street/ Tallis Street
- Temple Avenue/ Tallis Street
- Bouverie Street/ Temple Lane
- Tudor Street/ Carmelite Street/ Whitefriars Street
- Tudor Street/ John Carpenter Street
- Tudor Street/ Bridewell Place/ Kingscote Street
- Temple Avenue/ Tudor Street/ Bouverie Street

2.1.4 The following junctions were previously surveyed in October 2022

- Fleet Street/ Bouverie Street
- Fleet Street/ Whitefriars Street
- Fleet Street/ Salisbury Court
- Fleet Street/ Farringdon Street/ Ludgate Hill/ New Bridge Street

2.1.5 Figure 2-1 shows the locations of the junction counts.

Figure 2-1: Junction count locations



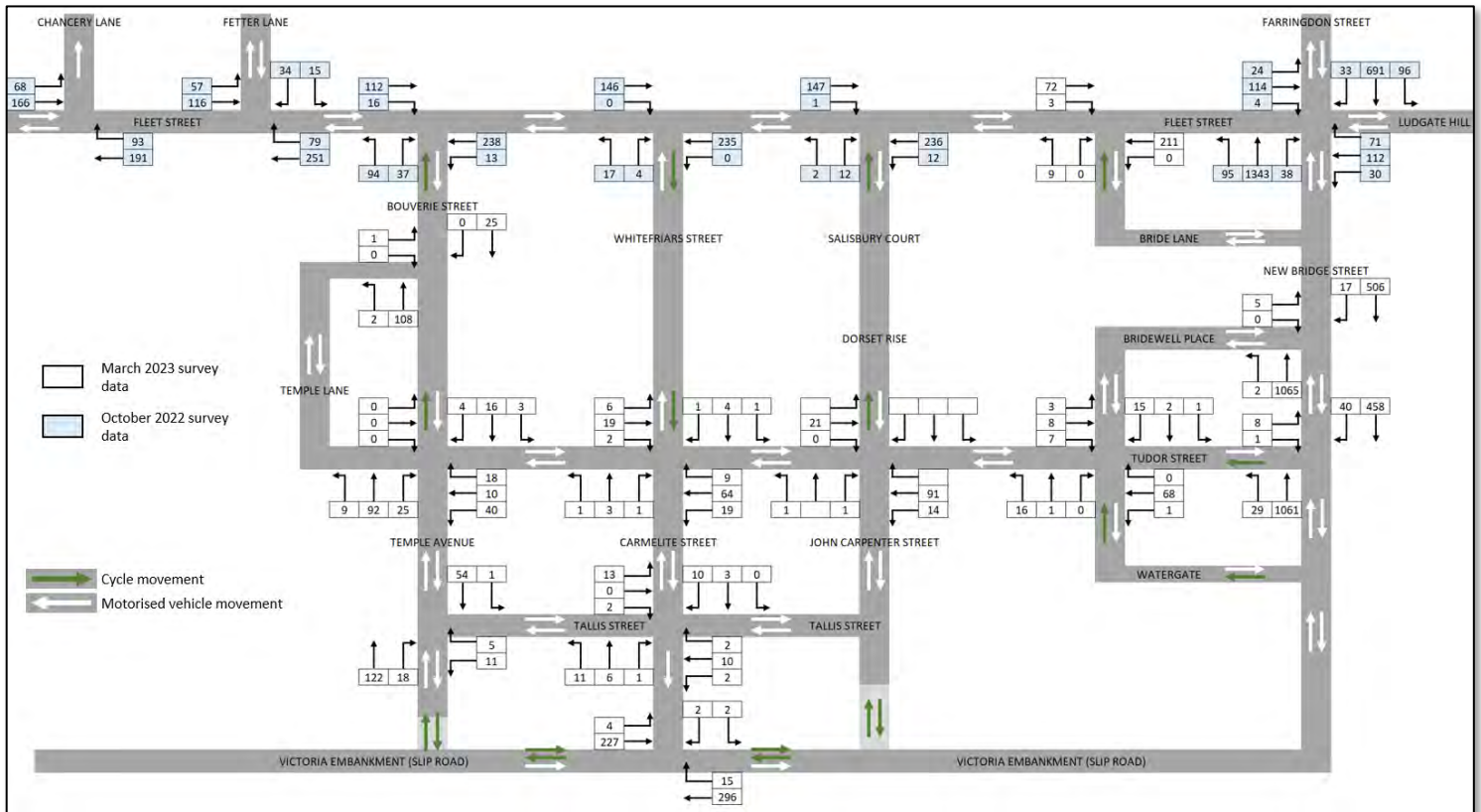
2.1.6 **Appendix A** provides traffic flow diagrams for the AM peak (08:15-09:15) and the PM peak (17:15-18:15) hours for the following vehicle types:

- Light vehicles (car, taxi, LGV and motorcycle)
- Heavy vehicles (MGV, HGV, bus, coach)
- Cycles
- Taxis
- All motor vehicles

2.1.7 **Appendix A** also includes the change in cycles and all motor vehicles in March 2023 and October 2022 compared to January 2018.

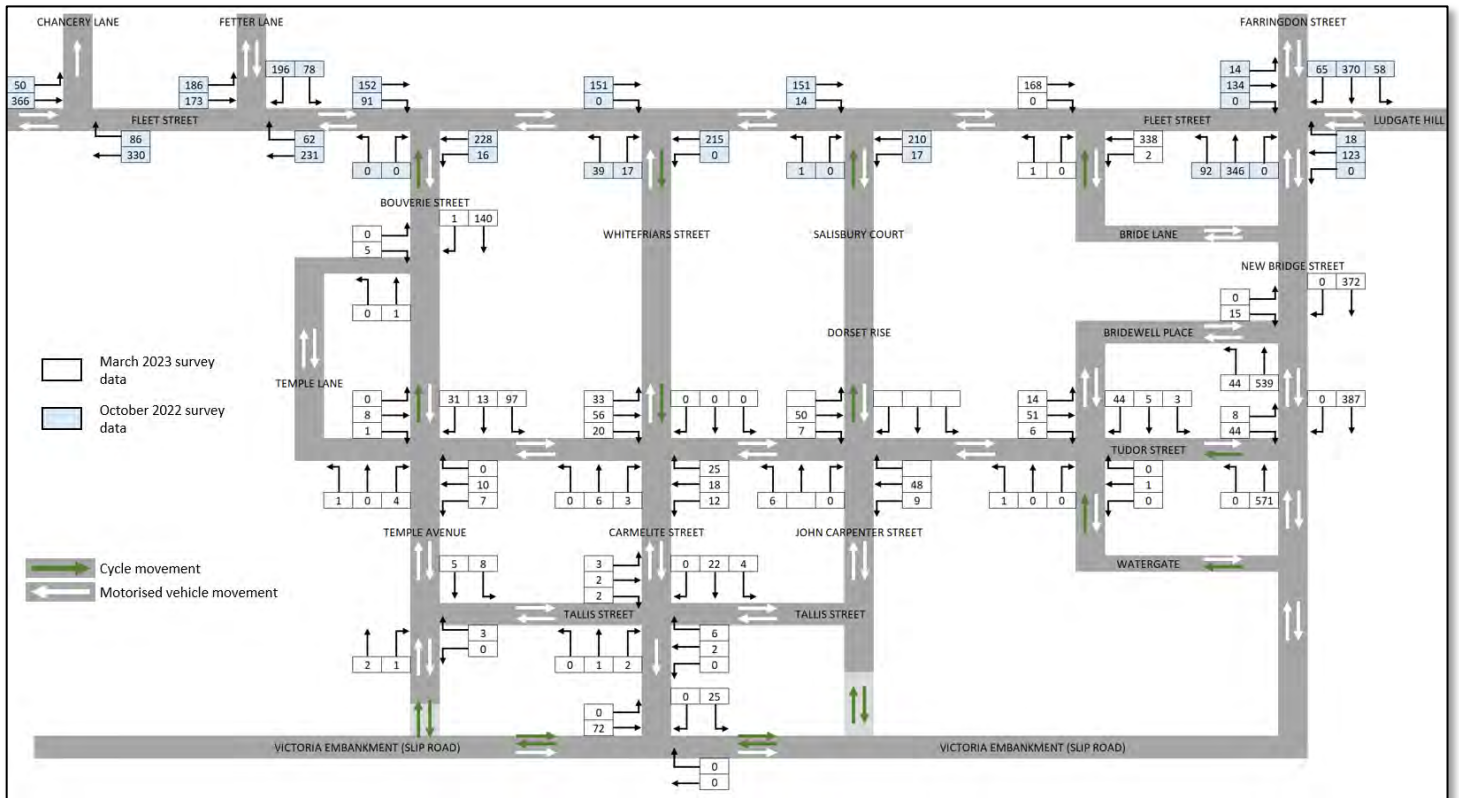
2.1.8 The flow diagrams for all motor vehicles and for cycles are shown in Figure 2-2 to Figure 2-5.

Figure 2-2: Cycles (AM peak, 08:15-09:15)



- 2.1.9 In the morning peak hour the dominant cycle movement through the Whitefriars area is entering from Victoria Embankment and then proceeding northbound on Temple Avenue, on to Bouverie Street, and then turning left onto Fleet Street.
- 2.1.10 The other major cycle flow through the Whitefriars area is westbound on Tudor Street, the majority of which turn left onto Temple Avenue to proceed southbound toward Victoria Embankment.
- 2.1.11 Both of these movements provide links to/from Cycleway 3 to the south and Cycleway 6 to the east.

Figure 2-3: All motor vehicles (AM peak, 08:15-09:15)



2.1.12 For motor vehicles, the major flows in the AM peak hour through the Whitefriars area are as follows:

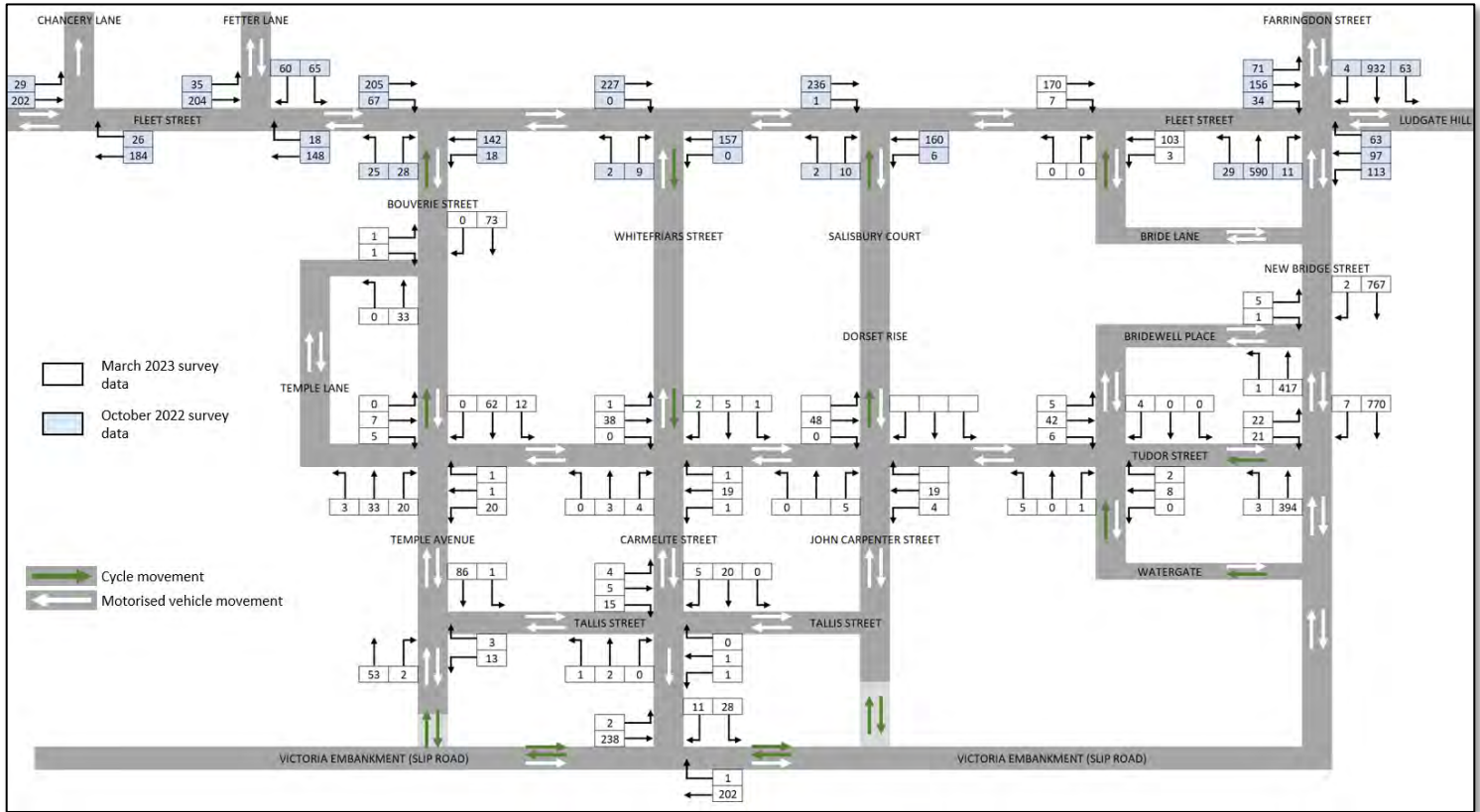
- Southbound on Bouverie Street, left onto Tudor Street eastbound, and leaving the area by turning right onto New Bridge Street southbound.
- Westbound on Tudor Street (entering from New Bridge Street via Bridewell Place), and then turning right onto Whitefriars Street to exit by turning left onto Fleet Street.
- The highest 2-way flow on Tudor Street is 176 motor vehicles in the AM peak hour.
- Bouverie Street has a southbound flow of 141 motor vehicles.
- Whitefriars Street has a northbound flow of 56 motor vehicles.
- Bridewell Place has a 2-way flow of 59 motor vehicles.

2.1.13 No other streets within the Whitefriars area have a flow of more than 50 motor vehicles.

2.1.14 The number of heavy vehicles is highest on Bouverie Street and Tudor Street, with 35 recorded on Bouverie Street and 43 on Tudor Street in the AM peak hour. It is likely that some of these are associated with the development in the Salisbury Court area.

2.1.15 In the AM peak hour, on Bouverie Street and Tudor Street, 20-25% of motor vehicles are taxis.

Figure 2-4: Cycles (PM peak, 17:15-18:15)



- 2.1.16 In the evening peak hour the dominant cycle movement through the Whitefriars area is entering from Fleet Street and then proceeding southbound on Bouverie Street, on to Temple Avenue, and then exiting onto Victoria Embankment.
- 2.1.17 The other major cycle flow through the Whitefriars area is eastbound on Tudor Street, which turns onto Cycleway 6 on New Bridge Street.

Figure 2-5: All motor vehicles (PM peak, 17:15-18:15)



2.1.18 For motor vehicles, the major flows in the PM peak hour through the Whitefriars area are as follows:

- Southbound on Bouverie Street, left onto Tudor Street eastbound, and leaving the area by turning right onto New Bridge Street southbound.
- The highest 2-way flow on Tudor Street is 201 motor vehicles in the PM peak hour.
- Bouverie Street has a southbound flow of 138 motor vehicles.
- Whitefriars Street has a northbound flow of 52 motor vehicles.
- Bridewell Place has a 2-way flow of 65 motor vehicles.

2.1.19 No other streets within the Whitefriars area have a flow of more than 50 motor vehicles.

2.1.20 The number of heavy vehicles is very low, with 3 recorded on Tudor Street in the PM peak hour.

2.1.21 In the PM peak hour, on Bouverie Street and Tudor Street, 30-40% of motor vehicles are taxis.

2.2 Analysis

2.2.1 The traffic flows within the Whitefriars area are generally low. The DfT Cycle Infrastructure Design (LTN 1/20, July 2020) sets out the appropriate level of protection for cyclists from motor vehicles on roads with varying traffic conditions. This is recreated in Figure 2-6.

Figure 2-6: Appropriate protection from motor traffic on highways (Figure 4.1, LTN 1/20)

Figure 4.1: Appropriate protection from motor traffic on highways

Speed Limit ¹	Motor Traffic Flow (pcu/24 hour) ²	Protected Space for Cycling			Cycle Lane (mandatory/ advisory)	Mixed Traffic
		Fully Kerbed Cycle Track	Stepped Cycle Track	Light Segregation		
20 mph ³	0	Green	Green	Green	Green	Green
	2000	Green	Green	Green	Green	Green
	4000	Green	Green	Green	Yellow	Yellow
	6000+	Green	Green	Green	Yellow	Pink
30 mph	0	Green	Green	Green	Yellow	Yellow
	2000	Green	Green	Green	Yellow	Yellow
	4000	Green	Green	Green	Yellow	Pink
	6000+	Green	Green	Green	Yellow	Pink
40 mph	Any	Green	Yellow	Yellow	Pink	Pink
50+ mph	Any	Green	Pink	Pink	Pink	Pink

- Provision suitable for most people
- Provision not suitable for all people and will exclude some potential users and/or have safety concerns
- Provision suitable for few people and will exclude most potential users and/or have safety concerns

Notes:

1. If the 85th percentile speed is more than 10% above the speed limit the next highest speed limit should be applied
2. The recommended provision assumes that the peak hour motor traffic flow is no more than 10% of the 24 hour flow
3. In rural areas achieving speeds of 20mph may be difficult, and so shared routes with speeds of up to 30mph will be generally acceptable with motor vehicle flows of up to 1,000 pcu per day

2.2.2 The streets within the Whitefriars area all have a speed limit of 20mph, with a maximum motor vehicle flow of approximately 2,000 PCUs on Tudor Street, with lower flows on all other streets. TfL collision data for the Whitefriars area shows that from 2017-2022 there have been 8 collisions resulting in casualties, with all of these having severity of slight. The mode of travel for the casualties were car (x1), cycle (x3) motorbike (x1), taxi (x2) and pedestrian (x1).

2.2.3 The low traffic flows, low number of heavy vehicles, low speeds and low number of collisions suggest that mixing cycles and motor vehicles without segregation or cycle lanes is an appropriate approach.

2.3 Traffic flow comparison

2.3.1 The October 2022 and March 2023 survey data has been compared to the January 2018 survey data in order to see how this has changed for motor vehicles and cycles. This comparison has been undertaken for vehicles entering and exiting the Whitefriars area.

2.3.2 A comparison has also been made for the eastbound and westbound flow on Fleet Street, to the west of Fetter Lane.

Whitefriars area

- 2.3.3 Motor vehicle flows entering the Whitefriars area in March 2023 have reduced by 29% in the AM peak hour and by 19% in the PM peak hour compared to the January 2018 survey data.
- 2.3.4 Cycle flows entering the Whitefriars area in March 2023 have reduced by 28% in the AM peak hour and by 31% in the PM peak hour compared to the January 2018 survey data.

Figure 2-7: Whitefriars area flow comparison

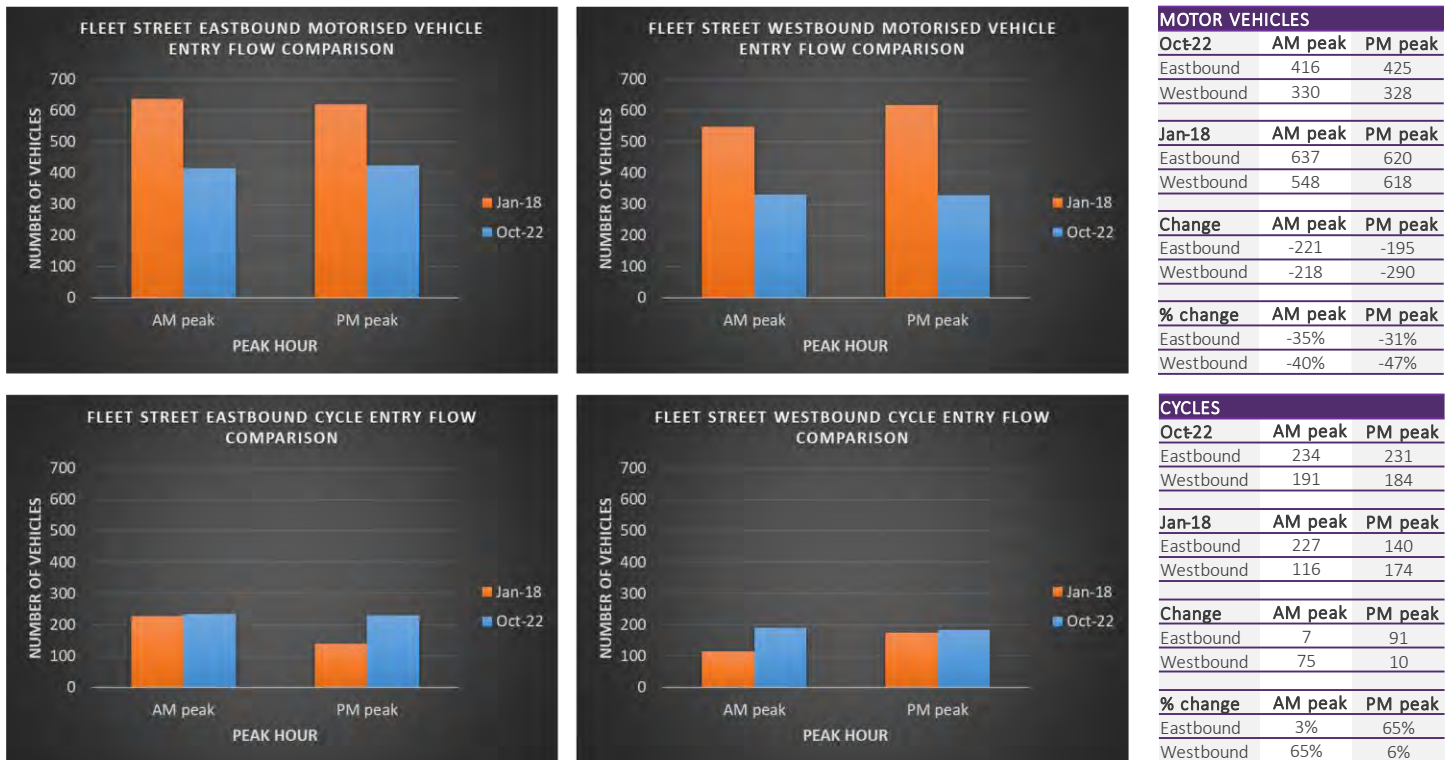


Fleet Street

2.3.5 Motor vehicle flows eastbound on Fleet Street in October 2022 have reduced by 40% in the AM peak hour and by 47% in the PM peak hour compared to the January 2018 survey data.

2.3.6 2-way cycle flows on Fleet Street in October 2022 have increased by 24% in the AM peak hour and by 32% in the PM peak hour compared to the January 2018 survey data.

Figure 2-8: Fleet Street flow comparison



3 VEHICLE ROUTES

3.1 Origin-Destination survey

3.1.1 Vehicle Origin-Destination (OD) routes were surveyed using Automatic Number Plate Recognition (ANPR) data collection to understand how vehicles move through the Whitefriars Area and how long they spend in it.

3.1.2 The survey dates and times were as follows:

- Wednesday 22nd March, Thursday 23rd March and Saturday 25th March 2023
- 07:00-10:00, 12:00-14:00, 16:00-19:00

3.1.3 The ANPR survey is only able to collect data for motor vehicles because it requires number plates to match the vehicles at each OD point.

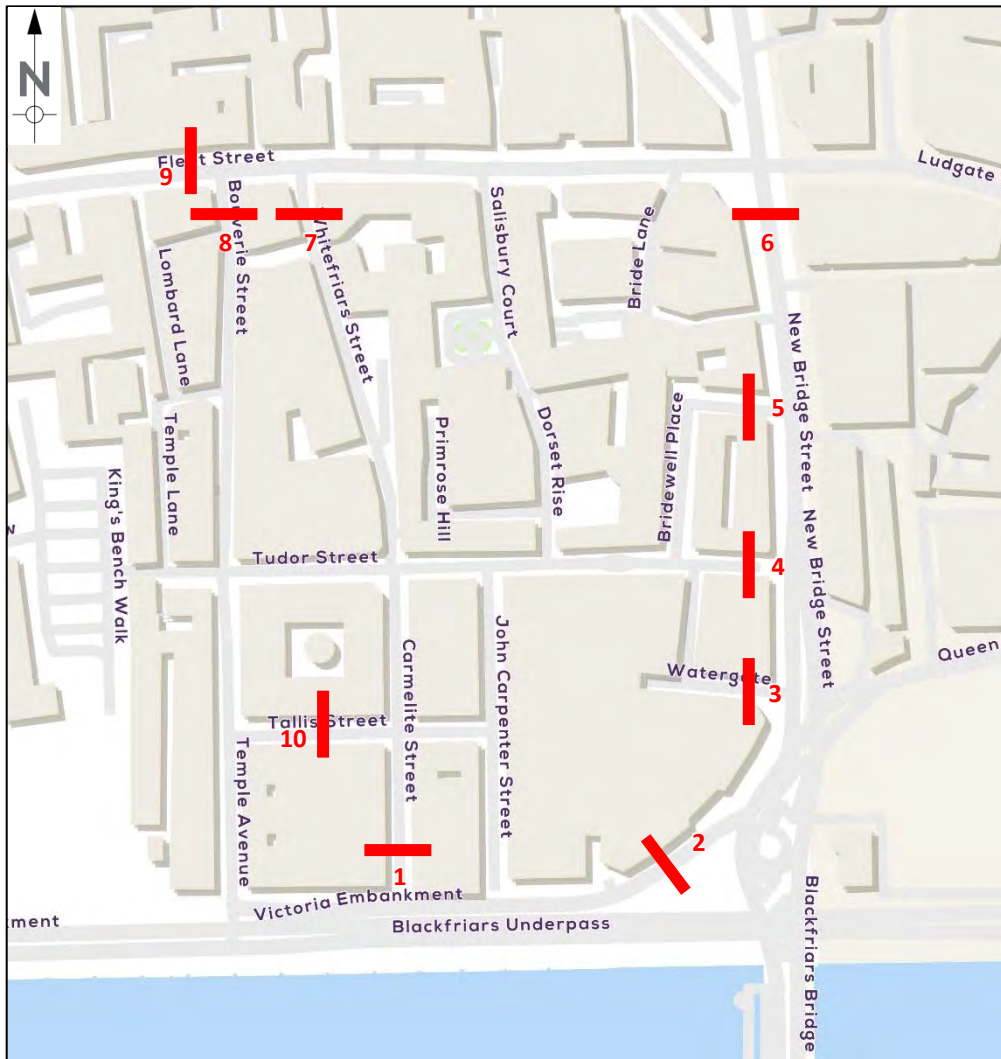
3.1.4 The surveyed Origin and Destination points are listed below and shown in Figure 3-1:

1. Carmelite Street (exit only to Victoria Embankment slip road)
2. Victoria Embankment slip road (eastbound only)
3. Watergate (exit only)
4. Tudor Street (exit only)
5. Bridewell Place (entry and exit)
6. New Bridge Street (2-way)
7. Whitefriars Street (exit only)
8. Bouverie Street (entry only)
9. Fleet Street (2-way)
10. Tallis Street (2-way)

3.1.5 Vehicle types surveyed were:

- Car (including taxi)
- LGV
- OGV1
- OGV2

Figure 3-1: Survey Origin-Destination (OD) points



3.2 OD results

- 3.2.1 Figure 3-2 and Figure 3-3 provide a summary of the proportional split of vehicle movements between each OD point for Wednesday and Saturday respectively.
- 3.2.2 The data reflects the junction count survey, with the dominant movements through the Whitefriars area being between Fleet Street and New Bridge Street.

Figure 3-2: OD summary for Wednesday

		Destination									
Wednesday		1	3	4	5 (eastbound)	5 (westbound)	6	7	8	9	10
Origin	2	1%	6%	1%	0%	10%	80%	1%	0%	1%	0%
	3	0%	0%	13%	0%	13%	63%	0%	0%	13%	0%
	4	0%	0%	0%	0%	0%	97%	0%	0%	3%	0%
	5 (eastbound)	0%	33%	0%	0%	0%	33%	0%	0%	33%	0%
	5 (westbound)	5%	15%	15%	4%	0%	8%	31%	1%	20%	0%
	6	7%	0%	0%	0%	7%	71%	0%	0%	14%	0%
	7	2%	0%	0%	0%	0%	0%	0%	6%	91%	1%
	8	12%	2%	31%	13%	0%	6%	9%	0%	20%	6%
	9	7%	1%	32%	13%	0%	2%	2%	31%	11%	1%
	10	29%	0%	8%	6%	0%	6%	21%	0%	29%	0%

Figure 3-3: OD summary for Saturday

		Destination									
Saturday		1	3	4	5 (eastbound)	5 (westbound)	6	7	8	9	10
Origin	2	0%	0%	0%	0%	2%	97%	1%	0%	0%	0%
	3	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%
	4	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%
	5 (eastbound)	50%	0%	0%	0%	0%	0%	0%	0%	50%	0%
	5 (westbound)	7%	19%	21%	0%	0%	5%	21%	0%	26%	2%
	6	11%	0%	11%	0%	0%	78%	0%	0%	0%	0%
	7	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
	8	11%	3%	26%	9%	0%	14%	6%	3%	26%	3%
	9	8%	0%	51%	11%	0%	1%	2%	15%	11%	1%
	10	25%	0%	13%	13%	0%	0%	0%	0%	50%	0%

3.2.3 **Appendix A** provides the detail for the main routes through the Whitefriars area for Wednesday, Thursday and Saturday. Summary flow diagrams are provided in Figure 3-4 and Figure 3-5 that show how motor vehicles move through the study area when entering from Fleet Street and New Bridge Street, which are the only 2 entry points for motor vehicles (with Salisbury Court closed for development). The flow diagrams represent the total of the 8 hours surveyed on Wednesday.

3.2.4 The junction count and OD data shows that the movement with the highest motor vehicle flow is from Fleet Street to New Bridge Street. The main reason for this is likely to be because the right-turn from Fleet Street eastbound to New Bridge Street southbound at Ludgate Circus is prohibited. Therefore, the route through Whitefriars via Tudor Street is the most direct way of travelling from Fleet Street to New Bridge Street.

Figure 3-4: Vehicle routes from Fleet Street (Wednesday)

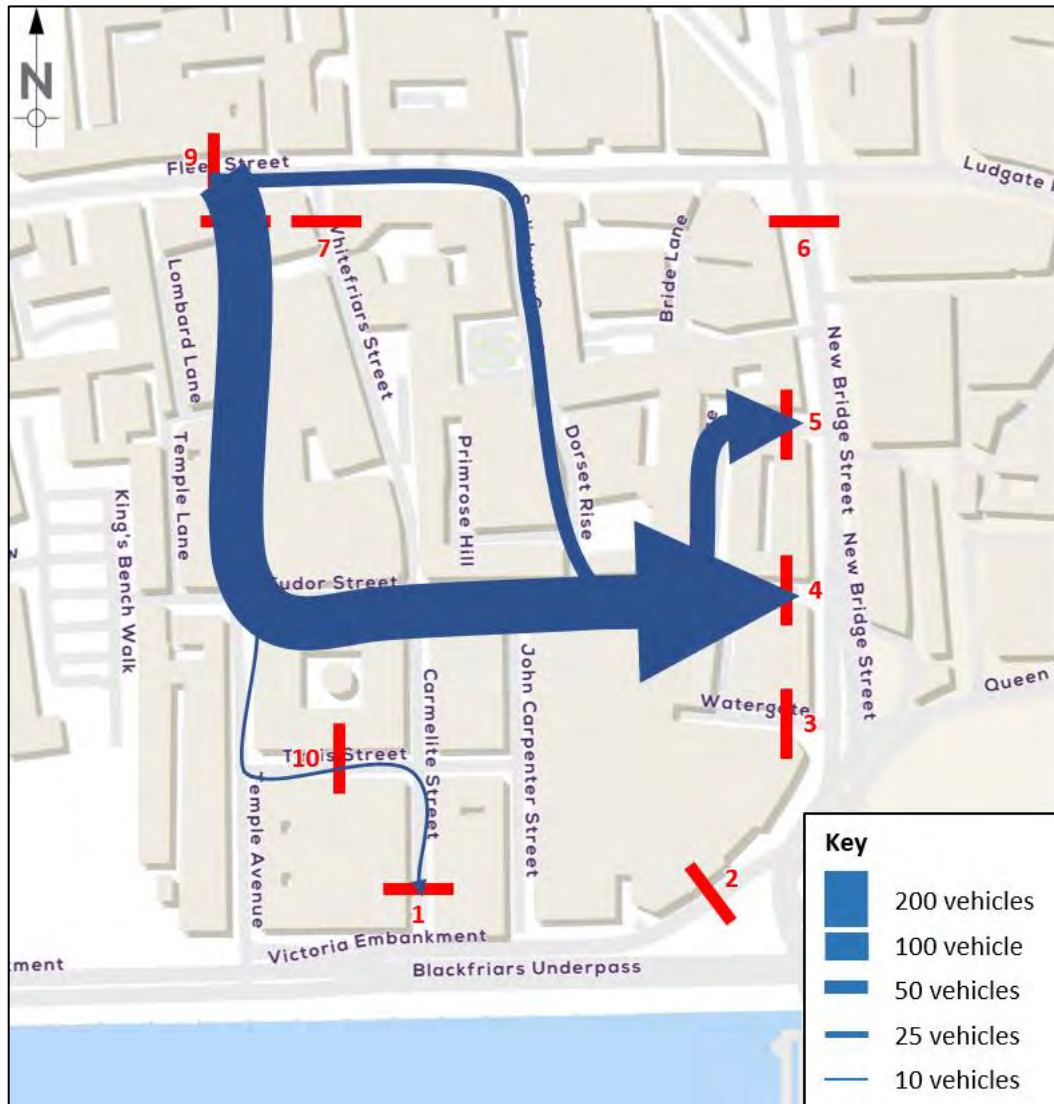
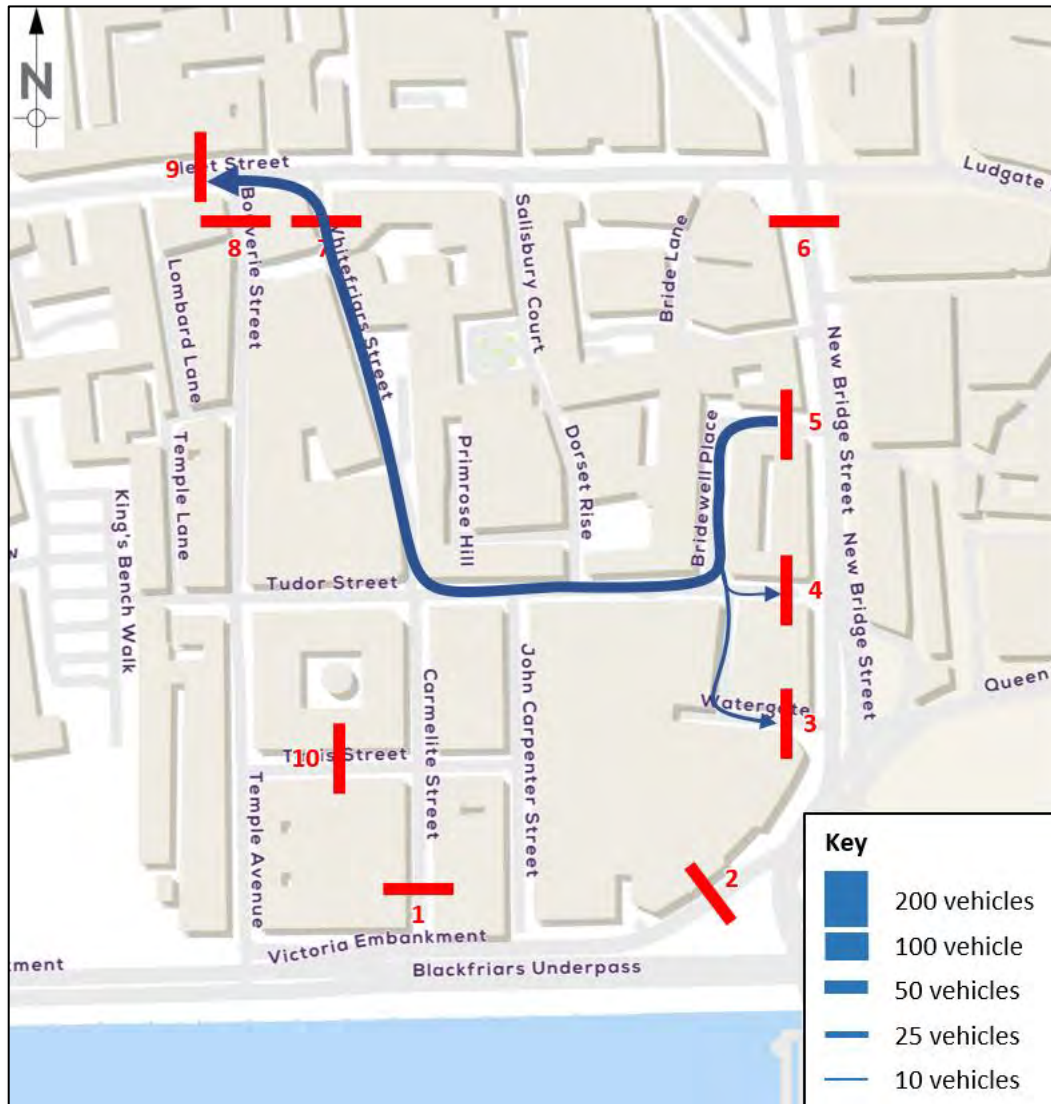


Figure 3-5: Vehicle routes from New Bridge Street (Wednesday)



3.3 Vehicle journey times

3.3.1 The ANPR survey provides the time taken for vehicles to move between each OD point. Figure 3-6 presents the average journey time between the Whitefriars entry and exit points by vehicle type for each peak hour.

Figure 3-6: Average journey time by vehicle type for each peak hour

AVERAGE VEHICLE JOURNEY TIME					AVERAGE VEHICLE JOURNEY TIME				
WEDNESDAY	AM	IP	PM	TOTAL	SATURDAY	AM	IP	PM	TOTAL
Car	00:01:42	00:01:38	00:01:31	00:01:37	Car	00:01:04	00:01:14	00:01:14	00:01:11
LGV	00:01:42	00:01:27	00:01:37	00:01:35	LGV	00:00:53	00:01:21	00:01:09	00:01:08
OGV1	00:01:50	00:01:32	00:04:32	00:02:38	OGV1	00:00:54	N/A	00:01:47	N/A
OGV2	00:01:20	00:01:34	00:01:42	00:01:32	OGV2	N/A	N/A	N/A	N/A

3.3.2 Figure 3-7, Figure 3-8 and Figure 3-9 show the average journey time between the Whitefriars entry and exit points by vehicle type for each survey day.

Figure 3-7: Average journey times between entry and exit points by vehicle type (Wednesday)

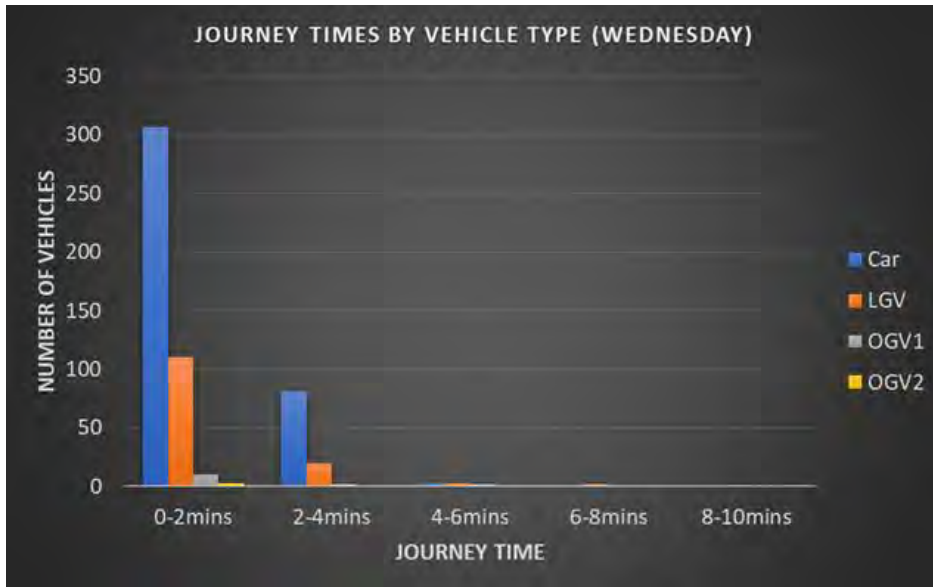


Figure 3-8: Average journey times between entry and exit points by vehicle type (Thursday)

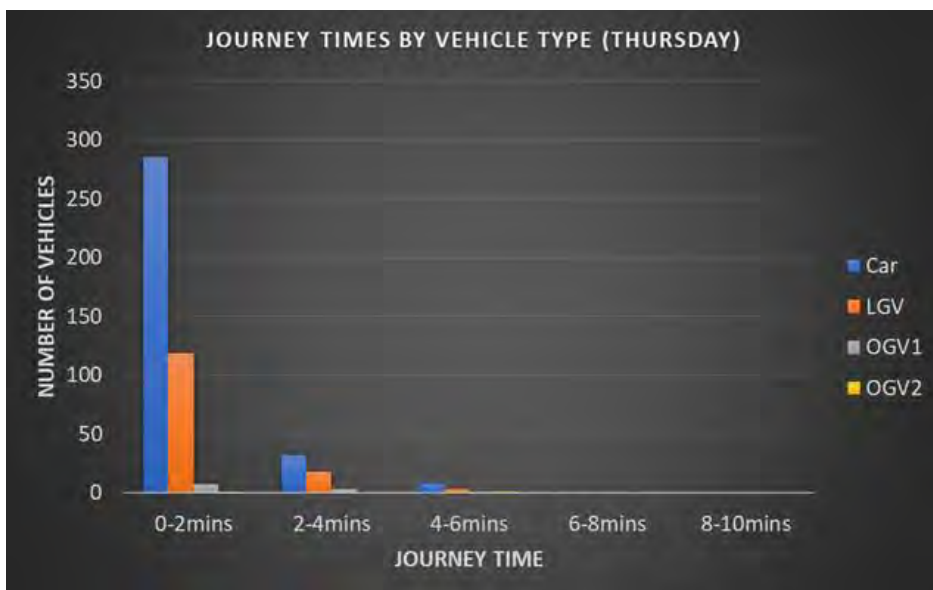
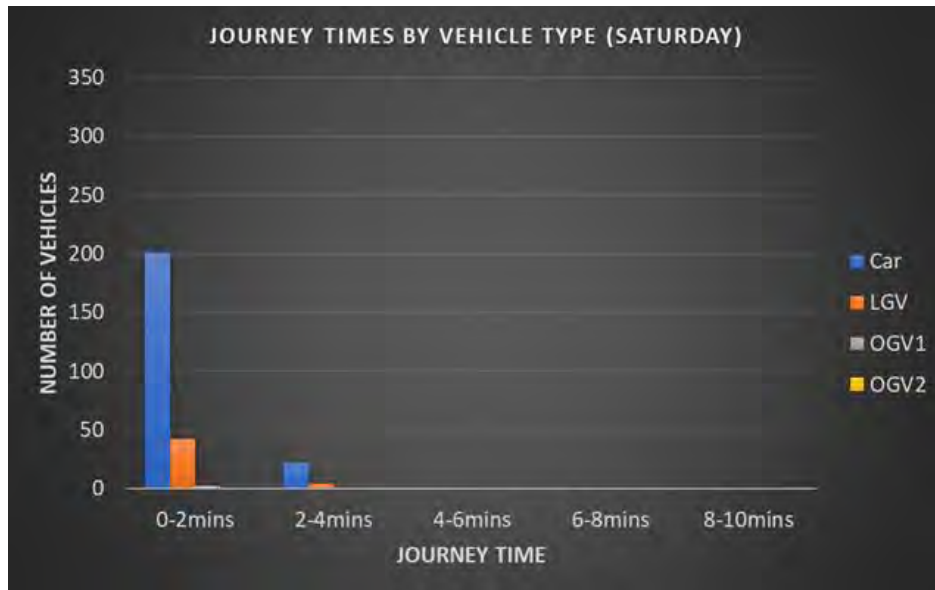


Figure 3-9: Average journey times between entry and exit points by vehicle type (Saturday)



3.3.3 The journey time results for all survey days (Wednesday, Thursday and Saturday), show that over 80% pass through the area within 2 minutes. This suggests most vehicles move through the Whitefriars area without having a purpose within the area. It also demonstrates a lack of congestion and delay within the area.

3.4 Tudor Street

3.4.1 The traffic survey data shows that Tudor Street carries the highest volumes of traffic in the Whitefriars area. However, as described in paragraph 2.2.2, the traffic flows on Tudor Street are low enough for cyclists to mix with motor traffic without any segregation. Measures to further reduce motor vehicle flow on Tudor Street are presented in Table 3-1, as well as the benefits and impacts of those options.

3.4.2 Within Table 3-1, “permitted vehicles” are those that would not receive a Penalty Charge Notice (PCN) if detected by the enforcement camera. Camera enforcement provides the option to have list of number plates that would not get a ticket if detected by the camera. This could apply to residents and/or businesses in the Whitefriars area, and allow them essential access to the area. This option gives flexibility in permitting “local” vehicles through the area, which would mean little or no disbenefit to residents and/or businesses, whilst being able to generate PCNs to those not on the list (i.e. non-local through traffic). Similar schemes are in operation in other locations in, for example, Westminster.

3.4.3 Taking the OD data and the traffic count data, the flow reductions on Tudor Street as result of movement restrictions are estimated to be as follows:

- 44% of vehicles travel directly from Fleet Street to New Bridge Street. Removing this route would result in approximately 40 fewer motor vehicles on Tudor Street in both the AM and PM peak hour periods.
- 69% of vehicles enter Bridewell Place westbound from New Bridge Street and travel on Tudor Street west of Bridewell Place. Removing this route would result in approximately 30 fewer motor vehicles on Tudor Street in the AM peak hour and 20 motor vehicles in the PM peak hour period.

Table 3-1: Tudor Street through movement restriction options

Option	Description	Benefits	Impacts
Modal filter on Tudor Street between Dorset Rise and Bridewell Place	Cyclists only would be able to proceed eastbound on Tudor Street east of Dorset Rise	<ul style="list-style-type: none"> No through route on Tudor Street for any motor traffic No enforcement required Access to all streets retained for motor vehicles Opportunity for footway widening on Tudor Street 	<ul style="list-style-type: none"> Increase in motor traffic exiting from Carmelite Street and Whitefriars Street Route from Fleet Street to New Bridge Street removed for motor vehicles. Alternative route may use Arundel Street and Victoria Embankment Restriction in access/egress for residents with motor vehicles and servicing motor vehicles
Enforcement camera on Tudor Street between Dorset Rise and Bridewell Place	Cyclists and permitted vehicles would be able to proceed eastbound on Tudor Street east of Dorset Rise	<ul style="list-style-type: none"> No through route for non-local motor traffic No restriction on motor vehicle movement for residents Access to all streets retained for motor vehicles 	<ul style="list-style-type: none"> Increase in motor traffic exiting from Carmelite Street and Whitefriars Street Route from Fleet Street to New Bridge Street removed for motor vehicles. Alternative route may use Arundel Street and Victoria Embankment Camera enforcement, maintenance and permitted vehicle list required
Tudor Street one-way westbound (except for cyclists) between Dorset Rise and Bridewell Place	Cyclists only would be able to use Tudor Street to proceed eastbound east of Dorset Rise. All vehicles would be able to travel westbound on Tudor Street	<ul style="list-style-type: none"> No through route for any motor traffic from Fleet Street to New Bridge Street Enforcement required Westbound movement on Tudor Street (which is currently low) permitted to maintain local access Access to all streets retained for motor vehicles Opportunity for footway widening 	<ul style="list-style-type: none"> Increase in motor traffic exiting from Carmelite Street and Whitefriars Street Route from Fleet Street to New Bridge Street removed for motor vehicles. Alternative route may use Arundel Street and Victoria Embankment Restriction in egress for residents with motor vehicles and servicing motor vehicles
Tudor Street one-way eastbound (except for cyclists) between Dorset Rise and Bridewell Place	All vehicles would be able to use Tudor Street to proceed eastbound east of Dorset Rise. Cycles only vehicles would be able to travel westbound on Tudor Street west of Bridewell Place	<ul style="list-style-type: none"> No through route for any motor traffic from New Bridge Street to west of Bridewell Place Enforcement required No reassignment required as the route from Fleet Street to New Bridge Street is retained Access to all streets retained for motor vehicles Opportunity for footway widening 	<ul style="list-style-type: none"> Smaller reduction in motor vehicle flow compared with eastbound restriction Restriction in access for residents with motor vehicles and servicing motor vehicles

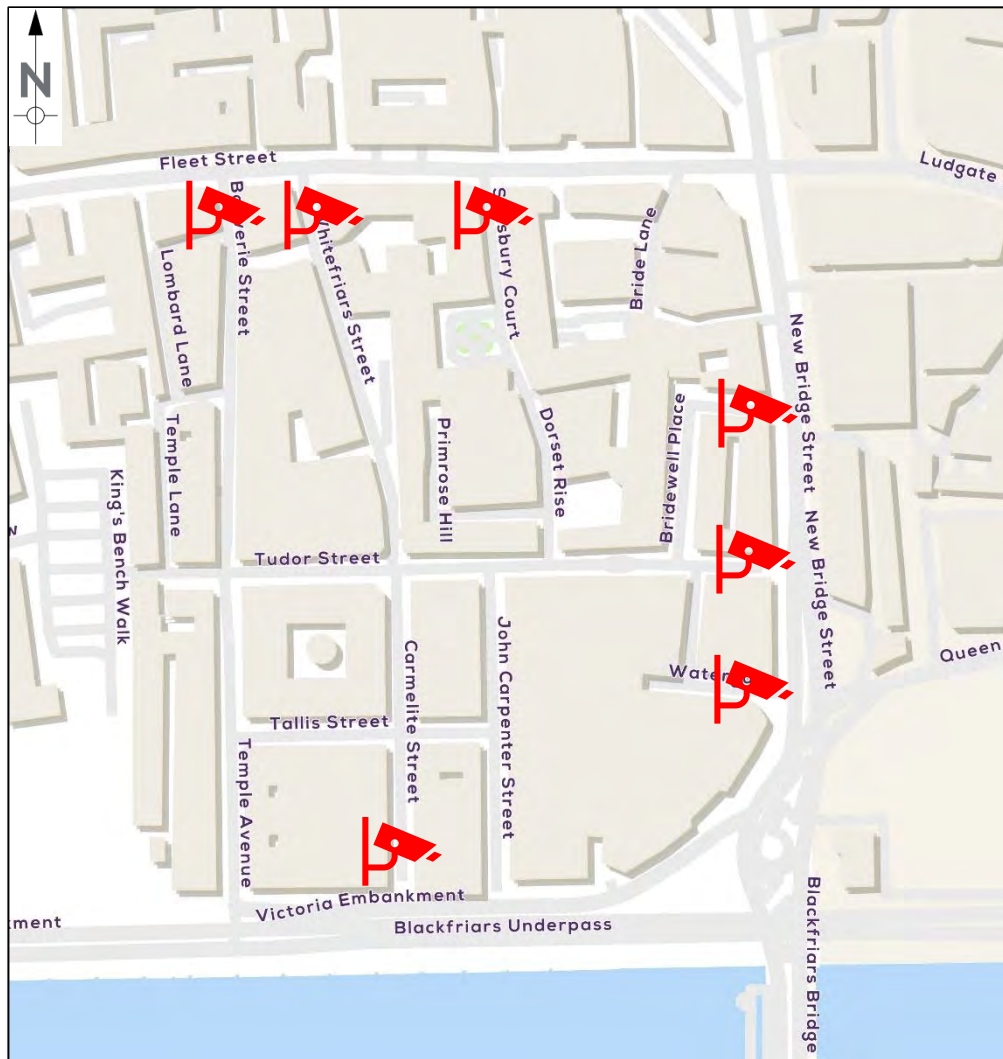
3.5 Carmelite Street

- 3.5.1 Carmelite Street provides access to Victoria Embankment (slip road), meaning it also acts as a route through Whitefriars like Tudor Street. However, the use of Carmelite Street as a through route is lower than Tudor Street. Part of the reason for this is that the egress from Carmelite Street only provides access to Victoria Embankment (slip road) and not Victoria Embankment/ Blackfriars Underpass, or indeed Blackfriars Bridge due to the restriction at the junction with New Bridge Street.
- 3.5.2 If motor vehicle egress from Carmelite Street was prohibited, and Tudor Street remained as it currently is, there would be more traffic on Tudor Street, as this would be the only exit from Whitefriars (apart from Whitefriars Street). This would equate to 20-30 additional motor vehicles in the AM and PM peak hours.
- 3.5.3 With motor vehicle egress removed, Carmelite Street would have a similar layout to that on John Carpenter Street. Space would be required for vehicles to turn around at the southern end of Carmelite Street, whilst allowing access and egress for cycles.

3.6 Camera enforcement for through-routes

- 3.6.1 Camera enforcement could be introduced to prohibit rat-running through the whole of the Whitefriars area, without having to make any changes to the existing highway layout.
- 3.6.2 With the existing layout, 7 cameras would cover all entry and exit points. This assumes one camera could cover entry and exit on Bridewell Place. The locations are shown in Figure 3-10 and listed below:
- Bouverie Street (entry only)
 - Salisbury Court (entry only)
 - Bridewell Place (entry and exit)
 - Tudor Street (exit only)
 - Watergate (exit only)
 - Carmelite Street (exit only)
 - Whitefriars Street (exit only)
- 3.6.3 The cameras would detect motor vehicles entering and exiting the Whitefriars area. If the time taken between entry and exit was less than a pre-determined value, then a PCN would be issued.

Figure 3-10: Whitefriars area camera locations for prohibition of through routes

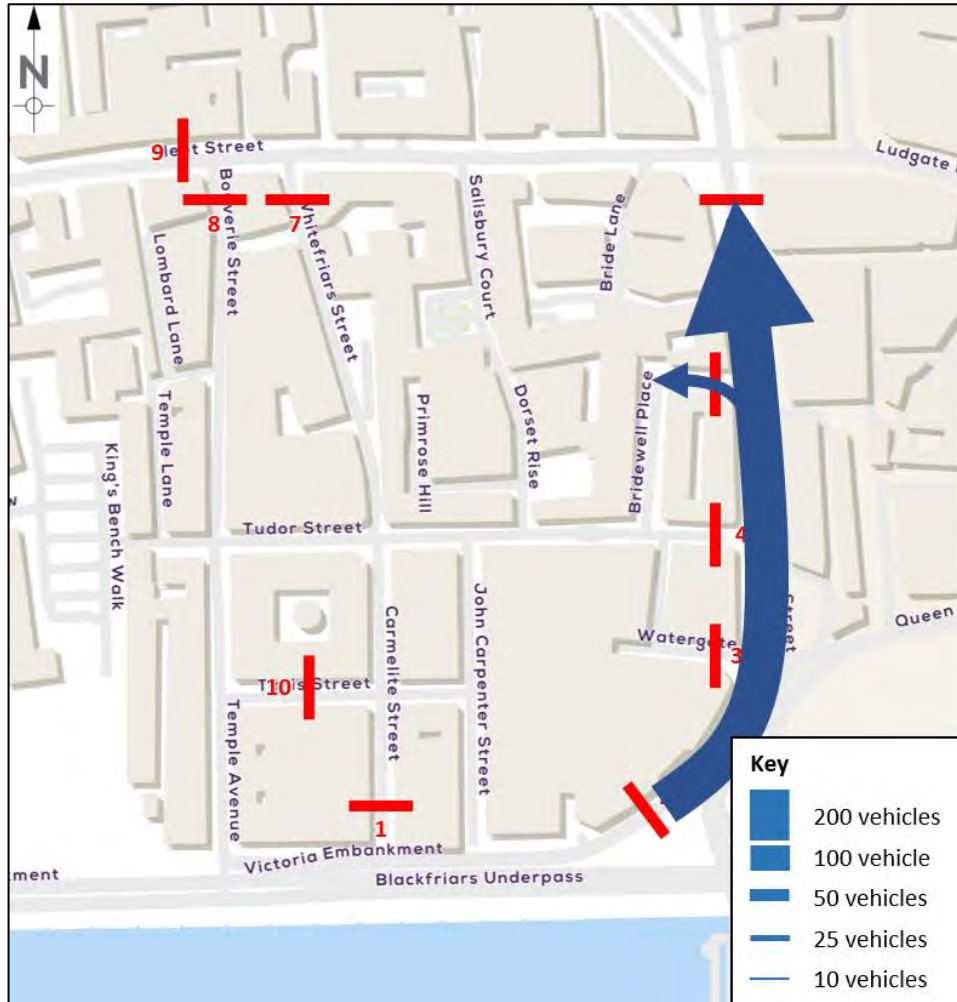


3.7 Access from Victoria Embankment

- 3.7.1 Vehicle movements from the Victoria Embankment eastbound slip road have been analysed to understand the level of demand to access the Whitefriars area from the south, which is not currently possible.
- 3.7.2 For the 8 surveyed hours on Wednesday, 79% of vehicles heading north from Victoria Embankment go to the Ludgate Circus junction. The remaining 21% enter the Whitefriars area at Bridewell Place. This equates to 46 vehicles going from Victoria Embankment to the Whitefriars area across the 8 hours surveyed for Wednesday.
- 3.7.3 For the 8 surveyed hours on Thursday, 87% of vehicles heading north from Victoria Embankment go to the Ludgate Circus junction. The remaining 13% enter the Whitefriars area at Bridewell Place. This equates to 25 vehicles going from Victoria Embankment to the Whitefriars area across the 8 hours surveyed for Thursday.
- 3.7.4 For the 8 surveyed hours on Saturday, 96% of vehicles heading north from Victoria Embankment go to the Ludgate Circus junction. The remaining 4% enter the Whitefriars area at Bridewell Place. This equates to 4 vehicles going from Victoria Embankment to the Whitefriars area across the 8 hours surveyed for Saturday.

- 3.7.5 The full data summary can be found at **Appendix A**, with the vehicle routes for Wednesday shown in Figure 3-11.
- 3.7.6 The survey data suggests there is not significant demand to access Whitefriars from the south of the area.

Figure 3-11: Vehicle routes from Victoria Embankment heading north (Wednesday)



4 KERBSIDE ACTIVITY

4.1 Kerbside survey

4.1.1 NDC were commissioned by NRP/ CoL to record kerbside activity on specific streets within the Whitefriars study area. The survey dates and times were as follows:

- Wednesday 22nd March, Thursday 23rd March and Saturday 25th March 2023
- 07:00-19:00 on each day

4.1.2 All results are presented as vehicle units. This assumes a vehicle unit has a length of 5m, where a car is 1 unit; a motorcycle is 0.17 units, a coach 3 units, etc.

Figure 4-1: Kerbside survey area

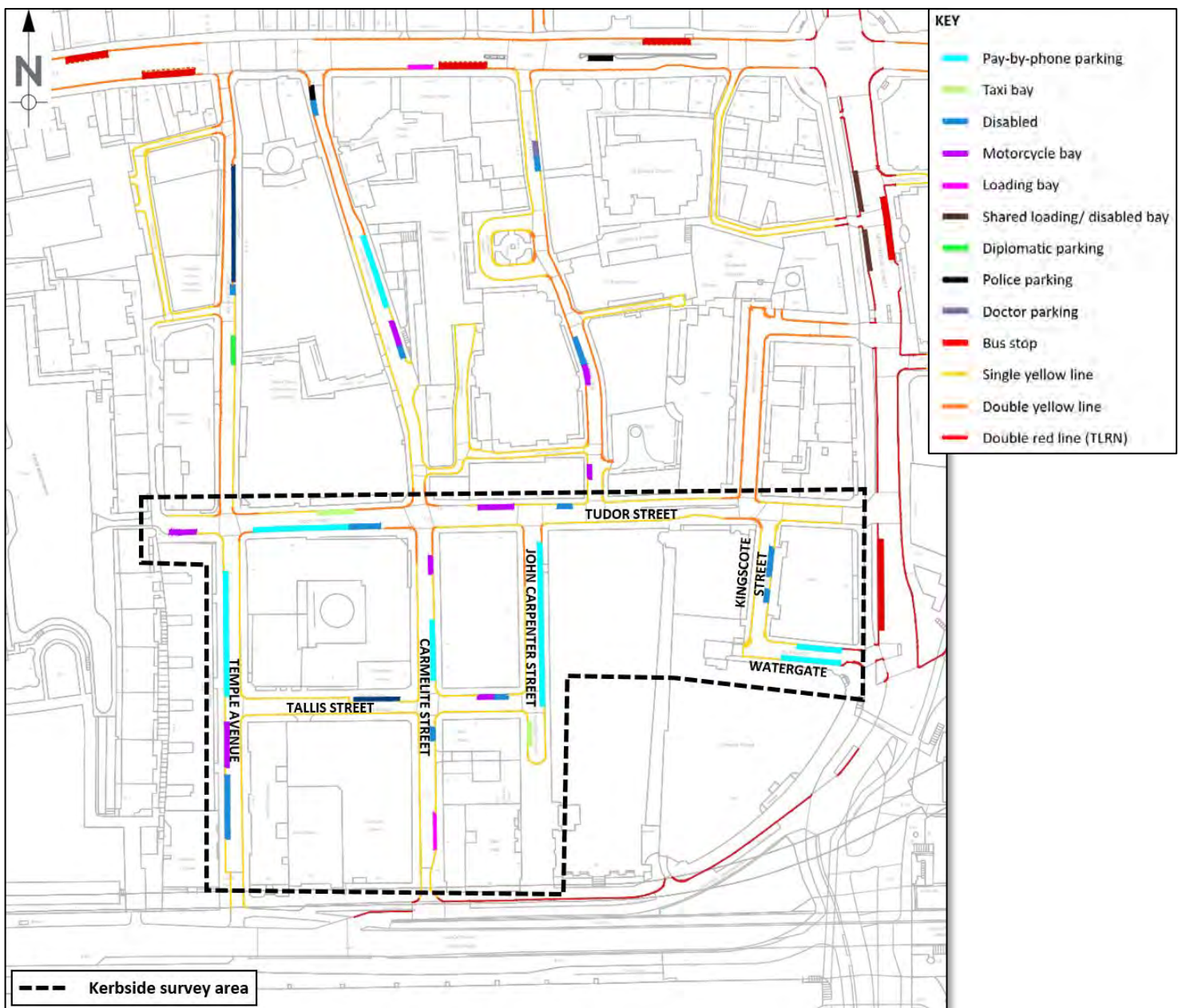


4.1.3 The streets surveyed for kerbside activity are as follows:

- Tudor Street
- Watergate
- Kingscote Street
- John Carpenter Street
- Tallis Street
- Carmelite Street
- Temple Avenue

4.1.4 The existing kerbside provision is shown in Figure 4-2.

Figure 4-2: Existing kerbside provision



4.2 Results – marked bays

- 4.2.1 A summary of the results is presented in Figure 4-3. This shows kerbside restriction, capacity, maximum occupancy and 90th percentile occupancy for each street.
- 4.2.2 Both the maximum occupancy and the 90th percentile values are the highest value of all days surveyed.
- 4.2.3 The 90th percentile occupancy refers to the level of occupancy that is higher than 90% of the observed values in a given dataset. That is, if you rank all the occupancy values in a dataset from the lowest to the highest, the 90th percentile occupancy is the value that is higher than 90% of the other values.

Figure 4-3: Kerbside summary for study area

Location	Kerbside restriction	Total capacity	Maximum occupancy	90 th percentile occupancy
Tudor Street	Taxi rank	3	95%	0%
	Pay-by-phone	6	100%	100%
	Disabled	3	100%	100%
	Motorcycles	2 (12 motorcycles)	100%	100%
Watergate	Pay-by-phone	8	88%	88%
Kingscote Street	Disabled bay	3	100%	33%
John Carpenter Street	Taxi rank	2	50%	0%
	Pay-by-phone	11	100%	91%
Tallis Street	Disabled bay	1	100%	0%
	Motorcycles	1 (6 motorcycles)	51%	51%
Carmelite Street	Pay-by-phone	4	100%	100%
	Disabled	1	100%	0%
	Motorcycles	1 (6 motorcycles)	100%	51%
	Loading bay	2	100%	100%
Temple Avenue	Pay-by-phone	8	100%	100%
	Disabled	4	50%	25%
	Motorcycles	1 (6 motorcycles)	85%	85%

- 4.2.4 Figure 4-4 presents the capacity, maximum occupancy and 90th percentile occupancy for each kerbside restriction.

Figure 4-4: Kerbside summary by restriction type

Kerbside restriction	Total capacity	Maximum occupancy	90 th percentile occupancy
Taxi rank	5	57%	20%
Pay-by-phone	37	95%	89%
Disabled	12	100%	53%
Motorcycles	5 (29 motorcycles)	95%	75%
Loading bay	2	100%	100%

- 4.2.5 The taxi ranks have low occupancy, although this is broadly in line with other taxi ranks in, for example, Soho.
- 4.2.6 The pay-by-phone and loading bays have high levels of occupancy, suggesting there is no spare capacity for these bay types. However, use of the pay-by-phone bays will also include loading/ servicing vehicles plus vehicles associated with construction works in the area.
- 4.2.7 The disabled bays have a high maximum occupancy but a much lower 90th percentile occupancy. This indicates the disabled bays are well used but only for short time periods. This is shown in the occupancy graphs for disabled bays (see **Appendix B**).
- 4.2.8 Motorcycle bays are generally well used.
- 4.2.9 The use of the different kerbside restriction types is generally consistent across all of the streets surveyed. For example, the pay by phone bays have high levels of occupancy on all streets.
- 4.2.10 The data shows that the existing marked kerbside bays are all well used with little spare capacity.
- 4.2.11 **Appendix B** presents occupancy graphs by time of day for each bay type and for each street.

4.3 Results – yellow lines

- 4.3.1 The City of London is a Controlled Parking Zone (CPZ), meaning parking is controlled by hours and is only permitted in designated parking bays during these times, with the rest of the kerbside space subject to yellow line restrictions.
- 4.3.2 The CPZ hours are 7am-7pm Monday to Friday, and 7am-11am on Saturdays.
- 4.3.3 Parking is prohibited at all times on double yellow lines, and on single yellow lines during the CPZ controlled hours.
- 4.3.4 Loading is permitted at any time on a double yellow line and during displayed times where there are single kerb markings. Loading is not permitted at any time where there are double kerb markings.
- 4.3.5 The survey results for the single and double yellow lines within the study area are shown in Figure 4-5.

Figure 4-5: Yellow line summary for study area

Kerbside restriction	Total capacity	Maximum occupancy	90 th percentile occupancy
Single yellow line	176	15%	10%
Double yellow line	22	17%	5%

4.3.6 Both single and double yellow lines have low occupancy. This suggests generally good compliance with the CPZ restrictions.

4.3.7 These results indicate that there is opportunity to reorganise kerbside provision to support changes that would facilitate measures that are in line with the Healthy Streets strategy.

4.3.8 **Appendix B** presents occupancy graphs by time of day for single and double yellow lines.

4.4 Dwell times

4.4.1 The Origin-Destination survey found that the maximum journey time through the Whitefriars survey area was 8 minutes, with the vast majority less than 4 minutes. These were the travel times captured for the AM, Inter and PM peak hour periods.

4.4.2 The kerbside survey, which captured 7am-7pm, shows a range of parking times greater than the range of journey times.

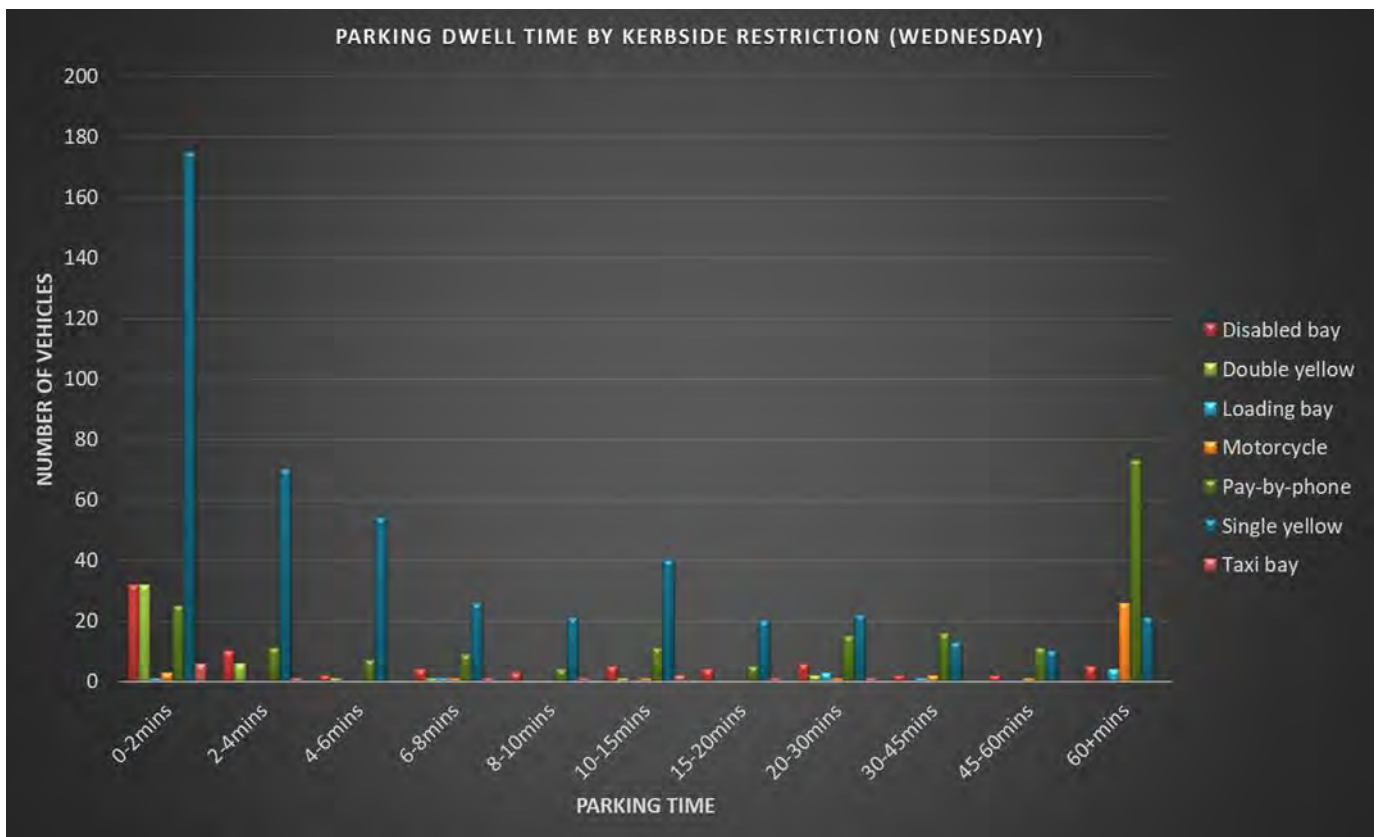
4.4.3 52% of vehicles that parked (stopped) did so for less than 4 minutes. Of those vehicles that stop for less than 2 minutes 35% are cars and 27% are taxis.

4.4.4 There is a high level of kerbside activity that occurs on single yellow line and lasts for less than 2 minutes. Of those vehicles stopping on a single yellow line for less than 2 minutes, 29% are cars and 29% are taxis. 24% are LGVs.

4.4.5 The parking occupancy data (which shows high levels of occupancy of marked bays) and the dwell time data illustrate the vehicles that have a purpose in the area, i.e. they use the marked bays provided.

4.4.6 Parking dwell time results for Wednesday is shown in Figure 4-6.

Figure 4-6: Parking dwell time results



4.5 Opportunities

4.5.1 The kerbside data shows that there are sections of single yellow line that could be used to relocate marked bays away from streets where Healthy Streets interventions are proposed. For example, Tallis Street and Carmelite Street could accommodate the pay by phone parking that is on Tudor Street.

4.5.2 Figure 4-7 shows existing bay locations and Figure 4-8 shows how kerbside bays could be reallocated across the study area (relocated bays shown with a red border). This is summarised as follows:

6 pay by phone bays on Tudor Street

- 3 pay by phone bays relocated to north side of Tallis Street (between Temple Avenue and Carmelite Street). Tallis Street 2-way working retained.
- 2 pay by phone bays relocated to north side of Tallis Street (between Carmelite Street and John Carpenter Street). Tallis Street 2-way working retained.
- 1 pay by phone bay relocated to east side of Carmelite Street (south of Tallis Street). Carmelite Street 2-way working retained.

2 disabled bays on Tudor Street

- 2 disabled bays on south side of Tudor Street relocated to north side.

Figure 4-7: Existing bay locations (surveyed area)

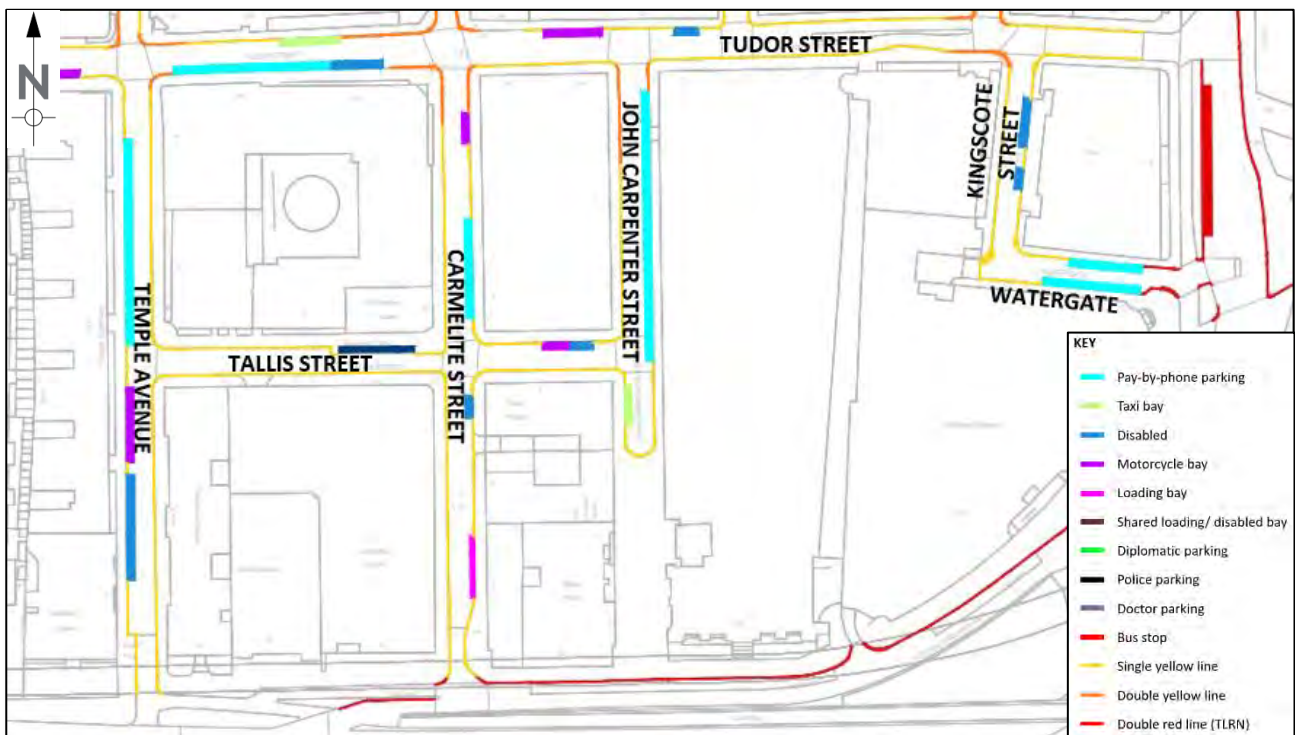
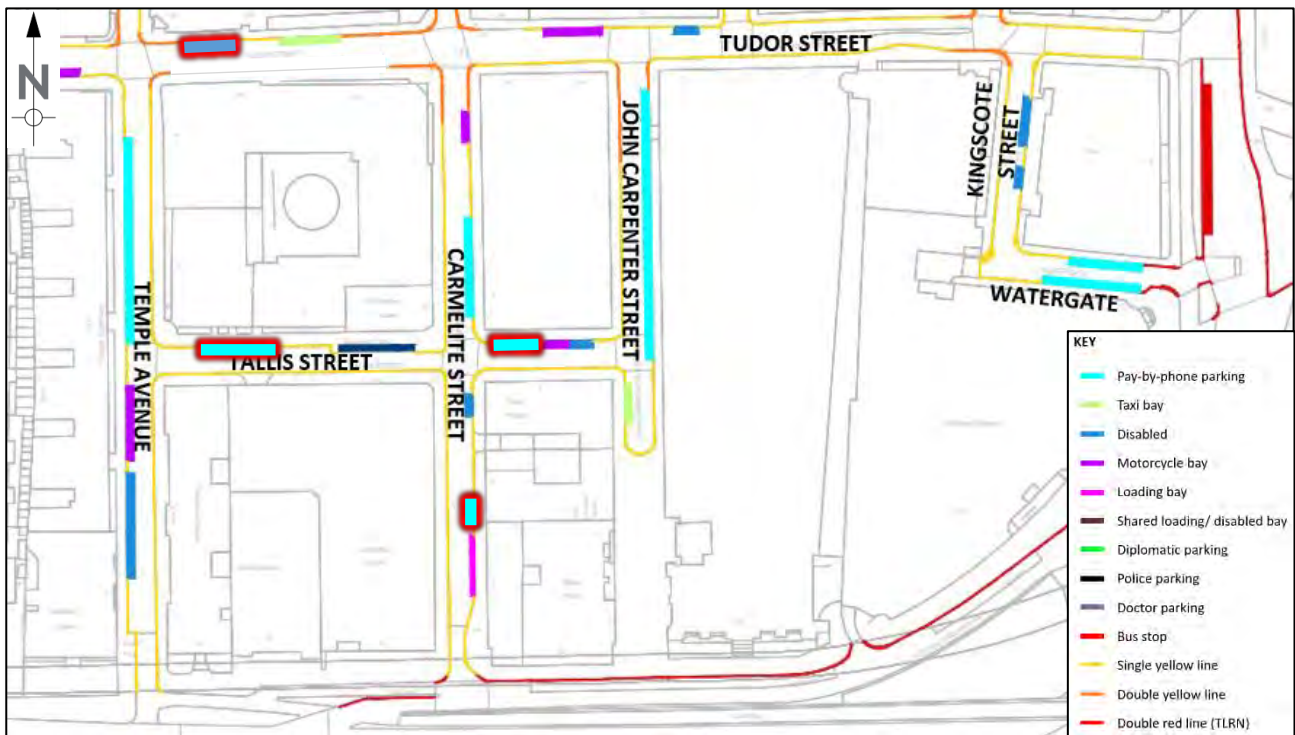


Figure 4-8: Proposed bay relocation (surveyed area)



- 4.5.3 The proposed bay relocation means that the south side of Tudor Street would have no marked bays. This provides an opportunity for public realm improvements in line with the Heathy Streets aspirations.
- 4.5.4 There would be no bays opposite each other on the northern and southern kerbs of Tudor Street under the proposed layout. This could facilitate footway widening for sections on both sides of the street. Any proposed layout would need to provide places for vehicles to pass each other, also well as no parking or loading (double yellow double tick) where the street is narrowed.
- 4.5.5 One observation from site visits to the Whitefriars area is the number of dockless (Lime) bikes left on the footways. It is suggested that areas of existing single yellow line should be used to provide marked bays for drop-off and pick-up of dockless bikes and e-scooters, in conjunction with geofencing restrictions.
- 4.5.6 Kerbside activity data was collected for the southern area of Whitefriars. However, opportunities for parking relocation in the northern area have also been considered. The existing layout is shown in Figure 4-9, with the proposed layout in Figure 4-10 (proposed locations shown with a red glow, with a white line with red glow being opportunity that is not defined).
- 4.5.7 This demonstrates that there is opportunity for bay relocation on the single yellow line on Bouverie Street. This could be 20 metres, which could accommodate the existing motorcycle bays and one of the disabled bays from Dorset Rise. Short sections of motorcycle parking bays could also be added to Carmelite Street on the eastern kerbline (in addition to the pay by phone relocation shown in Figure 4-8).
- 4.5.8 Bridewell Place is currently double yellow line on the west side and double yellow line double tick on the east side. There may be opportunity to relocate some parking bays here.
- 4.5.9 The repurposing of the doctor’s bay on Salisbury Court as a loading bay could be explored following completion of the development at that location.

Figure 4-9: Existing bay locations (whole area)

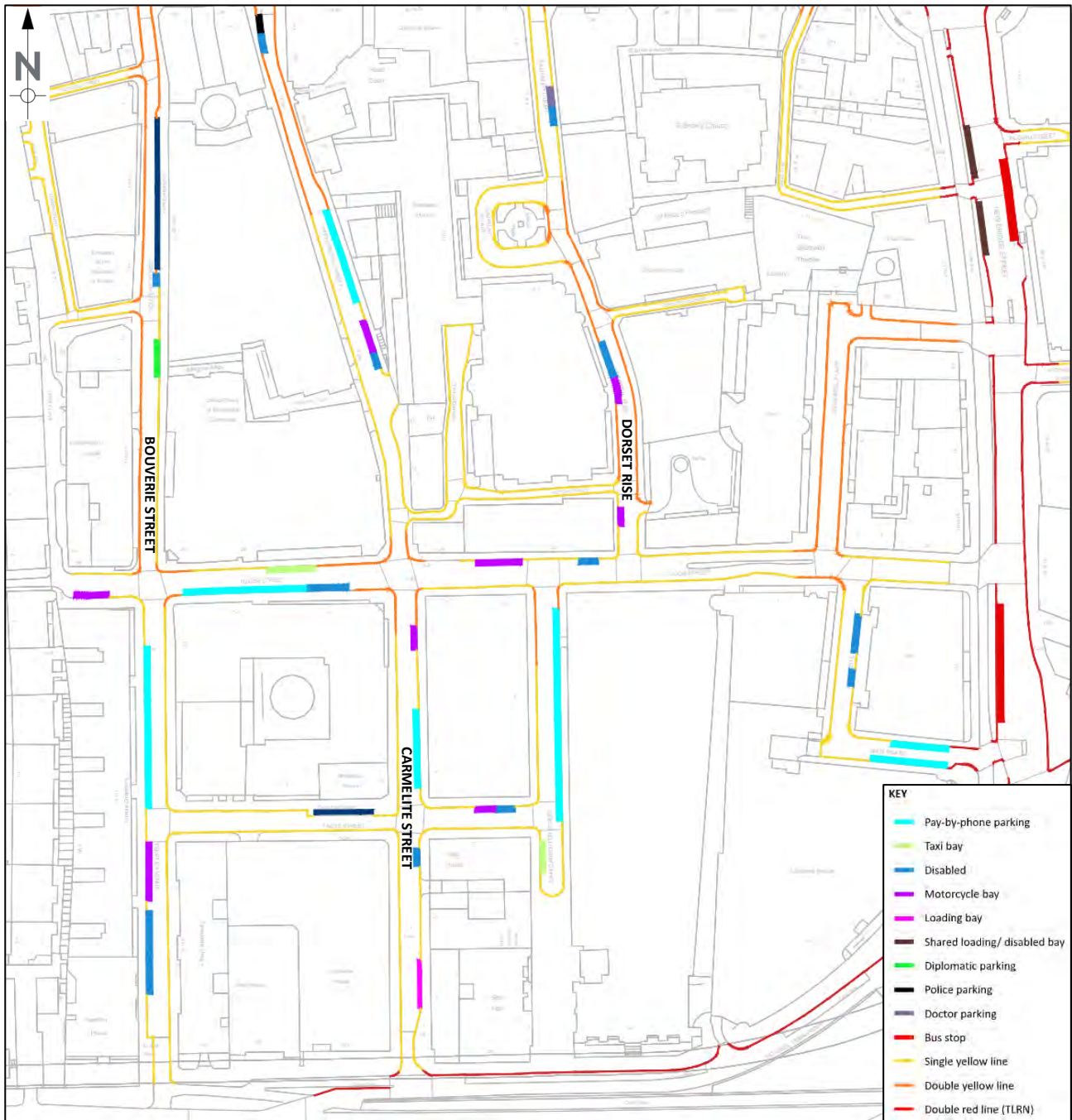
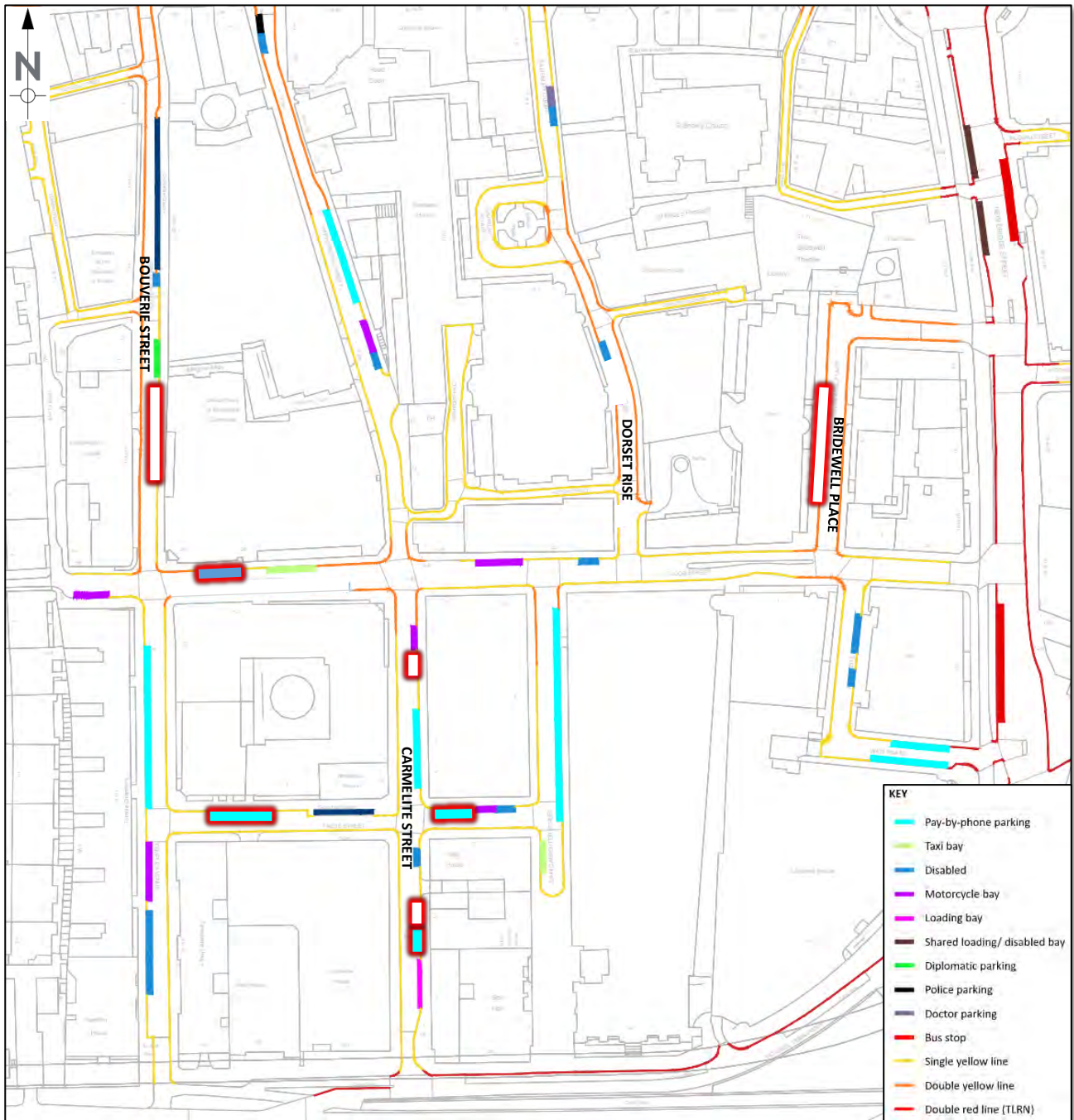


Figure 4-10: Proposed bay locations (whole area)



5 JUNCTION CHANGES ON VICTORIA EMBANKMENT

5.1 Background

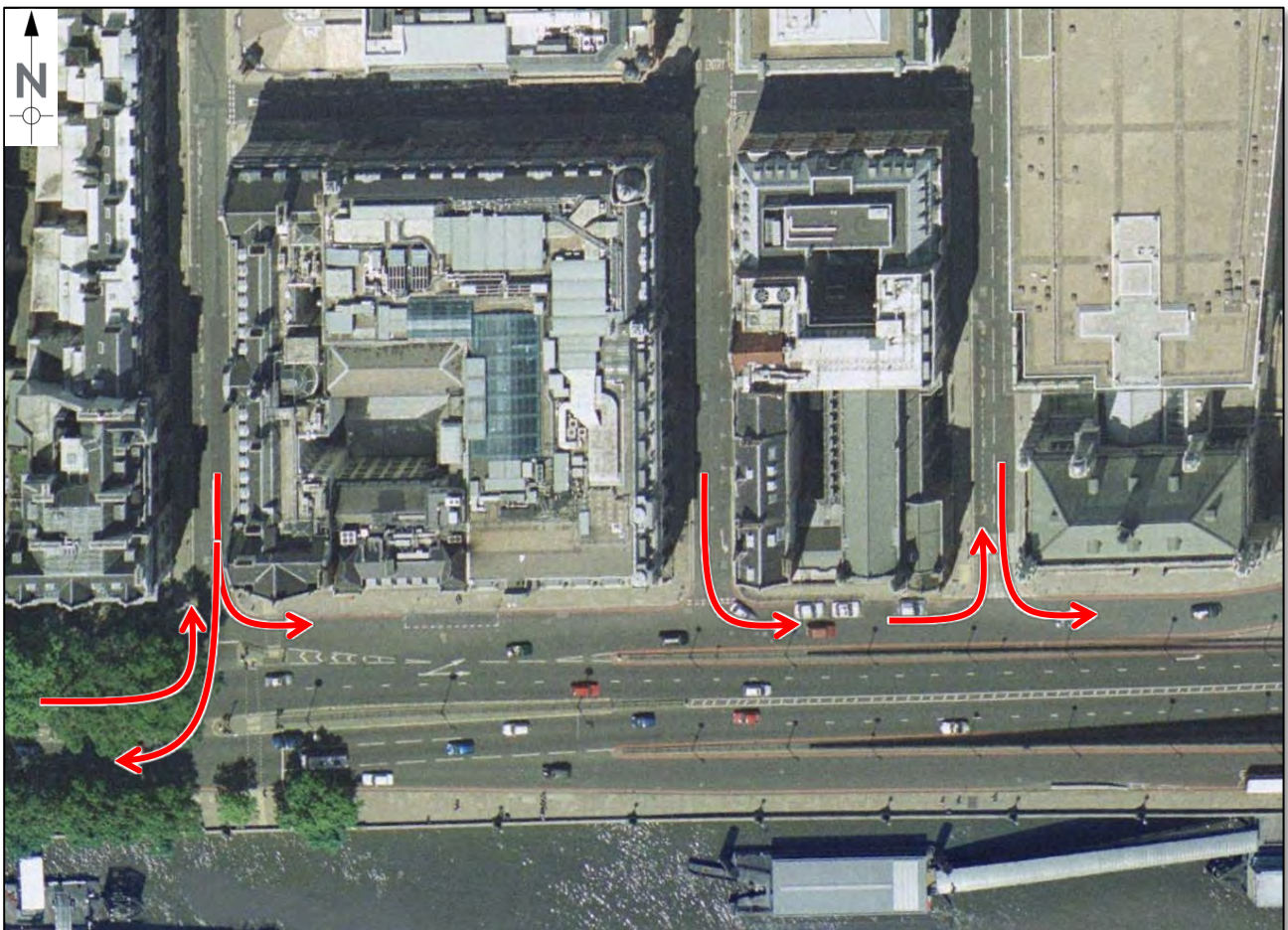
5.1.1 CoL has requested a review of access and egress between the Whitefriars area and Victoria Embankment.

Pre-2005

5.1.2 It is understood that before around 2005, the following movements were permitted between the Whitefriars area and Victoria Embankment (also shown in Figure 5-1, which uses a Google Earth image from 2003):

- Eastbound left-turn from Victoria Embankment to Temple Avenue
- Southbound left-turn from Temple Avenue to Victoria Embankment (slip road)
- Southbound right-turn from Temple Avenue to Victoria Embankment
- Southbound left-turn from Carmelite Street to Victoria Embankment (slip road)
- Eastbound left-turn from Victoria Embankment (slip road) to John Carpenter Street
- Southbound left-turn from John Carpenter Street to Victoria Embankment (slip road)

Figure 5-1: Access between Whitefriars area and Victoria Embankment (pre-2005)



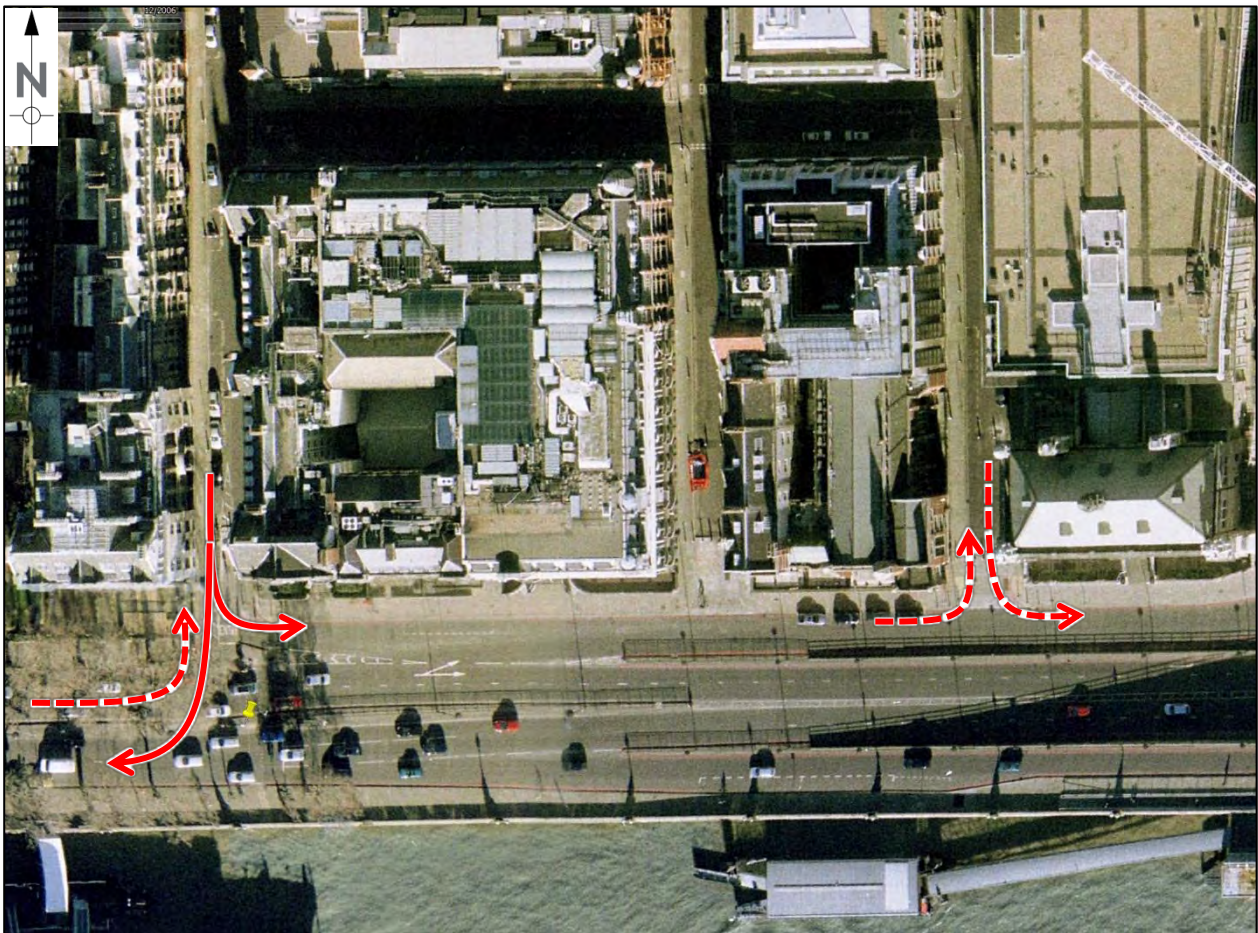
2005-2016

5.1.3 In the mid-2000s, the following changes were made:

- Eastbound left-turn from Victoria Embankment to Temple Avenue: **prohibited for all vehicles except cyclists**
- Southbound left-turn from Temple Avenue to Victoria Embankment (slip road): **still permitted**
- Southbound right-turn from Temple Avenue to Victoria Embankment: **still permitted**
- Southbound left-turn from Carmelite Street to Victoria Embankment (slip road): **prohibited for all vehicles**
- Eastbound left-turn from Victoria Embankment (slip road) to John Carpenter Street: **prohibited for all vehicles except cyclists**
- Southbound left-turn from John Carpenter Street to Victoria Embankment (slip road): **prohibited for all vehicles except cyclists**

5.1.4 Figure 5-2 shows the permitted movements from 2005-2016, with the dashed line denoting cyclists only.

Figure 5-2: Access between Whitefriars area and Victoria Embankment (2005-2016)



2016

5.1.5 In 2016 TfL’s East-West and North-South Cycle Superhighways had been constructed. This included the movements listed below:

- Eastbound left-turn from Victoria Embankment to Temple Avenue: **prohibited for all vehicles except cyclists**
- Southbound left-turn from Temple Avenue to Victoria Embankment (slip road): **prohibited for all vehicles except cyclists**
- Southbound right-turn from Temple Avenue to Victoria Embankment: **prohibited for all vehicles except cyclists**
- Southbound left-turn from Carmelite Street to Victoria Embankment (slip road): **permitted for all vehicles**
- Southbound right-turn from Carmelite Street to Victoria Embankment (slip road): **permitted for all vehicles**
- Eastbound left-turn from Victoria Embankment (slip road) to John Carpenter Street: **prohibited for all vehicles except cyclists**
- Southbound left-turn from John Carpenter Street to Victoria Embankment (slip road): **prohibited for all vehicles except cyclists**

5.1.6 Figure 5-3 shows the permitted movements in 2016, with the dashed line denoting cyclists only. John Carpenter Street is not shown but included in the list above.

Figure 5-3: Access between Whitefriars area and Victoria Embankment (2016)



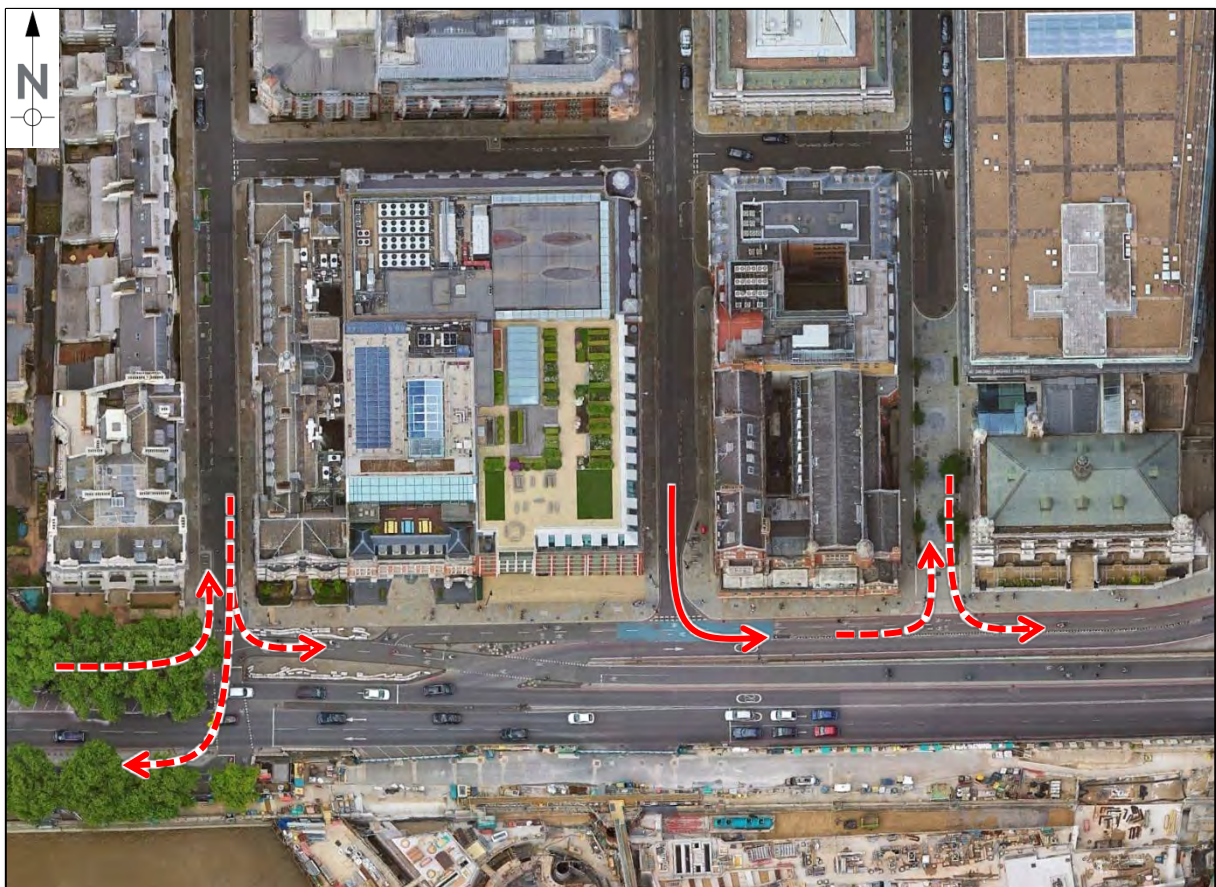
2017 to present

5.1.7 Soon after the completion of the Cycle Superhighways, changes were made to the highway layout to accommodate construction of the Thames Tideway on the north bank of the Thames. This resulted in the 2-way cycle track being relocated from the north bank to Victoria Embankment slip road. The current permitted movements are:

- Eastbound left-turn from Victoria Embankment to Temple Avenue: **prohibited for all vehicles except cyclists**
- Southbound left-turn from Temple Avenue to Victoria Embankment (slip road): **prohibited for all vehicles except cyclists**
- Southbound right-turn from Temple Avenue to Victoria Embankment: **prohibited for all vehicles except cyclists**
- Southbound left-turn from Carmelite Street to Victoria Embankment (slip road): **permitted for all vehicles**
- Eastbound left-turn from Victoria Embankment (slip road) to John Carpenter Street: **prohibited for all vehicles except cyclists**
- Southbound left-turn from John Carpenter Street to Victoria Embankment (slip road): **prohibited for all vehicles except cyclists**

5.1.8 Figure 5-4 shows the permitted movements from 2016 to present day, with the dashed line denoting cyclists only.

Figure 5-4: Access between Whitefriars area and Victoria Embankment (2016 to present)



5.1.9 It is understood that the 2-way cycle track will be moved back to the north bank following completion of the Thames Tideway, but there are no plans to change the existing movements between Whitefriars and Victoria Embankment.

5.2 Highway layout changes

5.2.1 As part of a separate study undertaken in 2018/19, consultants were commissioned to develop options that facilitated additional movements for motor vehicles to/from Temple Avenue, which is currently access/egress by cycles only. These were also tested for the impact on traffic capacity using traffic modelling software (LinSig). The options tested are set out as follows:

TfL proposed layout

5.2.2 The TfL proposed layout was on site in 2016 after TfL’s Cycle Superhighway was completed but before changes due to Thames Tideway (see Figure 5-5).

Figure 5-5: TfL proposed layout



5.2.3 This is the Baseline situation in terms of junction capacity that the other options are compared against.

Option 3

5.2.4 Option 3 (Figure 5-6) keeps the majority of the proposed TfL layout, but reinstates the access arrangement at the southern end of Temple Avenue between 2005-2016. That is to say motor vehicles can turn left and right out of Temple Avenue southbound, with cycles only permitted to enter Temple Avenue northbound.

Figure 5-6: Option 3

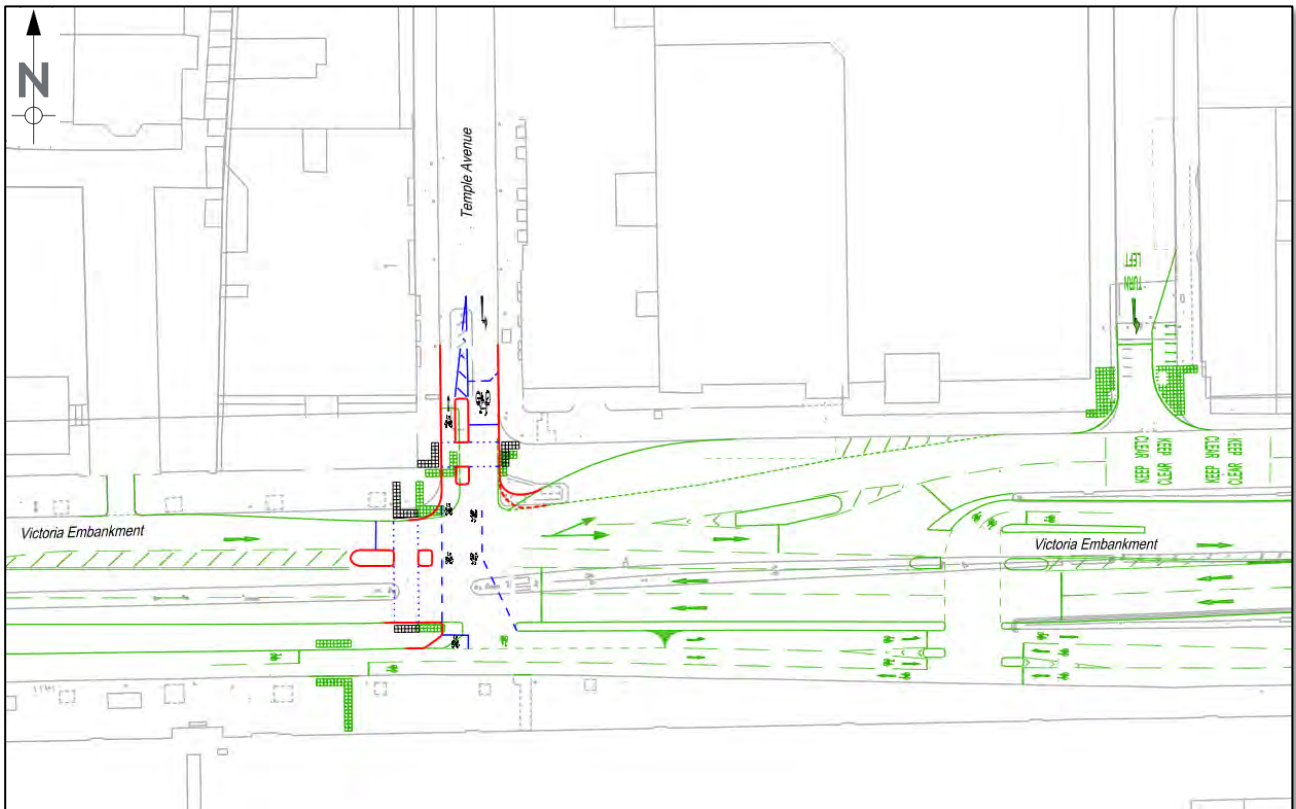


5.2.5 Option 3 performs worse in terms of junction capacity than the TfL option. This is because an additional stage is required in the method of control to allow motor vehicles to turn right from Temple Avenue to Victoria Embankment. This reduces the signal green time that can be given to traffic. The modelling results show both Victoria Embankment and Temple Avenue would operate over capacity, which would generate excess queues and delay.

Option 4

5.2.6 Option 4 (Figure 5-7) is the same as Option 3 with one difference, which is that the southbound left-turn only out of Temple Avenue is permitted for motor vehicles.

Figure 5-7: Option 4



5.2.7 Option 4 has a similar level of junction capacity as the TfL option. This is because the method of control is unchanged, with minor changes required to permit motor vehicles to turn left onto Victoria Embankment.

5.3 Analysis

5.3.1 The traffic modelling shows that allowing the left and right-turn out of Temple Avenue for motor vehicles would have a significant impact on network operation, with excessive queues and delays predicted by the modelling undertaken.

5.3.2 Allowing just the left-turn out of Temple Avenue would provide direct access to Blackfriars Underpass, which is not currently possible from the left-turn out of Carmelite Street to Victoria Embankment (slip road). This has minor impact on junction capacity, but it does require the removal of the footway buildout on the west side of Temple Avenue at the junction with Victoria Embankment. It is likely it would also increase the number of motor vehicles on Temple Avenue as it provides a direct route from Fleet Street to Blackfriars Underpass. To remove this through route, changes to the highway network would have to be made at another location(s) within the Whitefriars area.

5.3.3 No design has been provided that seeks to permit motor vehicle access into Whitefriars from Victoria Embankment. The traffic survey analysis shows that the demand for this movement is low. If motor vehicle movement was permitted from Victoria Embankment (westbound) into Temple Avenue, an additional stage would be required in the method of control that would cause the junction to operate with reduced capacity, which is likely to result in excess queues and delay. If motor vehicle movement was permitted from Victoria Embankment (eastbound) into Temple Avenue, the pedestrian crossing over Temple Avenue would run for a shorter time, resulting in a reduction of pedestrian amenity.

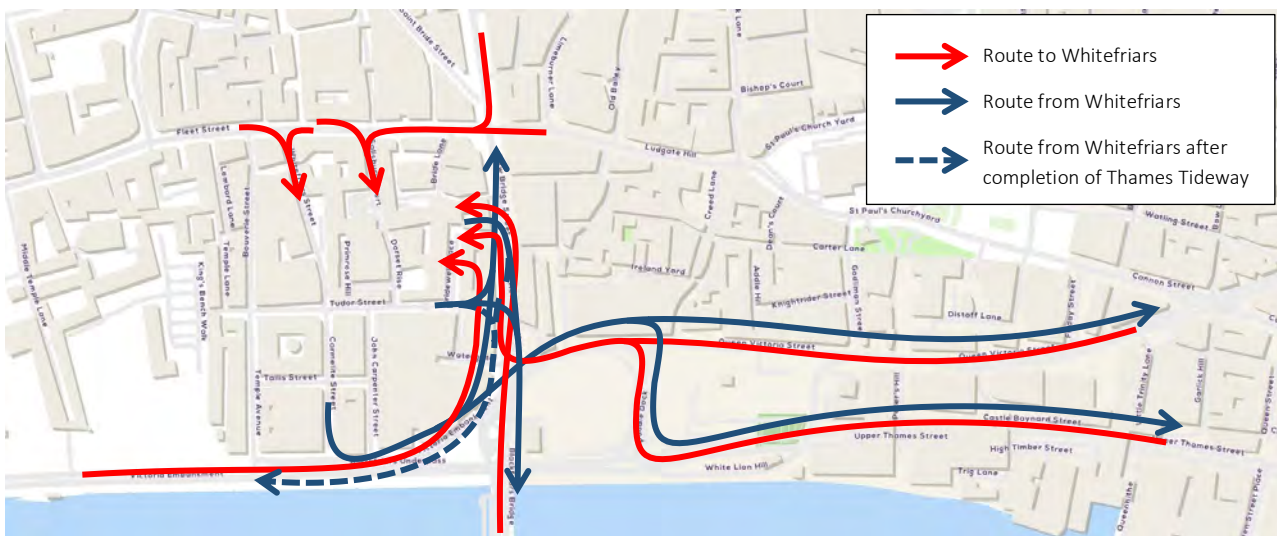
5.3.4 If the left-turn or right-turn into Carmelite Street for motor vehicles was permitted, this would have the following implications:

- To introduce the left-turn or right-turn into Carmelite Street, and not make any changes to the existing junction layout, the current egress would need to be prohibited. The existing layout only provides space for vehicles to travel in one direction.
- If the egress from Carmelite Street was prohibited there would be no egress from the Whitefriars area to the south for motor vehicles. To maintain an egress, changes would need to be made to the junction of Temple Avenue/ Victoria Embankment. The implications of this are discussed in paragraph 5.3.2.
- To introduce the left-turn or right-turn into Carmelite Street, and maintain egress, the footway buildout on the eastern side of Carmelite Street would need to be removed. This footway buildout currently accommodates cycle parking and a CCTV camera.

5.3.5 In addition to the impacts set out above, access from Victoria Embankment (slip road) via either or both of Temple Avenue and/or Carmelite Street is likely to increase the number of motor vehicles within the Whitefriars area as it would provide a direct link from Victoria Embankment (slip road) to Fleet Street and New Bridge Street. Increasing vehicle flow within the Whitefriars area is not in line with the Healthy Streets plan, or City of London Transport Policy.

5.3.6 The motor vehicle movements to and from the Whitefriars area to the wider highway network are shown in Figure 5-8. This demonstrates that there are routes to and from Whitefriars to the wider network in all directions. The route from Whitefriars to Victoria Embankment is dashed meaning it will be available after the completion of the Thames Tideway.

Figure 5-8: Routes to/from Whitefriars from the wider area



5.3.7 The TfL proposed layout that was tested does not reintroduce the southbound right-turn from Carmelite Street to Victoria Embankment (slip road). If this was introduced, it would create a new route from Fleet Street to Victoria Embankment. Vehicle progression would be westbound only as the left-turn from the bottom of Victoria Embankment (slip road) to Blackfriars underpass is not permitted (or physically possible).

6 SUMMARY

6.1 Conclusions

- 6.1.1 The key points from the analysis of the traffic survey data and the Victoria Embankment access proposals are set out below.

Traffic flows

- 6.1.2 The highest 2-way flow on Tudor Street is 176 motor vehicles in the AM peak hour and 201 in the PM peak hour.
- 6.1.3 Bouverie Street has a southbound flow of 141 motor vehicles in the AM peak hour and 138 in the PM peak hour.
- 6.1.4 No other street has a motor vehicle flow of more than 70 vehicles. The streets to the south of Tudor Street have very low motor vehicles flows, with less than 30 vehicles in the AM and PM peak hours.
- 6.1.5 Cycle flows are highest on Temple Avenue and Bouverie Street (over 100 cycles in both AM and PM peak hours), with Tudor Street also having over 100 cyclists in the AM peak hour. The route to/from Cycleway 3 on Victoria Embankment, via the cycle-only access at the southern end of Temple Avenue, is the most popular route for cycles through the Whitefriars area.
- 6.1.6 Motor vehicle flows entering the Whitefriars area in March 2023 have reduced by 25% in the AM peak hour and by 16% in the PM peak hour compared to the January 2018 survey data.
- 6.1.7 Cycle flows entering the Whitefriars area in March 2023 have reduced by 28% in the AM peak hour and by 31% in the PM peak hour compared to the January 2018 survey data.
- 6.1.8 Motor vehicle flows eastbound on Fleet Street in October 2022 have reduced by 40% in the AM peak hour and by 47% in the PM peak hour compared to the January 2018 survey data.
- 6.1.9 2-way cycle flows on Fleet Street in October 2022 have increased by 24% in the AM peak hour and by 32% in the PM peak hour compared to the January 2018 survey data.

Vehicle routes

- 6.1.10 The junction count and OD data shows that the movement with the highest motor vehicle flow is from Fleet Street to New Bridge Street. The main reason for this is likely to be because the right-turn from Fleet Street eastbound to New Bridge Street southbound at Ludgate Circus is prohibited. Therefore, the route through Whitefriars via Tudor Street is the most direct way of travelling from Fleet Street to New Bridge Street.
- 6.1.11 The survey data suggests there is not significant demand to access Whitefriars from the south of the area, with 46, 25 and 4 vehicles going from Victoria Embankment to the Whitefriars area across the 8 hours surveyed for each of the Wednesday, Thursday and Saturday survey days, respectively.
- 6.1.12 The journey time results for all survey days (Wednesday, Thursday and Saturday), show that over 80% pass through the area within 2 minutes. This suggests most vehicles move through the Whitefriars area without having a purpose within the area.

Kerbside activity

- 6.1.13 The data shows that the existing marked kerbside bays are all well used with little spare capacity. However, both single and double yellow lines have low occupancy, which suggests generally good compliance with the CPZ restrictions.

Junction changes on Victoria Embankment

- 6.1.14 The traffic modelling shows that allowing the left and right-turn out of Temple Avenue would have a significant impact on network operation, with excessive queues and delays predicted by the modelling undertaken.
- 6.1.15 Allowing just the left-turn out of Temple Avenue would provide direct access to Blackfriars Underpass, which is not currently possible from the left-turn out of Carmelite Street to Victoria Embankment (slip road). This has minor impact on junction capacity, but it does require the removal of the footway buildout on the west side of Temple Avenue at the junction with Victoria Embankment. It is likely this would also increase the number of motor vehicles on Temple Avenue as it provides a direct route from Fleet Street to Blackfriars Underpass. To remove this route, changes to the highway network would have to be made at another location(s) within the Whitefriars area.
- 6.1.16 No design has been provided that seeks to permit motor vehicle access into Whitefriars from Victoria Embankment. The traffic survey analysis shows that the demand for this movement is low. If motor vehicle movement was permitted from Victoria Embankment (eastbound or westbound) into Temple Avenue, an additional stage would be required in the method of control that would cause the junction to operate with reduced capacity, which is likely to result in excess queues and delay.

6.2 Recommendations

- 6.2.1 The traffic study of the Whitefriars area makes the following recommendations:
- Relocate pay by phone parking bays from Tudor Street to Tallis Street and Carmelite Street.
 - Relocate disabled bays on Tudor Street to another location on Tudor so that there are no marked bays adjacent to each other on opposite sides of the street.
 - Utilise single yellow line on Bouverie Street and double yellow line on Bridewell Place to relocate marked bays to facilitate public realm opportunities.
 - Provide designated parking areas for dockless bikes and e-scooters on existing single yellow line locations on Carmelite Street.
 - Maintain existing access arrangements between Temple Avenue, Carmelite Street and John Carpenter Street and Victoria Embankment.
 - Monitor traffic flows on Tudor Street. If they increase to greater than 2,000 motor vehicles per day, review options presented to restrict traffic movement on Tudor Street.

APPENDIX A: TRAFFIC FLOWS AND ROUTES ANALYSIS

NRP

NORMAN ROURKE PRYME



Whitefriars Area Traffic Study

Traffic Flows and Routes

June 2023 V2.0

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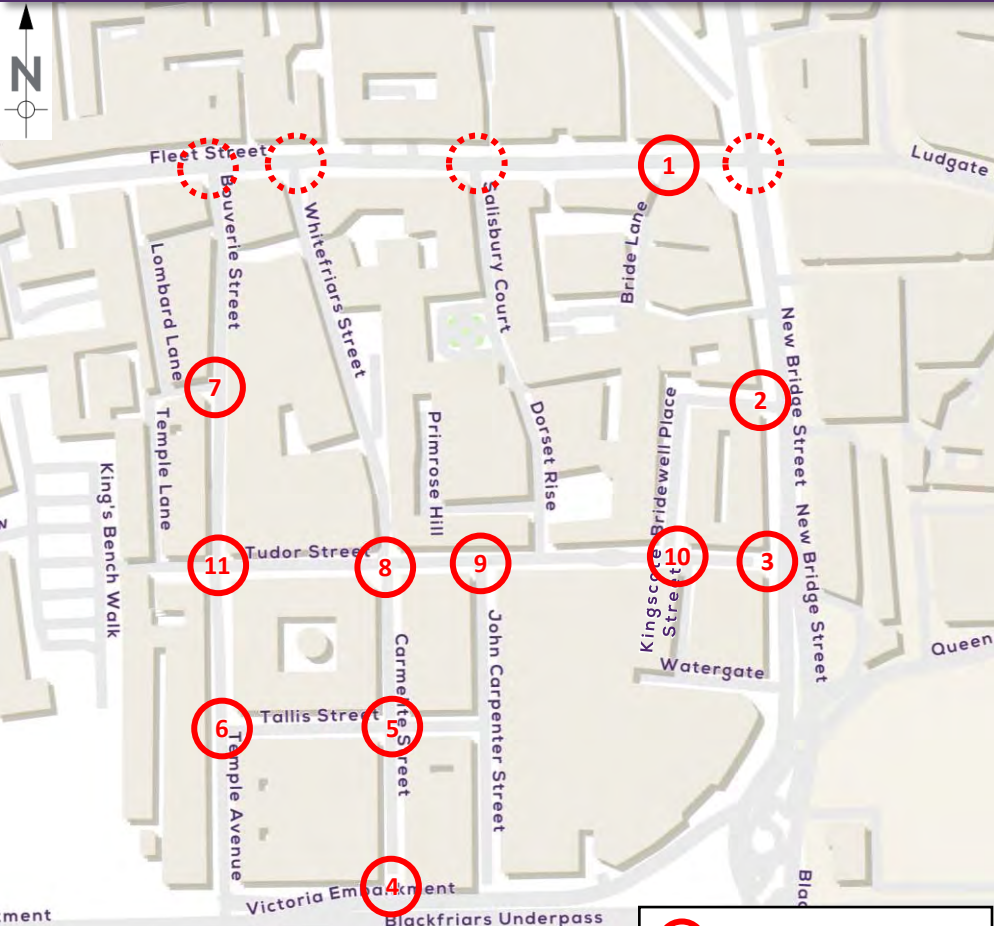


Introduction

- NDC were commissioned by NRP/ CoL to undertake surveys to record traffic flows at a number of junctions within the Whitefriars Area Traffic Study
- Vehicle routes were also surveyed using ANPR data collection to understand how vehicles move through the Whitefriars Area and how long they spend in it
- The surveys were required to ascertain the number of vehicles within the Whitefriars Area, and derive the volume of traffic using the streets as a through route, with no apparent purpose within the area
- This report sets out the results of the junction count and ANPR traffic surveys



Survey specification – junction counts



Survey locations

1. Fleet Street/ Bride Lane
 2. New Bridge Street/ Bridewell Place
 3. New Bridge Street/ Tudor Street
 4. Carmelite Street/ Victoria Embankment
 5. Carmelite Street/ Tallis Street
 6. Temple Avenue/ Tallis Street
 7. Bouverie Street/ Temple Lane
 8. Tudor Street/ Carmelite Street/ Whitefriars Street
 9. Tudor Street/ John Carpenter Street
 10. Tudor Street/ Bridewell Place/ Kingscote Street
 11. Temple Avenue/ Tudor Street/ Bouverie Street
- The following junctions were surveyed in October 2022
 - Fleet Street/ Bouverie Street
 - Fleet Street/ Whitefriars Street
 - Fleet Street/ Salisbury Court
 - Fleet Street/ Farringdon Street/ Ludgate Hill/ New Bridge Street

Survey times

- Wednesday 22nd March, Thursday 23rd March and Saturday 25th March 2023
- 07:00-10:00, 12:00-14:00, 16:00-19:00





March 2023 survey data
 October 2022 survey data

→ Cycle movement
 Motorised vehicle movement

AM peak
(08:15-09:15)
Light vehicles
(car, taxi, LGV,
m/cycle)





**AM peak
(08:15-09:15)
Change in total number
of cycles**







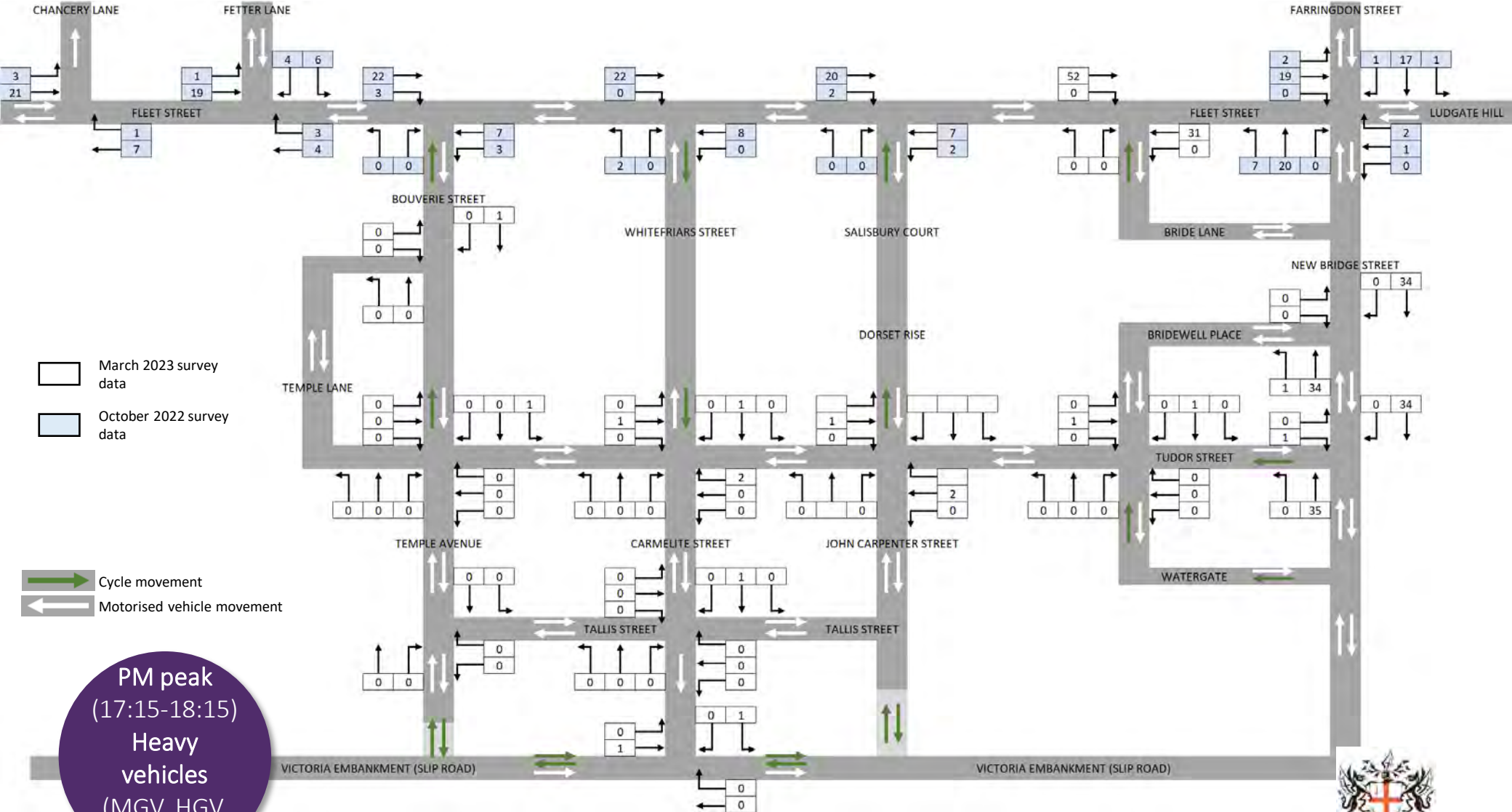
**AM peak
(08:15-09:15)
Change in
total number
of motorised
vehicles**



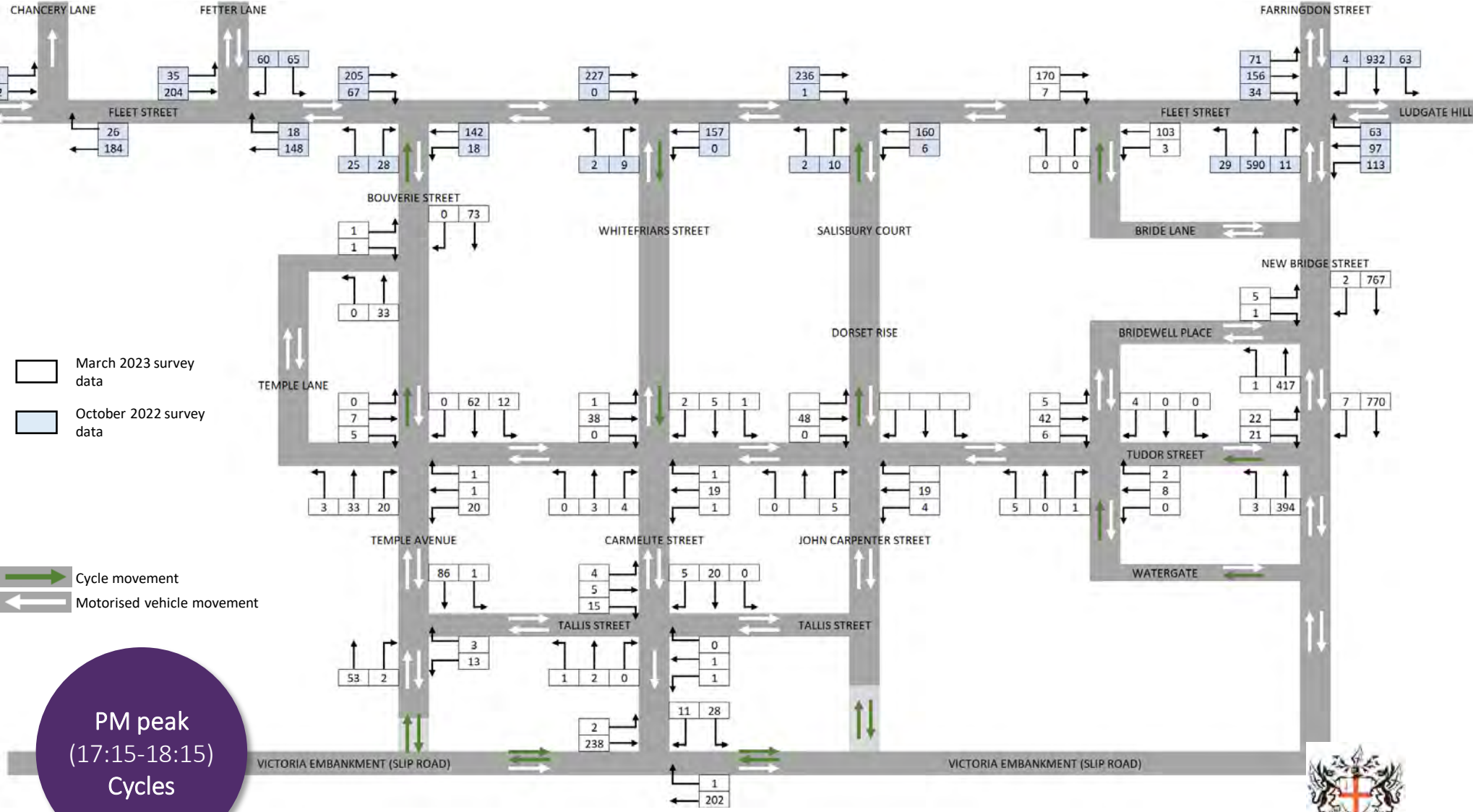
March 2023 survey data
 October 2022 survey data

→ Cycle movement
 Motorised vehicle movement

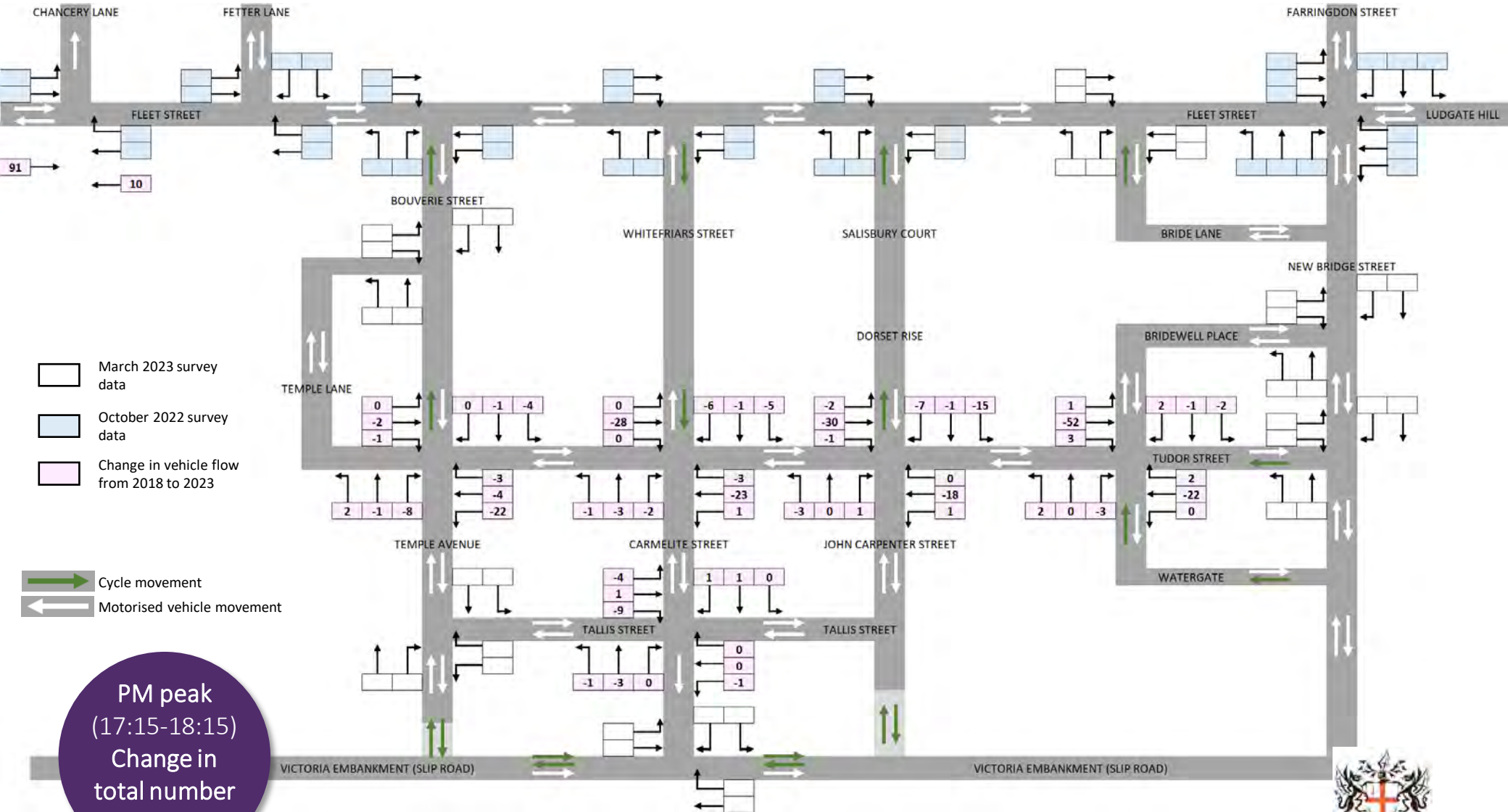
PM peak
 (17:15-18:15)
Light vehicles
 (car, taxi, LGV,
 m/cycle)



PM peak
(17:15-18:15)
Heavy vehicles
(MGV, HGV, bus, coach)



**PM peak
(17:15-18:15)
Cycles**



PM peak
(17:15-18:15)
Change in total number of cycles



PM peak
(17:15-18:15)
Taxis



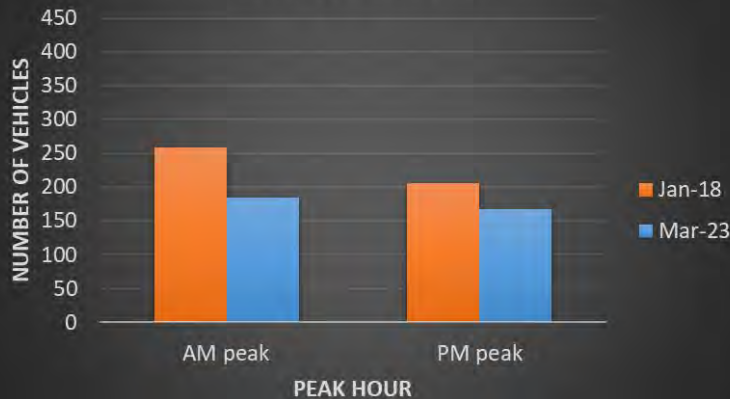
PM peak
(17:15-18:15)
All motorised vehicles



PM peak (17:15-18:15)
Change in total number of motorised vehicles

Traffic volumes – Whitefriars area

WHITEFRIARS AREA MOTORISED VEHICLE ENTRY FLOW COMPARISON



MOTOR VEHICLES		
Mar-23	AM peak	PM peak
Entry flow	185	167
Exit flow	162	210
Jan-18	AM peak	PM peak
Entry flow	259	206
Exit flow	194	238
Change	AM peak	PM peak
Entry flow	-74	-39
Exit flow	-32	-28
% change	AM peak	PM peak
Entry flow	-29%	-19%
Exit flow	-16%	-12%

Comparison

- The October 2022 and March 2023 survey data has been compared to the January 2018 survey data in order to see how this has changed for motorised vehicles and cycles
- This comparison has been undertaken for vehicles entering and exiting the Whitefriars area
- A comparison has also been made for the eastbound and westbound flow on Fleet Street, to the west of Fetter Lane

Whitefriars area

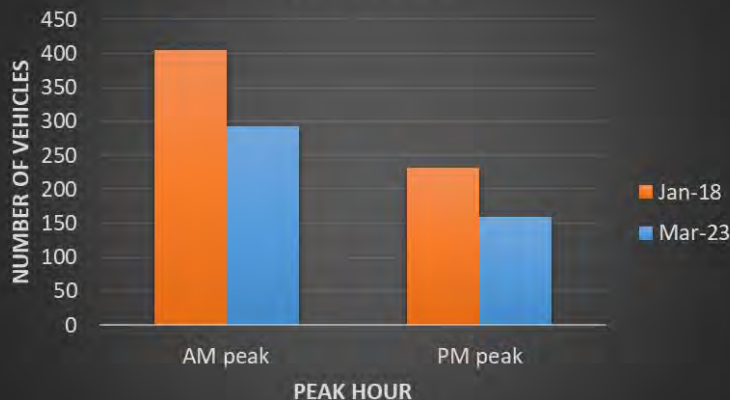
- Motor vehicle flows entering the Whitefriars area in March 2023 have reduced by 29% in the AM peak hour and by 19% in the PM peak hour compared to the January 2018 survey data
- Cycle flows entering the Whitefriars area in March 2023 have reduced by 28% in the AM peak hour and by 31% in the PM peak hour compared to the January 2018 survey data

Fleet Street

- The following slide provides a flow comparison for Fleet Street
- Motor vehicle flows eastbound on Fleet Street in October 2022 have reduced by 40% in the AM peak hour and by 47% in the PM peak hour compared to the January 2018 survey data
- 2-way cycle flows on Fleet Street in October 2022 have increased by 24% in the AM peak hour and by 32% in the PM peak hour compared to the January 2018 survey data



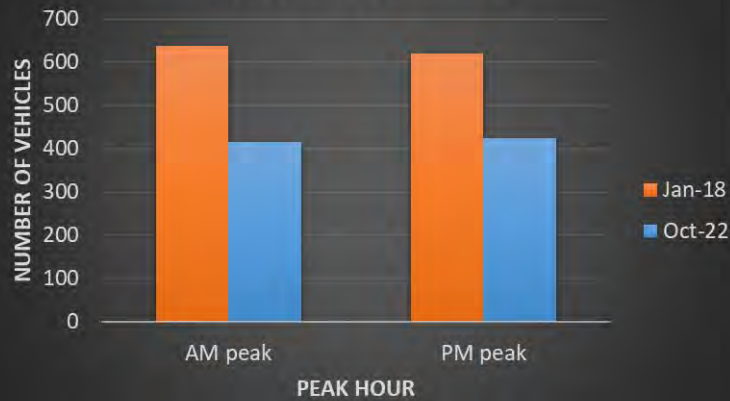
WHITEFRIARS AREA CYCLE ENTRY FLOW COMPARISON



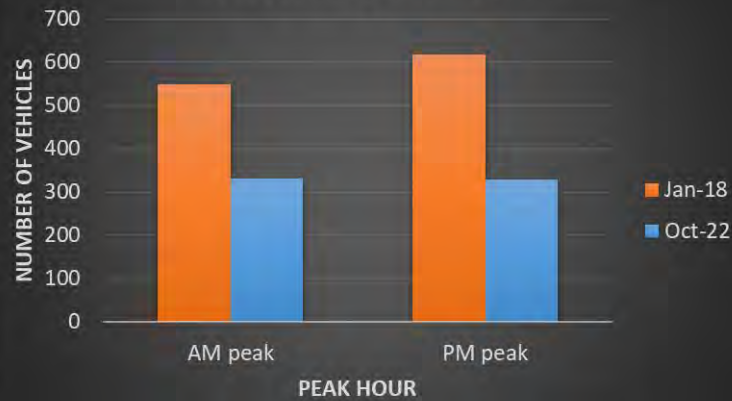
CYCLES		
Mar-23	AM peak	PM peak
Entry flow	293	159
Exit flow	217	231
Jan-18	AM peak	PM peak
Entry flow	405	232
Exit flow	325	239
Change	AM peak	PM peak
Entry flow	-112	-73
Exit flow	-108	-8
% change	AM peak	PM peak
Entry flow	-28%	-31%
Exit flow	-33%	-3%

Traffic volumes – Fleet Street

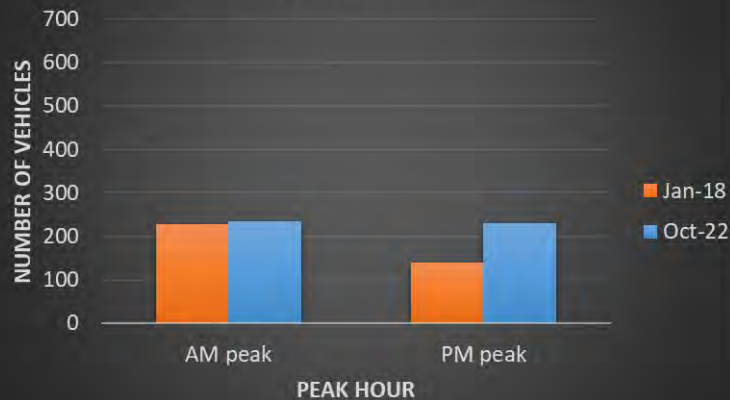
FLEET STREET EASTBOUND MOTORISED VEHICLE ENTRY FLOW COMPARISON



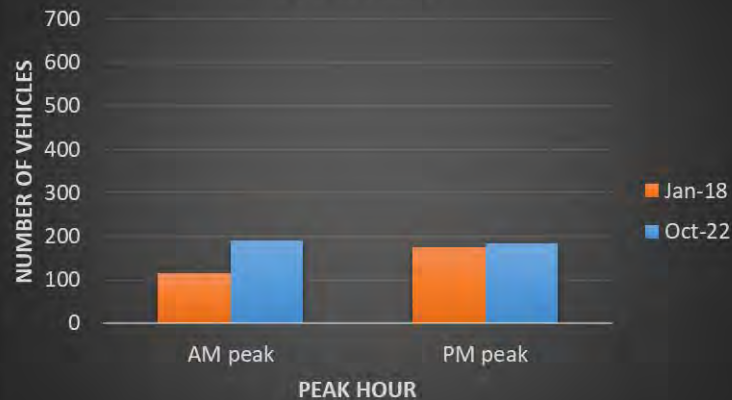
FLEET STREET WESTBOUND MOTORISED VEHICLE ENTRY FLOW COMPARISON



FLEET STREET EASTBOUND CYCLE ENTRY FLOW COMPARISON



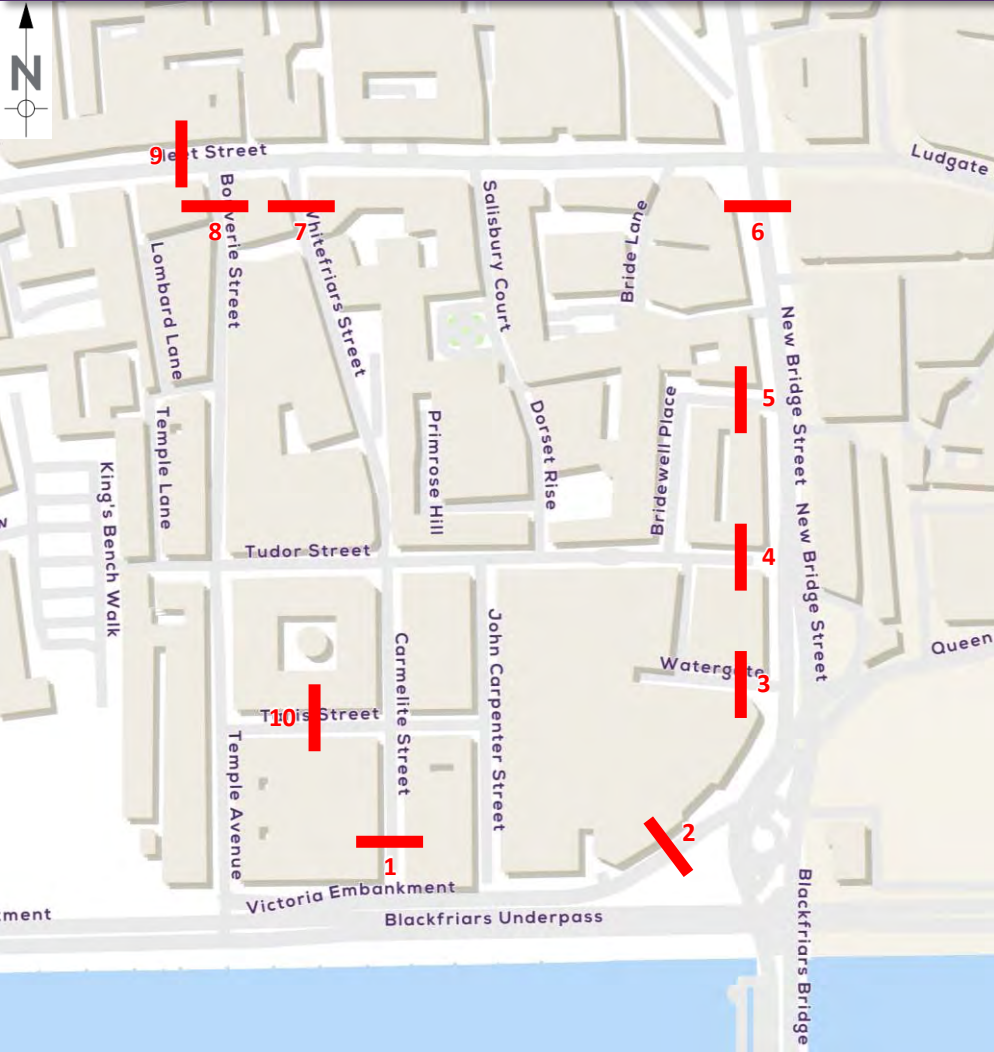
FLEET STREET WESTBOUND CYCLE ENTRY FLOW COMPARISON



MOTOR VEHICLES		
	AM peak	PM peak
Oct-22		
Eastbound	416	425
Westbound	330	328
Jan-18		
Eastbound	637	620
Westbound	548	618
Change		
Eastbound	-221	-195
Westbound	-218	-290
% change		
Eastbound	-35%	-31%
Westbound	-40%	-47%

CYCLES		
	AM peak	PM peak
Oct-22		
Eastbound	234	231
Westbound	191	184
Jan-18		
Eastbound	227	140
Westbound	116	174
Change		
Eastbound	7	91
Westbound	75	10
% change		
Eastbound	3%	65%
Westbound	65%	6%

Survey specification – ANPR



Survey Origin-Destination (OD) points

1. Carmelite Street (exit only to Victoria Embankment)
 2. Victoria Embankment (eastbound only)
 3. Watergate (exit only)
 4. Tudor Street (exit only)
 5. Bridewell Place (entry and exit)
 6. New Bridge Street (2-way)
 7. Whitefriars Street (exit only)
 8. Bouverie Street (entry only)
 9. Fleet Street (2-way)
 10. Tallis Street (2-way)
- The ANPR survey is only able to collect data for motor vehicles because it requires number plates to match the vehicles at each OD point
 - Vehicle types surveyed were:
 - Car (including taxi)
 - LGV
 - OGV1
 - OGV2

Survey times

- Wednesday 22nd March, Thursday 23rd March and Saturday 25th March 2023
- 07:00-10:00, 12:00-14:00, 16:00-19:00



Survey results – Vehicle routes



Origin-Destination summary results

- The tables below show the proportion of vehicles travelling from the specified origin to the specified destination
- The top table is for a weekday (Wednesday), with the bottom table showing data for Saturday

		Destination									
		1	3	4	5 (eastbound)	5 (westbound)	6	7	8	9	10
Origin	Wednesday	1	3	4	5 (eastbound)	5 (westbound)	6	7	8	9	10
	2	1%	6%	1%	0%	10%	80%	1%	0%	1%	0%
	3	0%	0%	13%	0%	13%	63%	0%	0%	13%	0%
	4	0%	0%	0%	0%	0%	97%	0%	0%	3%	0%
	5 (eastbound)	0%	33%	0%	0%	0%	33%	0%	0%	33%	0%
	5 (westbound)	5%	15%	15%	4%	0%	8%	31%	1%	20%	0%
	6	7%	0%	0%	0%	7%	71%	0%	0%	14%	0%
	7	2%	0%	0%	0%	0%	0%	0%	6%	91%	1%
	8	12%	2%	31%	13%	0%	6%	9%	0%	20%	6%
	9	7%	1%	32%	13%	0%	2%	2%	31%	11%	1%
10	29%	0%	8%	6%	0%	6%	21%	0%	29%	0%	

		Destination									
		1	3	4	5 (eastbound)	5 (westbound)	6	7	8	9	10
Origin	Saturday	1	3	4	5 (eastbound)	5 (westbound)	6	7	8	9	10
	2	0%	0%	0%	0%	2%	97%	1%	0%	0%	0%
	3	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%
	4	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%
	5 (eastbound)	50%	0%	0%	0%	0%	0%	0%	0%	50%	0%
	5 (westbound)	7%	19%	21%	0%	0%	5%	21%	0%	26%	2%
	6	11%	0%	11%	0%	0%	78%	0%	0%	0%	0%
	7	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%
	8	11%	3%	26%	9%	0%	14%	6%	3%	26%	3%
	9	8%	0%	51%	11%	0%	1%	2%	15%	11%	1%
10	25%	0%	13%	13%	0%	0%	0%	0%	50%	0%	

Vehicle routes (Wednesday) – Victoria Embankment



Victoria Embankment

- For the 8 surveyed hours on Wednesday, 79% of vehicles heading north from Victoria Embankment go to the Ludgate Circus junction. The remaining 21% enter the Whitefriars area at Bridewell Place
- This equates to 46 vehicles going from Victoria Embankment to the Whitefriars area across the 8 hours surveyed for Wednesday
- The survey data is summarised as follows:

ROUTE	AM	IP	PM	TOTAL	AM	IP	PM	TOTAL
S02E>S05W	12	3	5	20	12%	6%	8%	9%
S02E>S05W>S01S	1	1	1	3	1%	2%	2%	1%
S02E>S05W>S03S	8	1	3	12	8%	2%	5%	6%
S02E>S05W>S03S>S04E	0	0	1	1	0%	0%	2%	0%
S02E>S05W>S03S>S05W	0	1	0	1	0%	2%	0%	0%
S02E>S05W>S03S>S06N	1	0	0	1	1%	0%	0%	0%
S02E>S05W>S04E	1	1	0	2	1%	2%	0%	1%
S02E>S05W>S04E>S06N	0	0	1	1	0%	0%	2%	0%
S02E>S05W>S05E	0	1	0	1	0%	2%	0%	0%
S02E>S05W>S07N	2	0	0	2	2%	0%	0%	1%
S02E>S05W>S07N>S09W	1	0	1	2	1%	0%	2%	1%
S02E>S06N	74	44	53	171	74%	85%	82%	79%

Vehicle routes (Wednesday) – Bridewell Place



Bridewell Place

- For the 8 surveyed hours on Wednesday, 48% entering the Whitefriars area at Bridewell Place move through directly to exit from Whitefriars Street
- This equates to 36 vehicles going from Bridewell Place to Whitefriars Street across the 8 hours surveyed for Wednesday
- The survey data is summarised as follows:

ROUTE	AM	IP	PM	TOTAL	AM	IP	PM	TOTAL
S05W>S01S	1	2	1	4	3%	12%	4%	5%
S05W>S03S	6	4	1	11	18%	24%	4%	15%
S05W>S03S>S04E>S06N	1	0	0	1	3%	0%	0%	1%
S05W>S03S>S06N	0	0	3	3	0%	0%	13%	4%
S05W>S04E	6	0	3	9	18%	0%	13%	12%
S05W>S04E>S06N	1	0	1	2	3%	0%	4%	3%
S05W>S05E	1	0	2	3	3%	0%	8%	4%
S05W>S07N	9	6	6	21	27%	35%	25%	28%
S05W>S07N>S08S	0	1	0	1	0%	6%	0%	1%
S05W>S07N>S08S>S07N	1	0	0	1	3%	0%	0%	1%
S05W>S07N>S09W	7	2	6	15	21%	12%	25%	20%
S05W>S10E>S04E	0	1	1	2	0%	6%	4%	3%
S05W>S10E>S07N	0	1	0	1	0%	6%	0%	1%

Vehicle routes (Wednesday) – Fleet Street



Fleet Street

- For the 8 surveyed hours on Wednesday, 41% entering the Whitefriars area at Bouverie Street move through directly to exit from Tudor Street. 19% exit from Bridewell Place
- This equates to 194 vehicles going from Bouverie Street to Tudor Street, and 89 vehicles going from Bouverie Street to Bridewell Place, across the 8 hours surveyed for Wednesday
- The survey data is summarised as follows:

ROUTE	AM	IP	PM	TOTAL	AM	IP	PM	TOTAL
\$09E>S01S	1	2	0	3	1%	2%	0%	1%
\$09E>S03S	3	0	1	4	3%	0%	0%	1%
\$09E>S04E	8	12	28	48	7%	10%	12%	10%
\$09E>S04E>S06N	2	0	1	3	2%	0%	0%	1%
\$09E>S05E	2	1	2	5	2%	1%	1%	1%
\$09E>S07N	2	0	1	3	2%	0%	0%	1%
\$09E>S07N>S04E	0	0	1	1	0%	0%	0%	0%
\$09E>S07N>S09W	2	2	2	6	2%	2%	1%	1%
\$09E>S08S>S01S	8	10	17	35	7%	8%	7%	7%
\$09E>S08S>S03S	2	0	0	2	2%	0%	0%	0%
\$09E>S08S>S04E	33	52	98	183	29%	42%	42%	39%
\$09E>S08S>S04E>S06N	4	1	6	11	4%	1%	3%	2%
\$09E>S08S>S05E	22	18	48	88	19%	15%	21%	19%
\$09E>S08S>S05E>S06N	1	0	0	1	1%	0%	0%	0%
\$09E>S08S>S05E>S07N>S09W	0	0	1	1	0%	0%	0%	0%
\$09E>S08S>S07N	0	3	4	7	0%	2%	2%	1%
\$09E>S08S>S07N>S08S	0	1	2	3	0%	1%	1%	1%
\$09E>S08S>S07N>S09W	8	6	13	27	7%	5%	6%	6%
\$09E>S08S>S09W	1	0	1	2	1%	0%	0%	0%
\$09E>S08S>S10E	2	5	1	8	2%	4%	0%	2%
\$09E>S08S>S10E>S01S	7	4	2	13	6%	3%	1%	3%
\$09E>S08S>S10E>S04E	0	0	1	1	0%	0%	0%	0%
\$09E>S08S>S10E>S04E>S06N	0	1	1	2	0%	1%	0%	0%
\$09E>S08S>S10E>S05E	0	1	0	1	0%	1%	0%	0%
\$09E>S08S>S10E>S07N	0	1	0	1	0%	1%	0%	0%
\$09E>S08S>S10E>S07N>S09W	3	3	2	8	3%	2%	1%	2%
\$09E>S08S>S10E>S09W	0	0	1	1	0%	0%	0%	0%
\$09E>S10E>S01S	1	0	0	1	1%	0%	0%	0%
\$09E>S10E>S09W	1	0	0	1	1%	0%	0%	0%

Vehicle routes (Thursday) – Victoria Embankment



Victoria Embankment

- For the 8 surveyed hours on Thursday, 87% of vehicles heading north from Victoria Embankment go to the Ludgate Circus junction. The remaining 13% enter the Whitefriars area at Bridewell Place
- This equates to 25 vehicles going from Victoria Embankment to the Whitefriars area across the 8 hours surveyed for Thursday
- The survey data is summarised as follows:

ROUTE	AM	IP	PM	TOTAL	AM	IP	PM	TOTAL
S02E>S05W	9	1	2	12	13%	2%	3%	6%
S02E>S05W>S01S	0	0	1	1	0%	0%	1%	1%
S02E>S05W>S03S	2	1	2	5	3%	2%	3%	3%
S02E>S05W>S03S>S05W>S04E	0	0	1	1	0%	0%	1%	1%
S02E>S05W>S03S>S06N	0	0	1	1	0%	0%	1%	1%
S02E>S05W>S04E>S06N	0	0	1	1	0%	0%	1%	1%
S02E>S05W>S07N	0	1	0	1	0%	2%	0%	1%
S02E>S05W>S07N>S09W	0	1	2	3	0%	2%	3%	2%
S02E>S06N	55	42	66	163	82%	91%	87%	86%
S02E>S09W	1	0	0	1	1%	0%	0%	1%

Vehicle routes (Thursday) – Bridewell Place



Bridewell Place

- For the 8 surveyed hours on Thursday, 47% entering the Whitefriars area at Bridewell Place move through directly to exit from Whitefriars Street
- This equates to 38 vehicles going from Bridewell Place to Whitefriars Street across the 8 hours surveyed for Thursday
- The survey data is summarised as follows:

ROUTE	AM	IP	PM	TOTAL	AM	IP	PM	TOTAL
S05W>S01S	5	0	2	7	14%	0%	7%	9%
S05W>S03S	6	1	3	10	17%	7%	10%	12%
S05W>S03S>S05W>S08S	1	0	0	1	3%	0%	0%	1%
S05W>S03S>S06N	1	0	2	3	3%	0%	7%	4%
S05W>S03S>S07N	0	0	1	1	0%	0%	3%	1%
S05W>S04E	3	3	3	9	8%	20%	10%	11%
S05W>S04E>S06N	1	2	0	3	3%	13%	0%	4%
S05W>S05E	1	0	0	1	3%	0%	0%	1%
S05W>S07N	7	3	8	18	19%	20%	27%	22%
S05W>S07N>S08S	2	0	0	2	6%	0%	0%	2%
S05W>S07N>S09W	6	3	11	20	17%	20%	37%	25%
S05W>S09W	1	0	0	1	3%	0%	0%	1%
S05W>S10E	0	2	0	2	0%	13%	0%	2%
S05W>S10E>S01S	1	0	0	1	3%	0%	0%	1%
S05W>S10E>S04E	1	0	0	1	3%	0%	0%	1%
S05W>S10E>S04E>S06N	0	1	0	1	0%	7%	0%	1%

Vehicle routes (Thursday) – Fleet Street



Fleet Street

- For the 8 surveyed hours on Thursday, 41% entering the Whitefriars area at Bouverie Street move through directly to exit from Tudor Street. 19% exit from Bridewell Place
- This equates to 194 vehicles going from Bouverie Street to Tudor Street, and 89 vehicles going from Bouverie Street to Bridewell Place, across the 8 hours surveyed for Thursday
- The survey data is summarised as follows:

ROUTE	AM	IP	PM	TOTAL	AM	IP	PM	TOTAL
S09E>S01S	1	3	0	4	1%	2%	0%	1%
S09E>S04E	15	11	19	45	13%	8%	11%	11%
S09E>S04E>S06N	3	0	2	5	3%	0%	1%	1%
S09E>S05E	3	5	4	12	3%	4%	2%	3%
S09E>S07N	2	1	0	3	2%	1%	0%	1%
S09E>S07N>S09W	1	0	5	6	1%	0%	3%	1%
S09E>S08S>S01S	13	16	10	39	11%	12%	6%	9%
S09E>S08S>S03S	0	1	1	2	0%	1%	1%	0%
S09E>S08S>S03S>S04E	1	0	0	1	1%	0%	0%	0%
S09E>S08S>S03S>S06N	0	1	0	1	0%	1%	0%	0%
S09E>S08S>S04E	29	48	71	148	25%	36%	40%	35%
S09E>S08S>S04E>S06N	4	5	4	13	3%	4%	2%	3%
S09E>S08S>S04E>S09W	0	1	0	1	0%	1%	0%	0%
S09E>S08S>S05E	15	27	40	82	13%	20%	23%	19%
S09E>S08S>S05E>S06N	1	0	0	1	1%	0%	0%	0%
S09E>S08S>S07N	2	0	6	8	2%	0%	3%	2%
S09E>S08S>S07N>S04E	1	0	0	1	1%	0%	0%	0%
S09E>S08S>S07N>S09W	14	3	12	29	12%	2%	7%	7%
S09E>S08S>S10E	0	4	1	5	0%	3%	1%	1%
S09E>S08S>S10E>S01S	7	5	0	12	6%	4%	0%	3%
S09E>S08S>S10E>S04E	0	1	0	1	0%	1%	0%	0%
S09E>S08S>S10E>S04E>S06N	1	1	1	3	1%	1%	1%	1%
S09E>S08S>S10E>S07N	1	2	0	3	1%	1%	0%	1%
S09E>S08S>S10E>S07N>S09W	2	0	1	3	2%	0%	1%	1%

Vehicle routes (Saturday) – Victoria Embankment

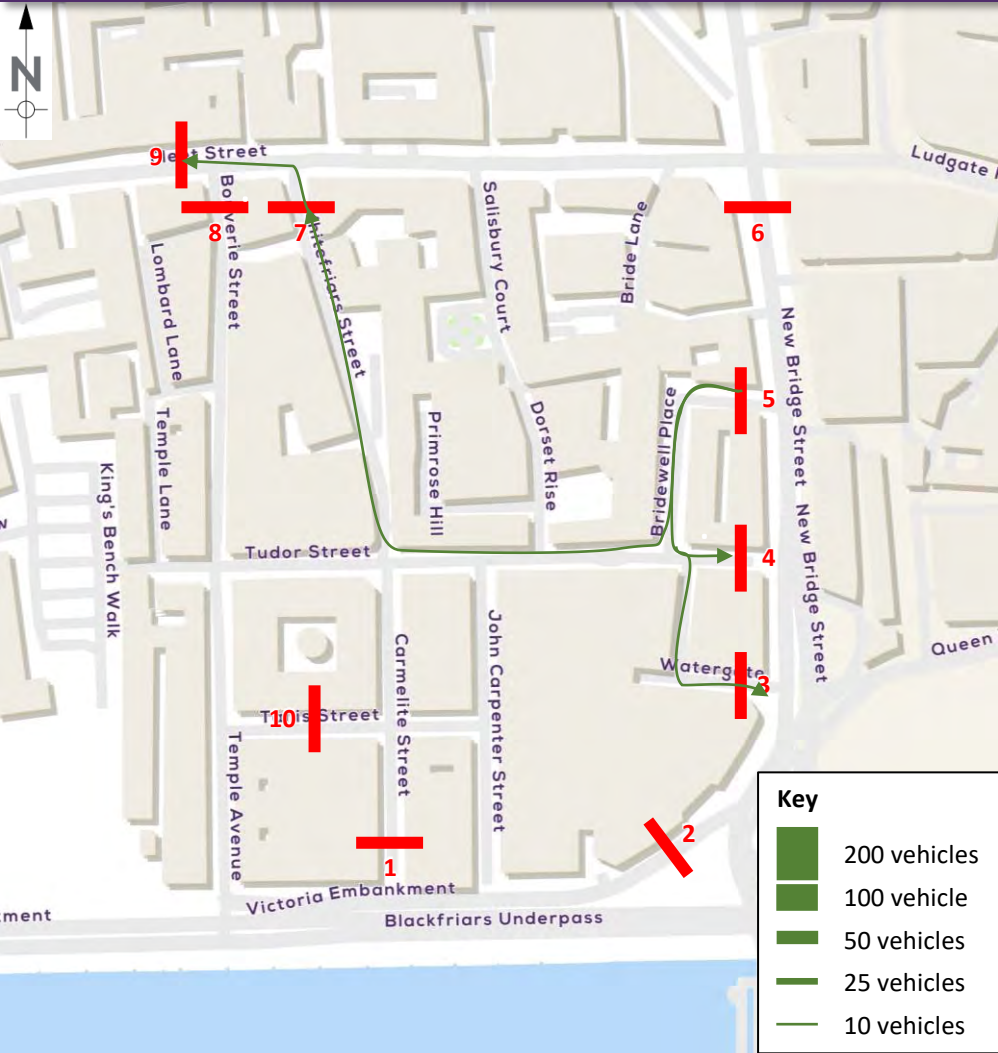


Victoria Embankment

- For the 8 surveyed hours on Saturday, 96% of vehicles heading north from Victoria Embankment go to the Ludgate Circus junction. The remaining 4% enter the Whitefriars area at Bridewell Place
- This equates to 4 vehicles going from Victoria Embankment to the Whitefriars area across the 8 hours surveyed for Saturday
- The survey data is summarised as follows:

ROUTE	AM	IP	PM	TOTAL	AM	IP	PM	TOTAL
S02E>S05W	0	0	2	2	0%	0%	5%	2%
S02E>S05W>S04E>S06N	1	0	0	1	3%	0%	0%	1%
S02E>S05W>S07N	0	0	1	1	0%	0%	3%	1%
S02E>S06N	38	20	34	92	97%	100%	92%	96%

Vehicle routes (Saturday) – Bridewell Place



Bridewell Place

- For the 8 surveyed hours on Saturday, 44% entering the Whitefriars area at Bridewell Place move through directly to exit from Whitefriars Street
- This equates to 19 vehicles going from Bridewell Place to Whitefriars Street across the 8 hours surveyed for Saturday
- The survey data is summarised as follows:

ROUTE	AM	IP	PM	TOTAL	AM	IP	PM	TOTAL
S05W>S01S	2	0	1	3	17%	0%	5%	7%
S05W>S03S	4	2	2	8	33%	17%	11%	19%
S05W>S04E	0	5	3	8	0%	42%	16%	19%
S05W>S04E>S06N	1	1	0	2	8%	8%	0%	5%
S05W>S07N	3	2	4	9	25%	17%	21%	21%
S05W>S07N>S09W	1	2	7	10	8%	17%	37%	23%
S05W>S09W	0	0	1	1	0%	0%	5%	2%
S05W>S10E	1	0	0	1	8%	0%	0%	2%
S05W>S10E>S04E	0	0	1	1	0%	0%	5%	2%

Vehicle routes (Saturday) – Fleet Street



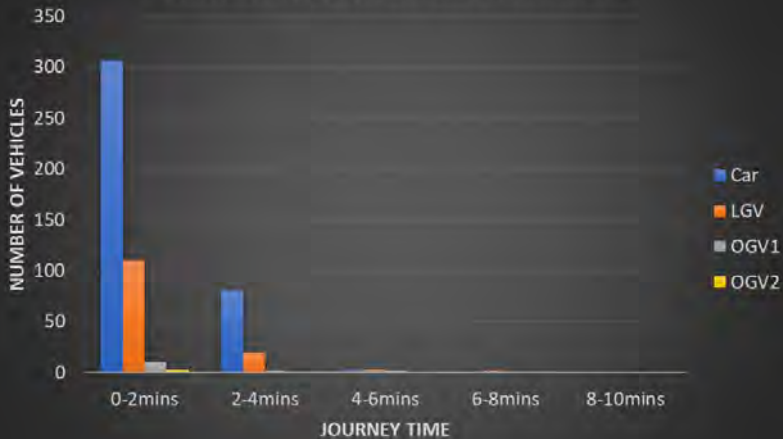
Fleet Street

- For the 8 surveyed hours on Thursday, 41% entering the Whitefriars area at Bouverie Street move through directly to exit from Tudor Street. 19% exit from Bridewell Place
- This equates to 194 vehicles going from Bouverie Street to Tudor Street, and 89 vehicles going from Bouverie Street to Bridewell Place, across the 8 hours surveyed for Thursday
- The survey data is summarised as follows:

ROUTE	AM	IP	PM	TOTAL	AM	IP	PM	TOTAL
S09E>S04E	3	13	39	55	8%	21%	28%	23%
S09E>S05E	0	1	2	3	0%	2%	1%	1%
S09E>S07N>S09W	1	1	1	3	3%	2%	1%	1%
S09E>S08S>S01S	9	5	7	21	23%	8%	5%	9%
S09E>S08S>S03S	1	0	0	1	3%	0%	0%	0%
S09E>S08S>S04E	14	28	61	103	35%	46%	44%	43%
S09E>S08S>S04E>S06N	1	0	2	3	3%	0%	1%	1%
S09E>S08S>S05E	5	9	17	31	13%	15%	12%	13%
S09E>S08S>S07N	1	1	3	5	3%	2%	2%	2%
S09E>S08S>S07N>S09W	1	2	5	8	3%	3%	4%	3%
S09E>S08S>S09W	1	0	0	1	3%	0%	0%	0%
S09E>S08S>S10E	0	1	1	2	0%	2%	1%	1%
S09E>S08S>S10E>S01S	3	0	0	3	8%	0%	0%	1%
S09E>S08S>S10E>S07N	0	0	1	1	0%	0%	1%	0%

Survey results – Vehicle journey times

JOURNEY TIMES BY VEHICLE TYPE (WEDNESDAY)



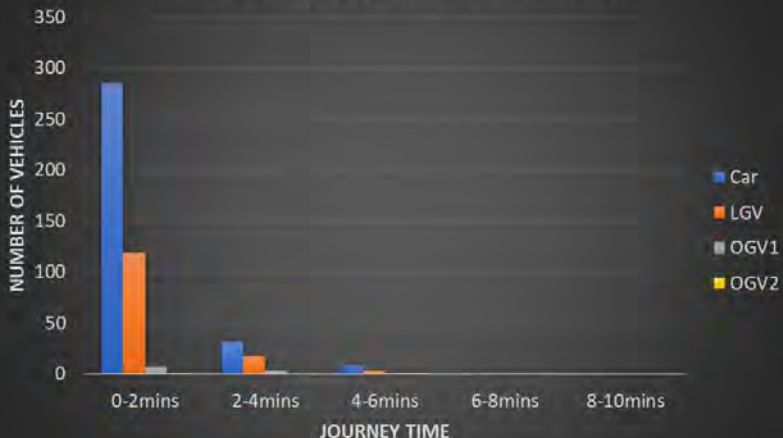
Journey time summary results

- The journey time results for all survey days (Wednesday, Thursday and Saturday), show that over 80% pass through the area within 2 minutes. This suggests most vehicles move through the Whitefriars area without having a purpose within the area
- The graphs show the journey times by vehicle type for each survey day
- The tables show the average journey time by vehicle type for each peak hour

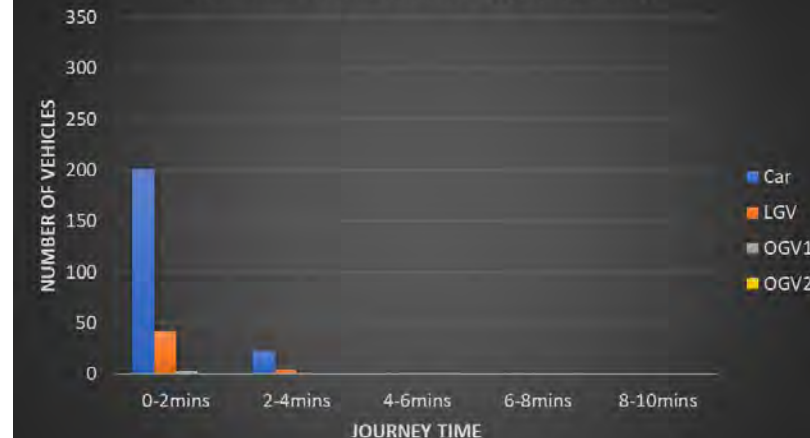
AVERAGE VEHICLE JOURNEY TIME				
WEDNESDAY	AM	IP	PM	TOTAL
Car	00:01:42	00:01:38	00:01:31	00:01:37
LGV	00:01:42	00:01:27	00:01:37	00:01:35
OGV1	00:01:50	00:01:32	00:04:32	00:02:38
OGV2	00:01:20	00:01:34	00:01:42	00:01:32

AVERAGE VEHICLE JOURNEY TIME				
SATURDAY	AM	IP	PM	TOTAL
Car	00:01:04	00:01:14	00:01:14	00:01:11
LGV	00:00:53	00:01:21	00:01:09	00:01:08
OGV1	00:00:54	N/A	00:01:47	N/A
OGV2	N/A	N/A	N/A	N/A

JOURNEY TIMES BY VEHICLE TYPE (THURSDAY)

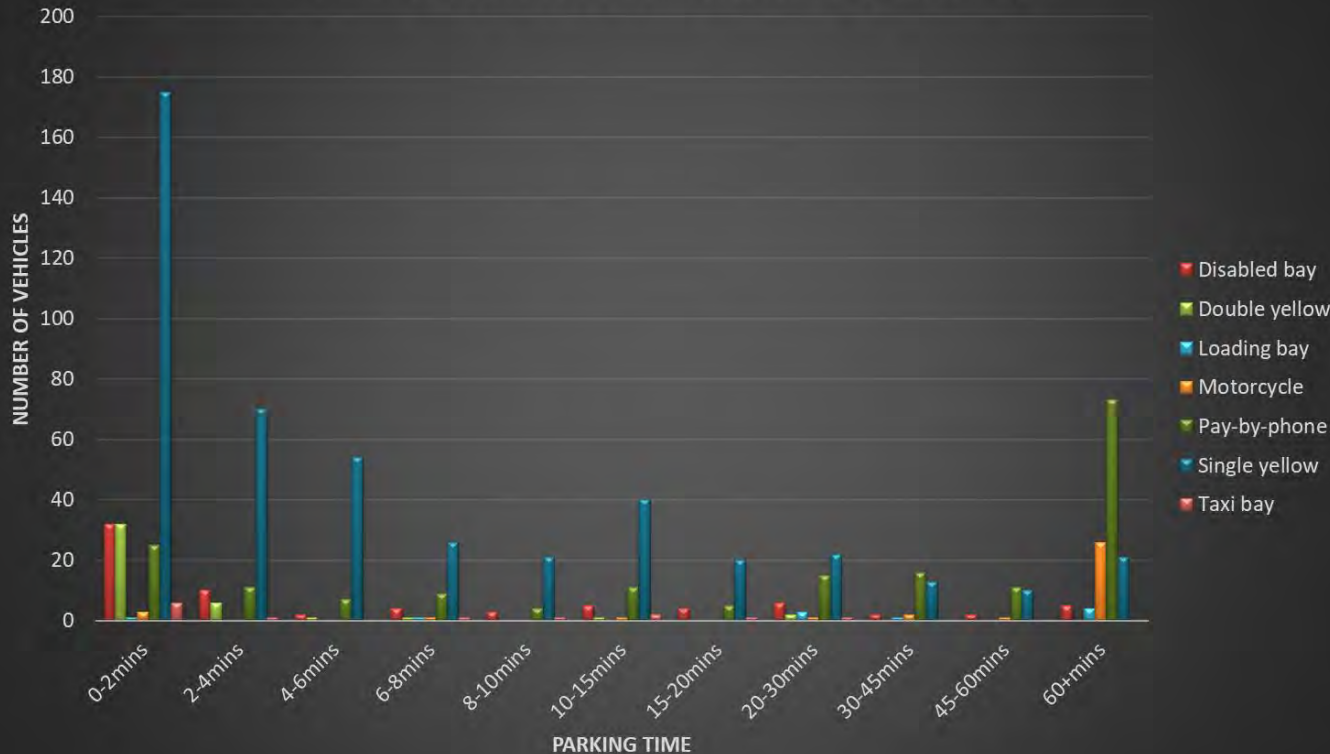


JOURNEY TIMES BY VEHICLE TYPE (SATURDAY)



Survey results – Parking dwell times

PARKING DWELL TIME BY KERBSIDE RESTRICTION (WEDNESDAY)



Parking dwell time results

- The Origin-Destination survey found that the maximum journey time through the Whitefriars survey area was 8 minutes, with the vast majority less than 4 minutes. These were the travel times captured for the AM, Inter and PM peak hour periods
- The kerbside survey, which captured 7am-7pm, shows a range of parking times greater than the range of travel times
- 52% of vehicles that parked (stopped) did so for less than 4 minutes
- Of those vehicles that stop for less than 2 minutes 35% are cars and 27% are taxis
- There is a high level of kerbside activity that occurs on single yellow line and lasts for less than 2 minutes
- Of those vehicles stopping on a single yellow line for less than 2 minutes, 29% are cars and 29% are taxis. 24% are LGVs
- The parking occupancy data (which shows high levels of occupancy of marked bays) and the dwell time data show the vehicles that have a purpose in the area, i.e. they use the bays provided for parking, loading, etc

APPENDIX B: KERBSIDE ACTIVITY ANALYSIS

NRP

NORMAN ROURKE PRYME



Whitefriars Area Traffic Study Kerbside Survey Results

June 2023 V1.0

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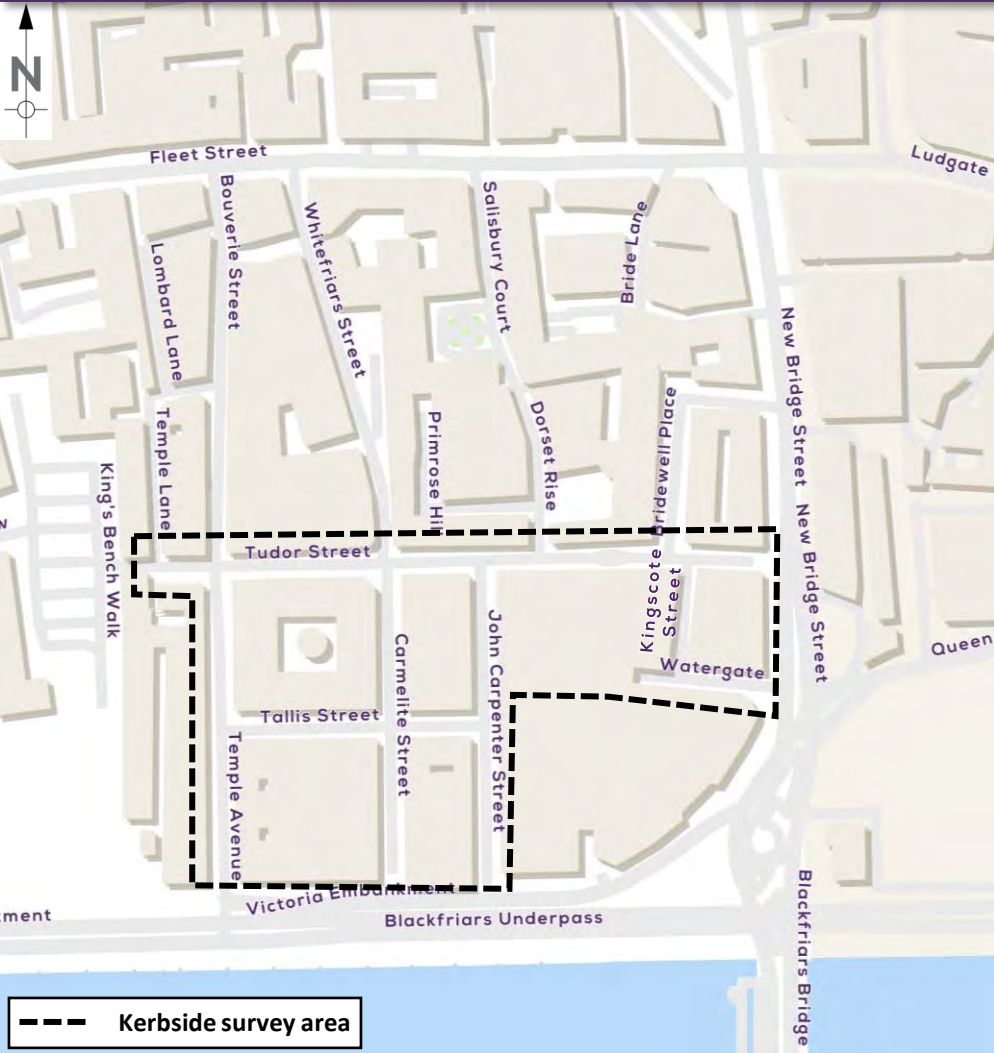


Introduction

- NDC were commissioned by NRP/ CoL to undertake surveys to record kerbside activity on a number of streets within the Whitefriars Area Traffic Study
- The surveys were required to understand the level of kerbside activity to help inform potential removal and relocation options as part of the City's Healthy Streets Strategy
- This report sets out the results of the kerbside activity survey



Survey specification



Survey locations

- Tudor Street
- Watergate
- Kingscote Street
- John Carpenter Street
- Tallis Street
- Carmelite Street
- Temple Avenue

Survey times

- 07:00-19:00 on Wednesday 22nd March, Thursday 23rd March and Saturday 25th March 2023

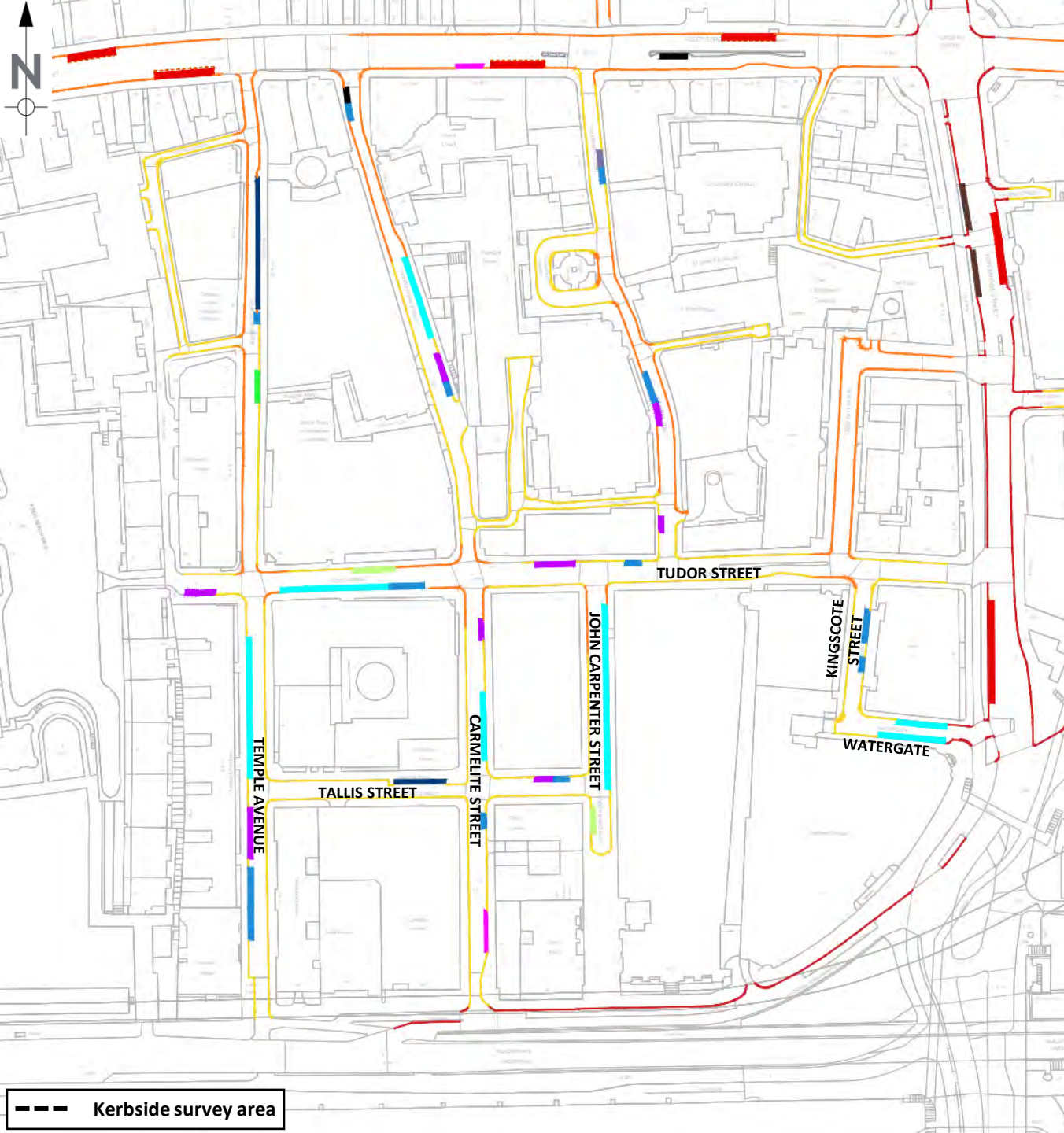
Outputs


- All results presented as **vehicle units**. This assumes a vehicle unit has a length of 5m, where a car is 1 unit; a motorcycle is 0.17 units, a coach 3 units, etc

--- Kerbside survey area

KEY

-  Pay-by-phone parking
-  Taxi bay
-  Disabled
-  Motorcycle bay
-  Loading bay
-  Shared loading/ disabled bay
-  Diplomatic parking
-  Police parking
-  Doctor parking
-  Bus stop
-  Single yellow line
-  Double yellow line
-  Double red line (TLRN)



 Kerbside survey area




Results – Study area by street

Location	Kerbside restriction	Total capacity	Maximum occupancy	90 th percentile occupancy
Tudor Street	Taxi rank	3	95%	0%
	Pay-by-phone	6	100%	100%
	Disabled	3	100%	100%
	Motorcycles	2 (12 motorcycles)	100%	100%
Watergate	Pay-by-phone	8	88%	88%
Kingscote Street	Disabled bay	3	100%	33%
John Carpenter Street	Taxi rank	2	50%	0%
	Pay-by-phone	11	100%	91%
Tallis Street	Disabled bay	1	100%	0%
	Motorcycles	1 (6 motorcycles)	51%	51%
Carmelite Street	Pay-by-phone	4	100%	100%
	Disabled	1	100%	0%
	Motorcycles	1 (6 motorcycles)	100%	51%
	Loading bay	2	100%	100%
Temple Avenue	Pay-by-phone	8	100%	100%
	Disabled	4	50%	25%
	Motorcycles	1 (6 motorcycles)	85%	85%

Notes

- Maximum occupancy is the highest value of all days surveyed
- 90th percentile value is the highest of the 3 days surveyed
- The 90th percentile occupancy refers to the level of occupancy that is higher than 90% of the observed values in a given dataset. That is, if you rank all the occupancy values in a dataset from the lowest to the highest, the 90th percentile occupancy is the value that is higher than 90% of the other values

KEY

-  <75%
-  75-85%
-  >85%



Results – Study area by bay type

Kerbside restriction	Total capacity	Maximum occupancy	90 th percentile occupancy
Taxi rank	5	57%	20%
Pay-by-phone	37	95%	89%
Disabled	12	100%	53%
Motorcycles	5 (29 motorcycles)	95%	75%
Loading bay	2	100%	100%

KEY

- <75%
- 75-85%
- >85%

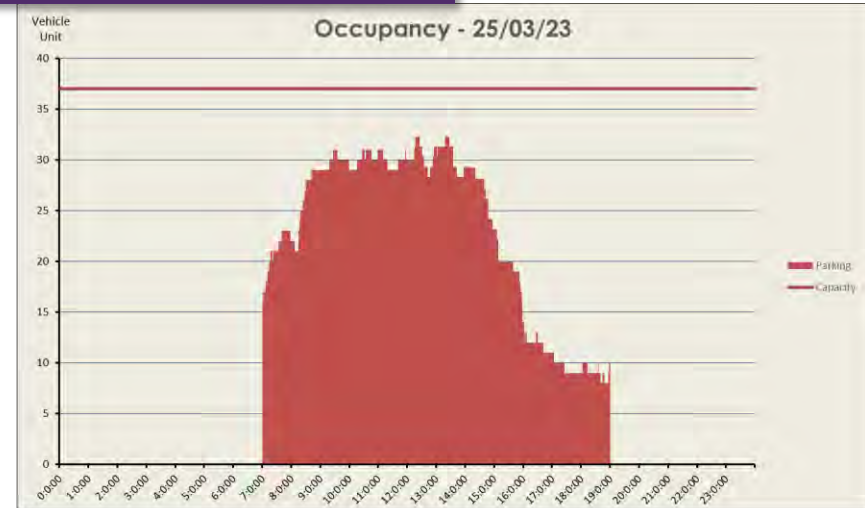
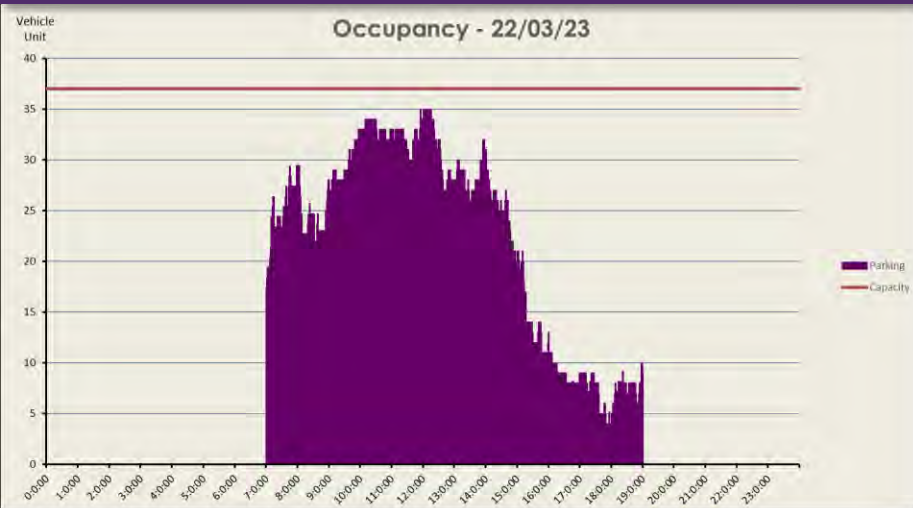
Notes

- Maximum occupancy is the highest value of all days surveyed
- 90th percentile value is the highest of the 3 days surveyed
- The 90th percentile occupancy refers to the level of occupancy that is higher than 90% of the observed values in a given dataset. In other words, if you rank all the occupancy values in a dataset from the lowest to the highest, the 90th percentile occupancy is the value that is higher than 90% of the other values

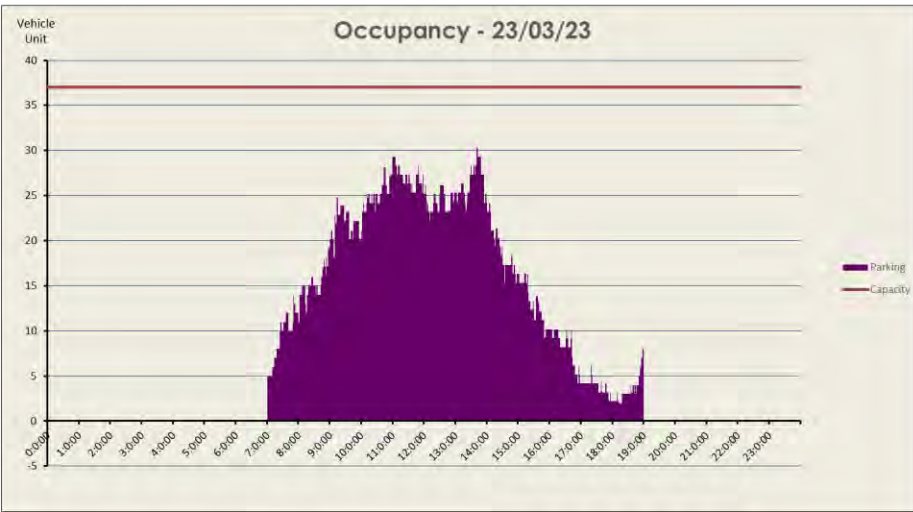
Summary for study area

- The taxi ranks have low occupancy, although this is broadly in line with other taxi ranks in, for example, Soho
- The pay-by-phone and loading bays have high levels of occupancy, suggesting there is no spare capacity for these bay types. However, use of the pay-by-phone bays will also include loading/ servicing vehicles plus vehicles associated with construction works in the area
- The disabled bays have a high maximum occupancy but a much lower 90th percentile occupancy. This suggests the disabled bays are well used but only for short time periods. This is shown in the occupancy graphs for disabled bays on the following slides
- Motorcycle bays are generally well used
- The following slides present occupancy graphs by time of day for each bay type and for each street

Results – Study area (Pay-by-phone)

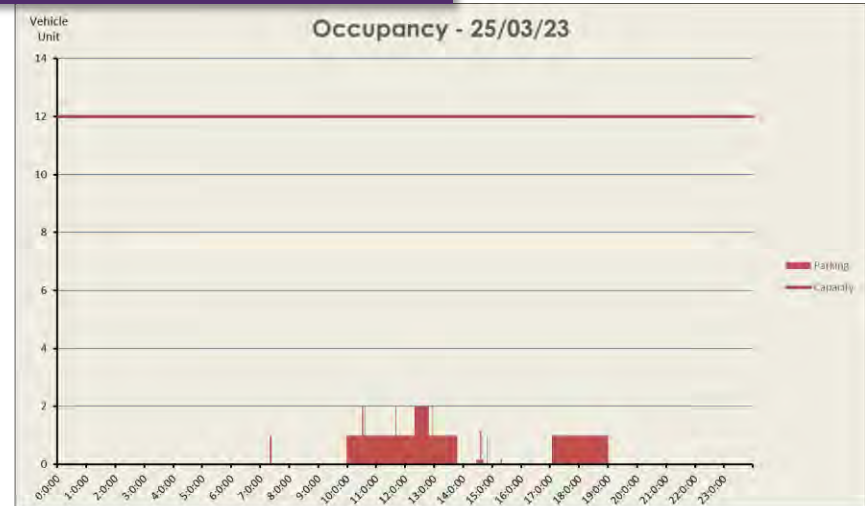
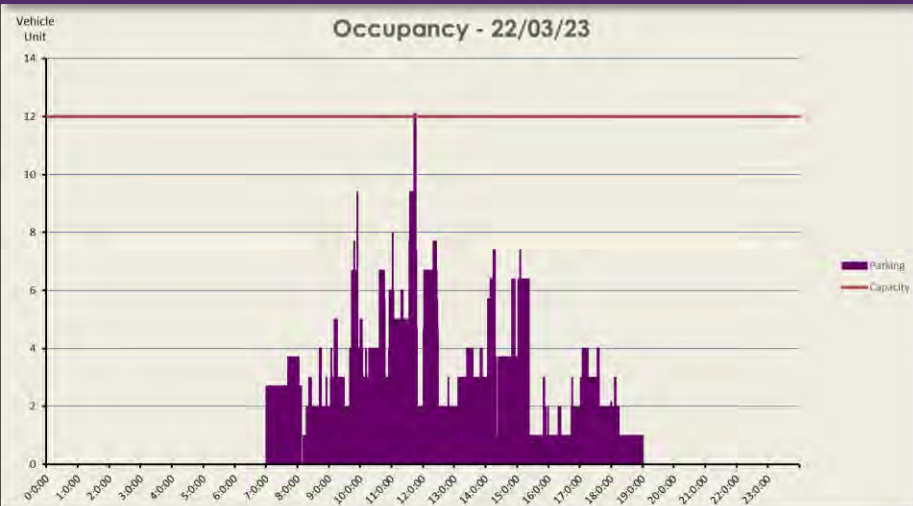


Capacity	37
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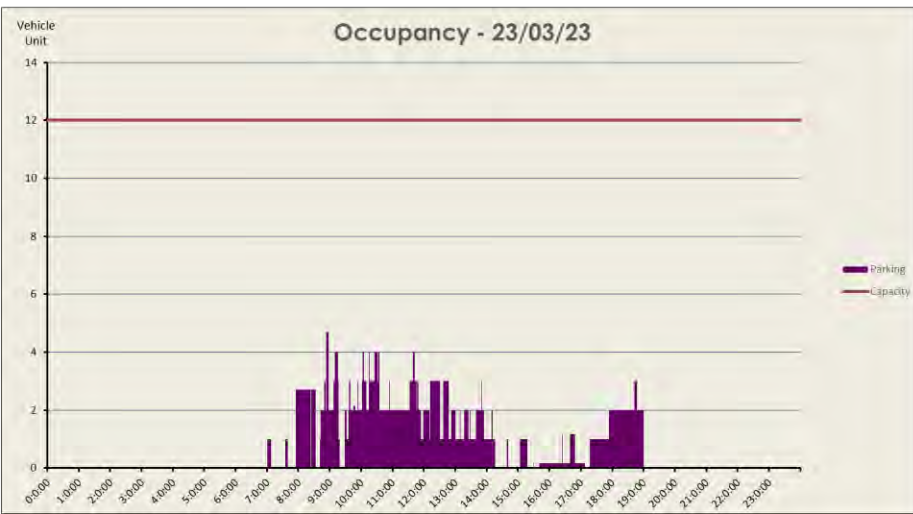


		Degree of saturation		
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	35	33	95%	89%
23/03/2023 0600-1900	30	26	82%	71%
25/03/2023 0600-1900	32	31	87%	84%

Results – Study area (Disabled)

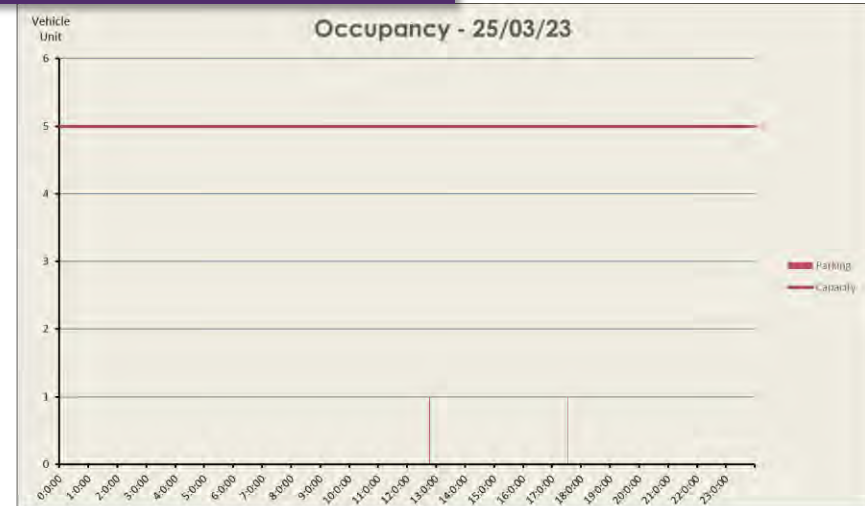
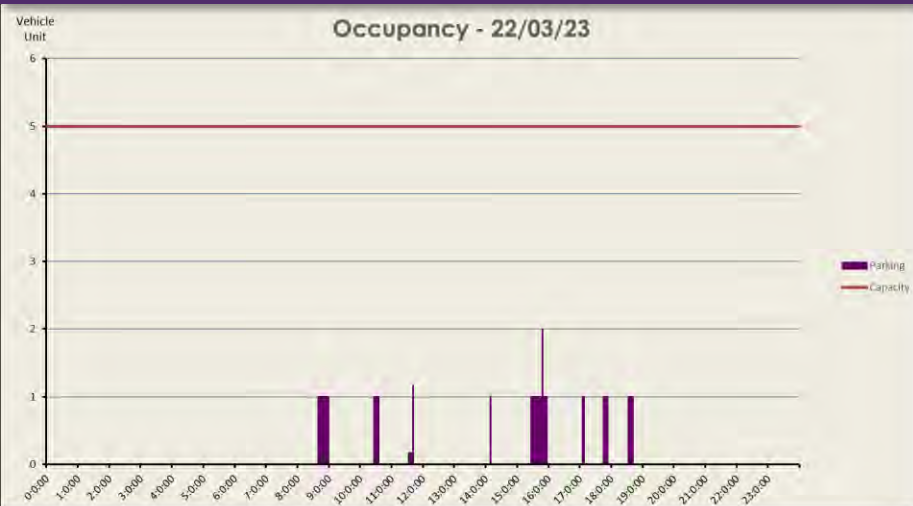


Capacity	12
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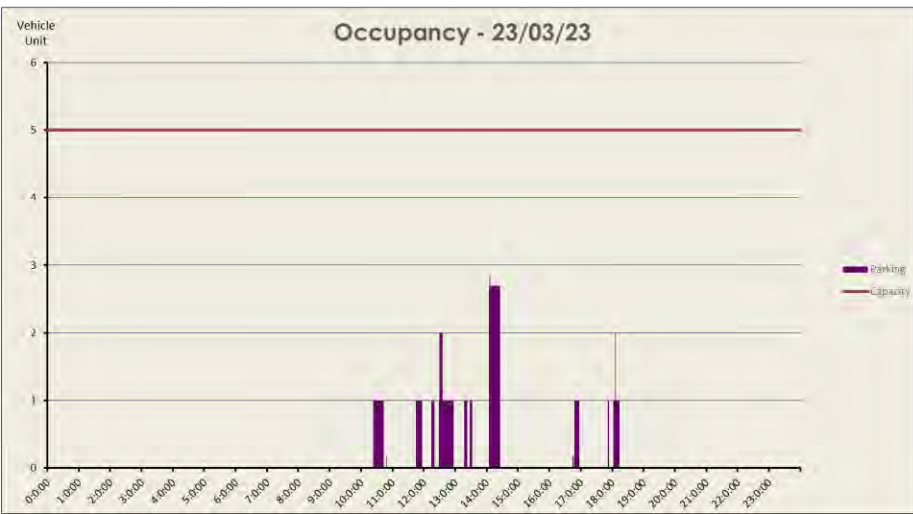


		Degree of saturation		
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	12	6	101%	53%
23/03/2023 0600-1900	5	3	39%	25%
25/03/2023 0600-1900	2	1	17%	8%

Results – Study area (Taxi rank)

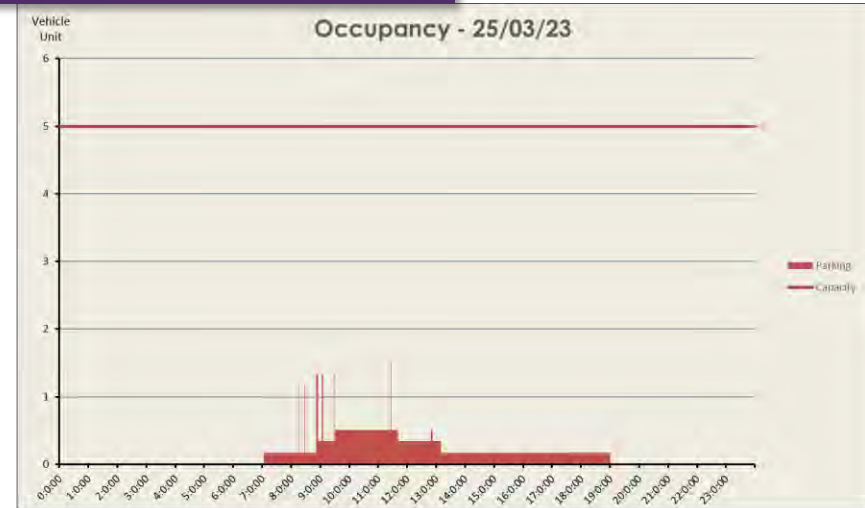
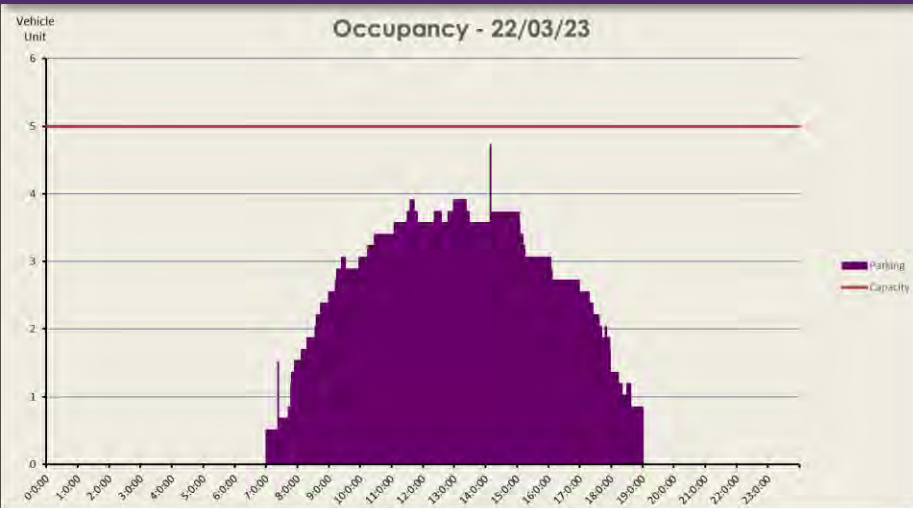


Capacity	5
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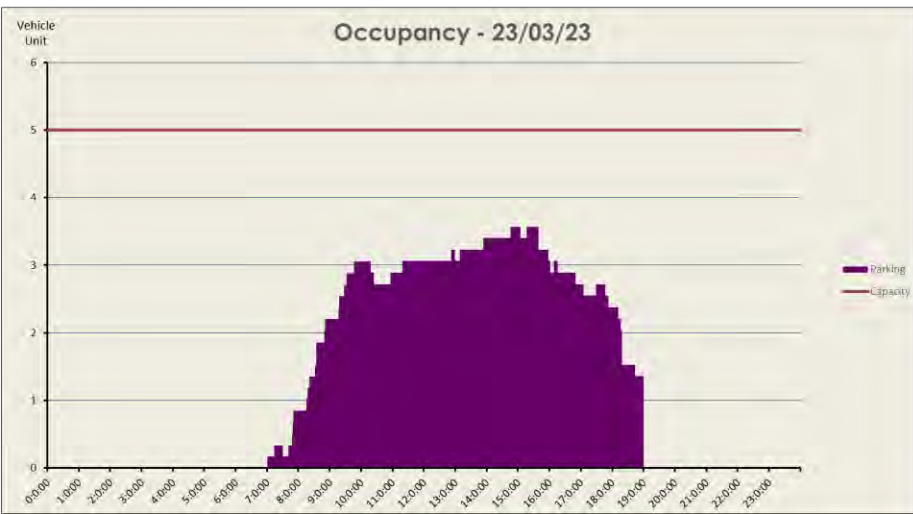


		Degree of saturation	
	Max Occupancy	90th %ile	
22/03/2023 0600-1900	2	1	40%
23/03/2023 0600-1900	3	1	57%
25/03/2023 0600-1900	1	0	20%

Results – Study area (Motorcycle)

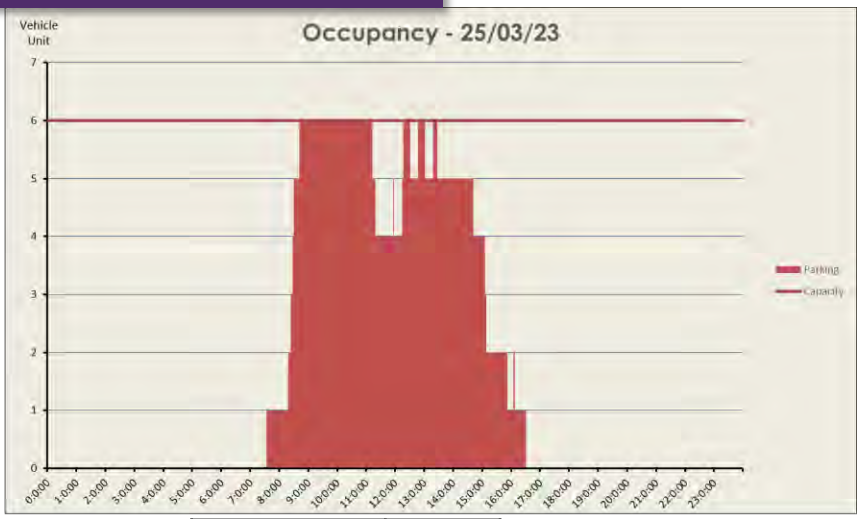
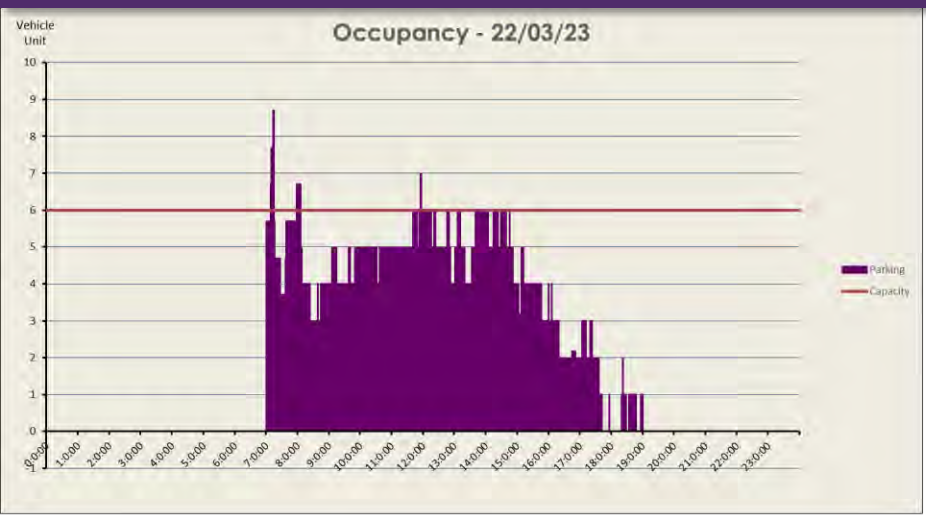


Capacity 5

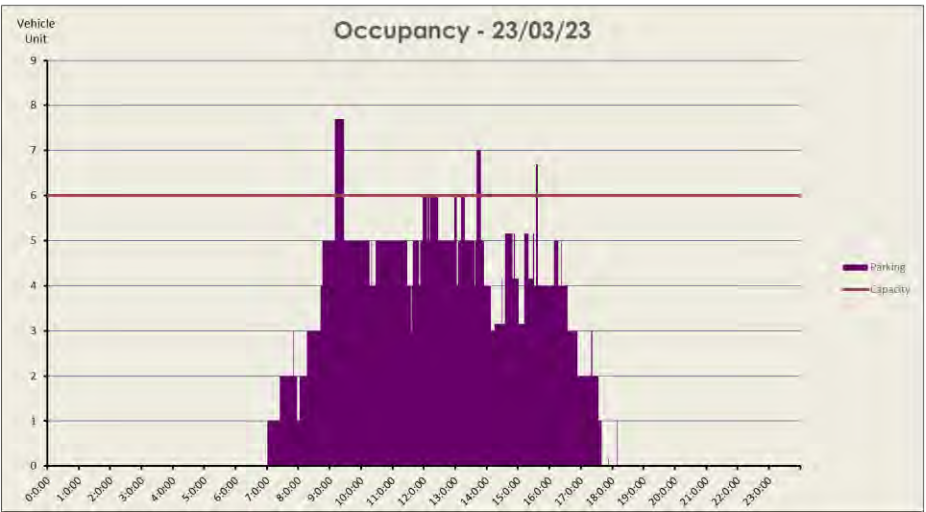


		Degree of saturation		
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	5	4	95%	75%
23/03/2023 0600-1900	4	3	71%	68%
25/03/2023 0600-1900	2	1	30%	10%

Results – Tudor Street (Pay-by-phone)

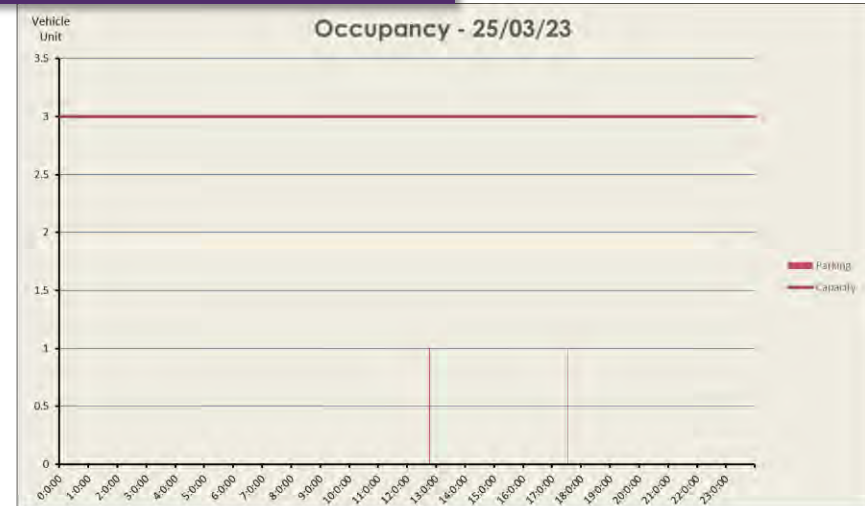
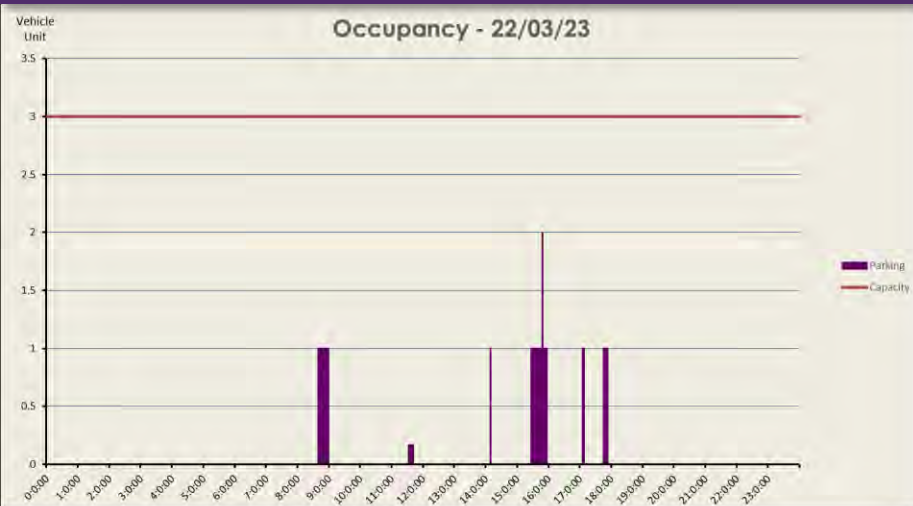


Capacity 6

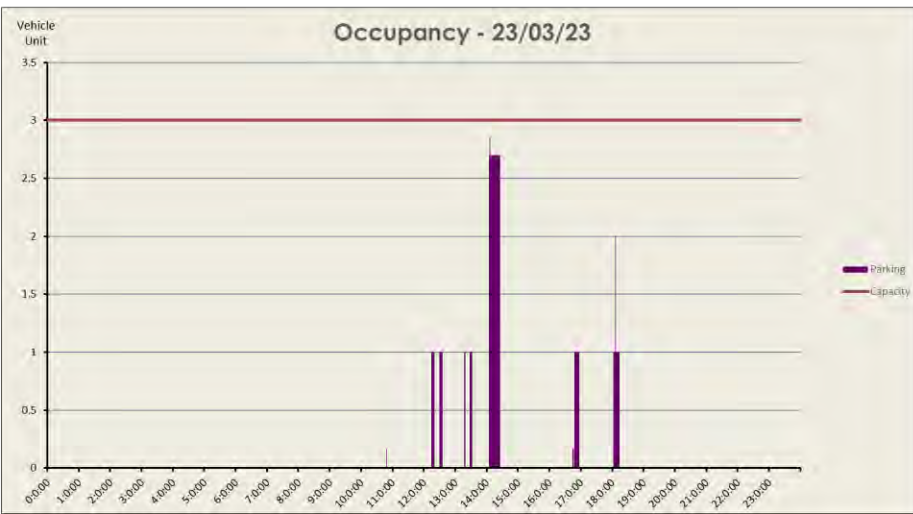


		Degree of saturation		
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	9	6	145%	100%
23/03/2023 0600-1900	8	5	128%	86%
25/03/2023 0600-1900	6	6	100%	100%

Results – Tudor Street (Taxi rank)

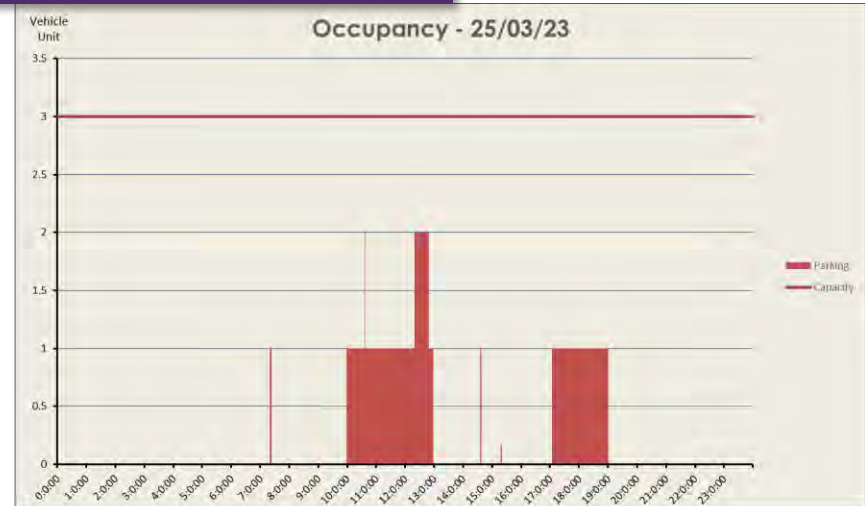
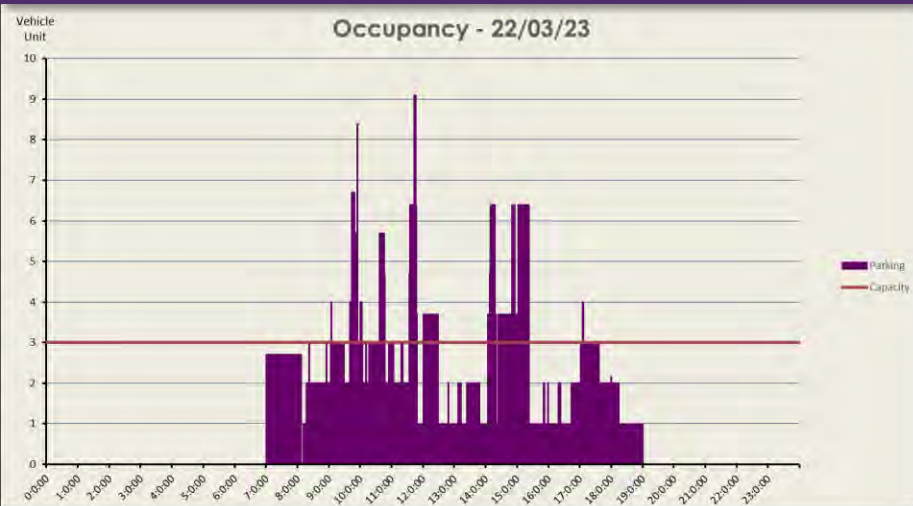


Capacity 3

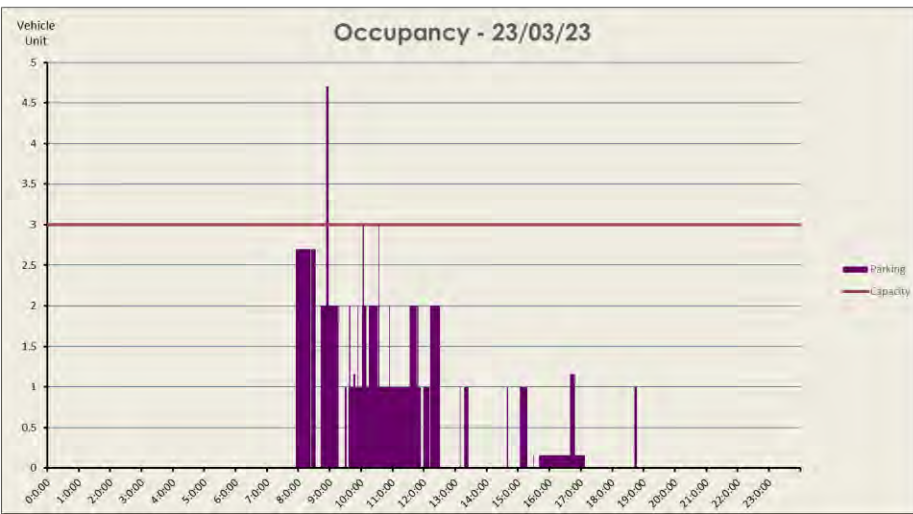


		Degree of saturation		
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	2	0	67%	0%
23/03/2023 0600-1900	3	0	95%	0%
25/03/2023 0600-1900	1	0	33%	0%

Results – Tudor Street (Disabled)

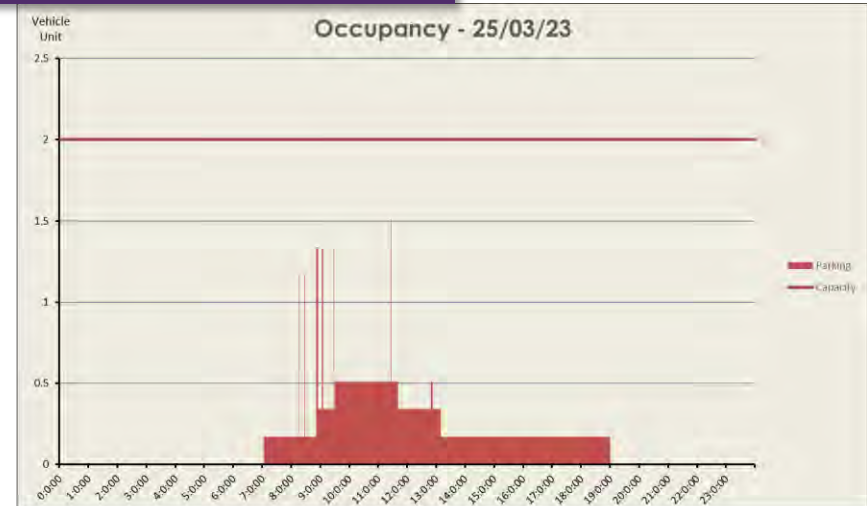
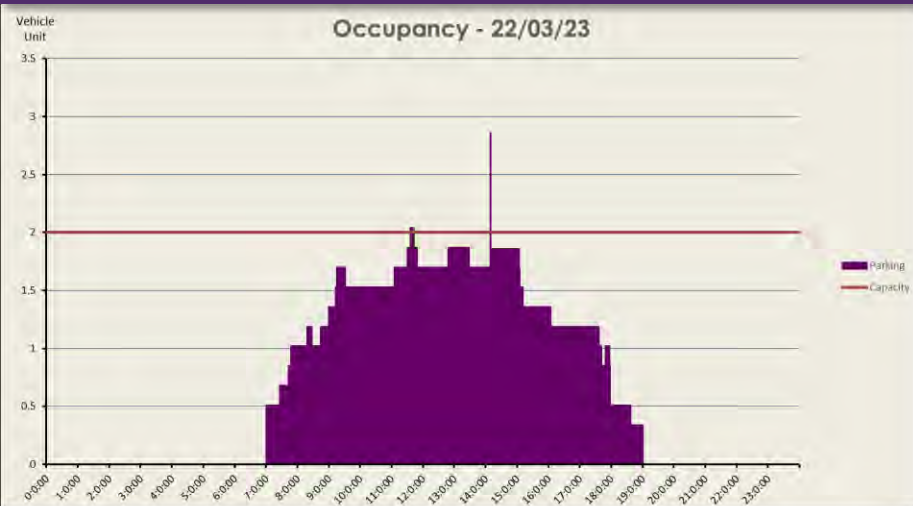


Capacity 3

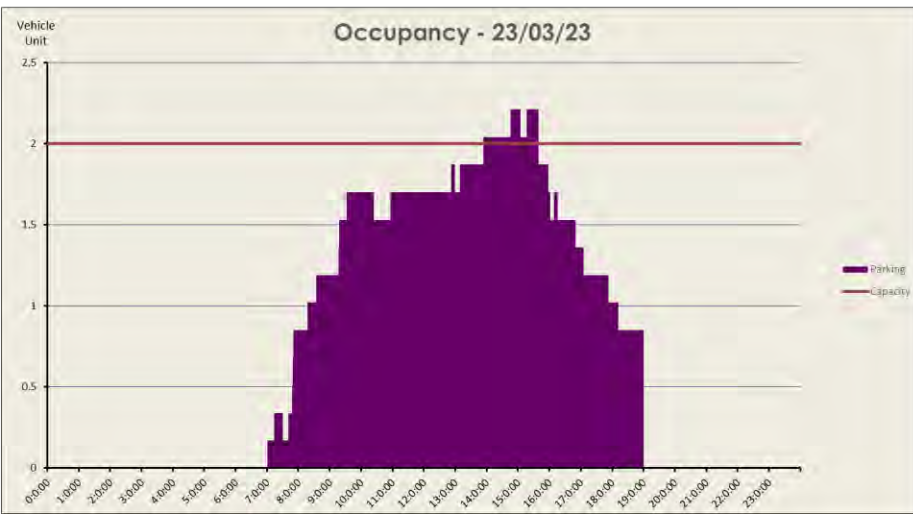


		Degree of saturation		
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	9	4	303%	133%
23/03/2023 0600-1900	5	2	157%	67%
25/03/2023 0600-1900	2	1	67%	33%

Results – Tudor Street (Motorcycle)

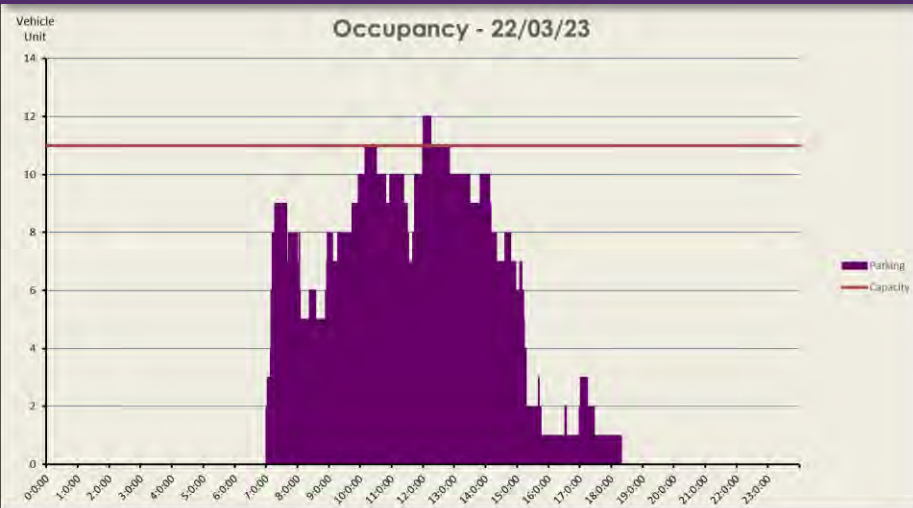


Capacity 2

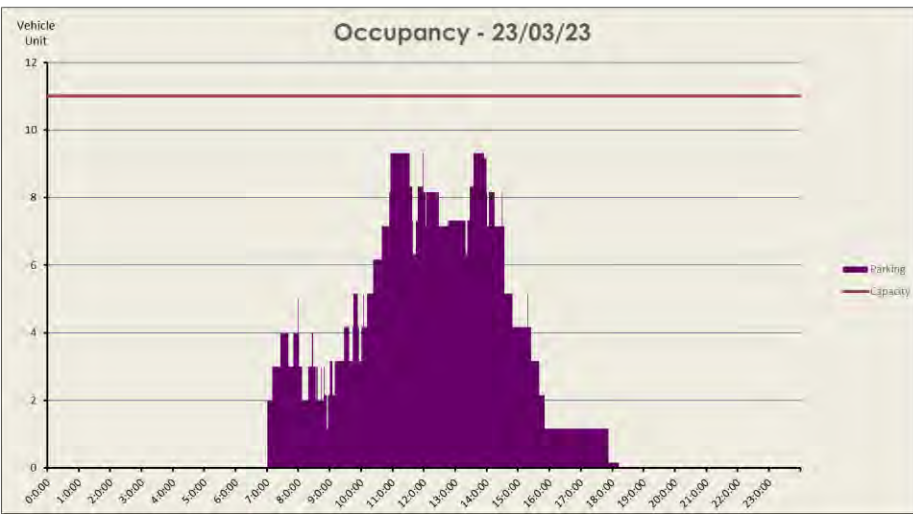


		Degree of saturation		
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	3	2	143%	93%
23/03/2023 0600-1900	2	2	111%	102%
25/03/2023 0600-1900	2	1	76%	26%

Results – John Carpenter St (Pay-by-phone)

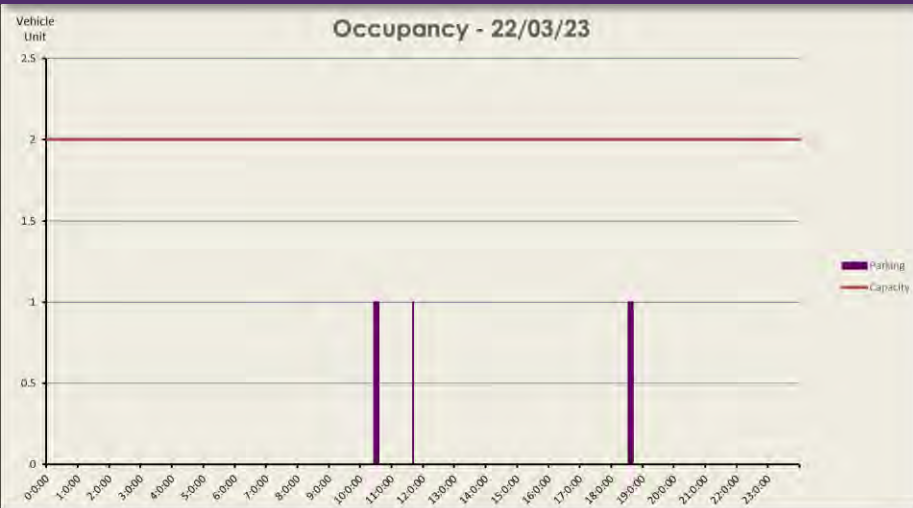


Capacity 11

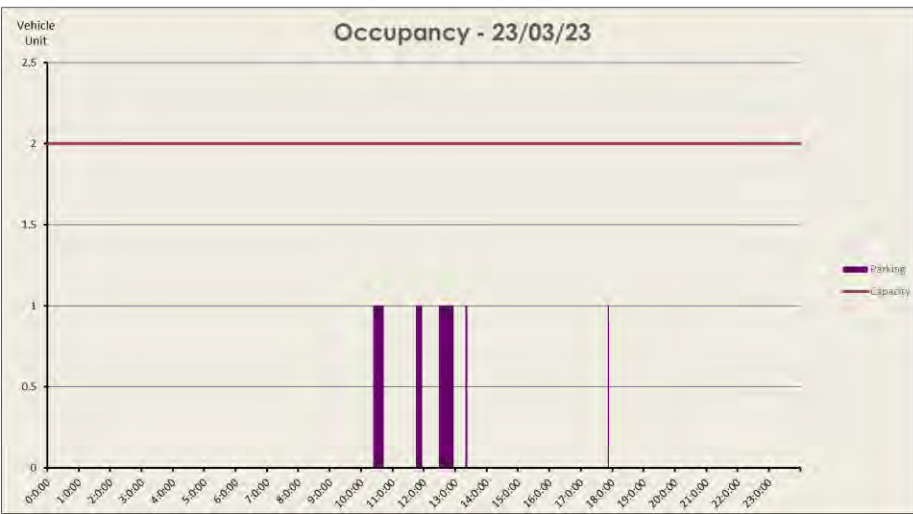


		Degree of saturation	
	Max Occupancy	90th %ile	
22/03/2023 0600-1900	12	10	109%
23/03/2023 0600-1900	9	8	85%
25/03/2023 0600-1900	9	9	82%

Results – John Carpenter St (Taxi rank)

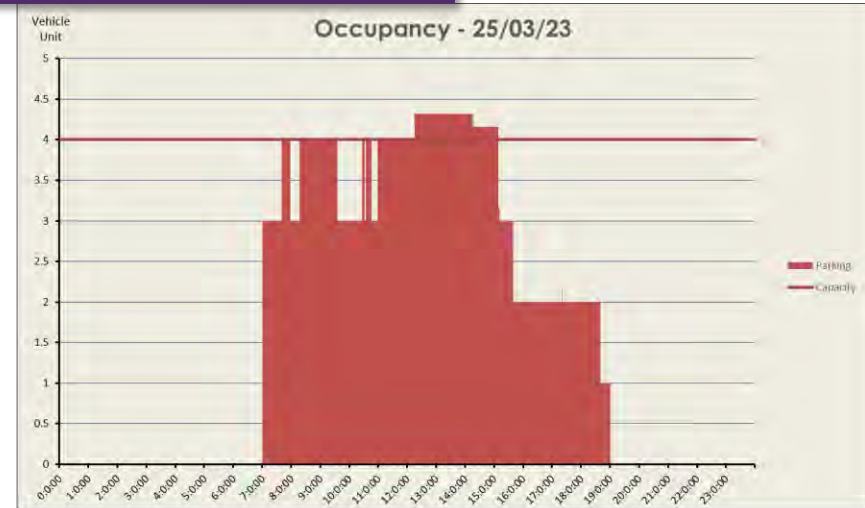
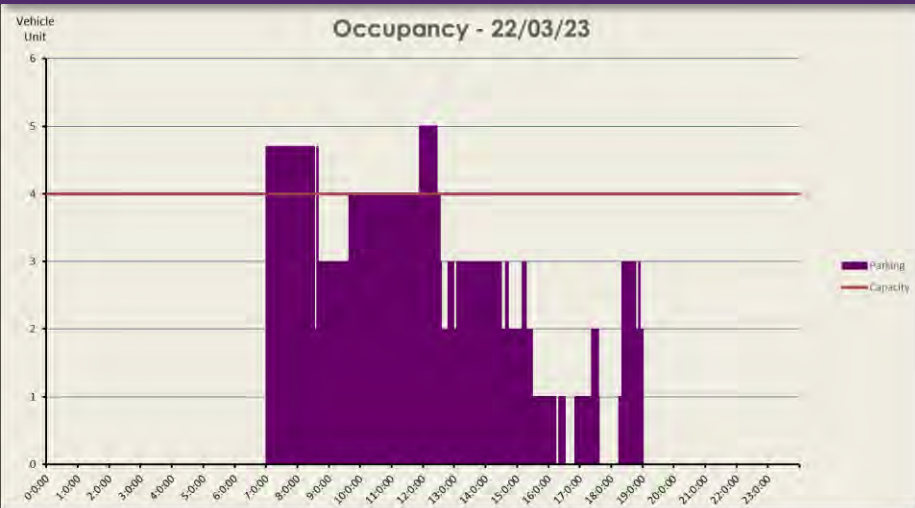


Capacity 2

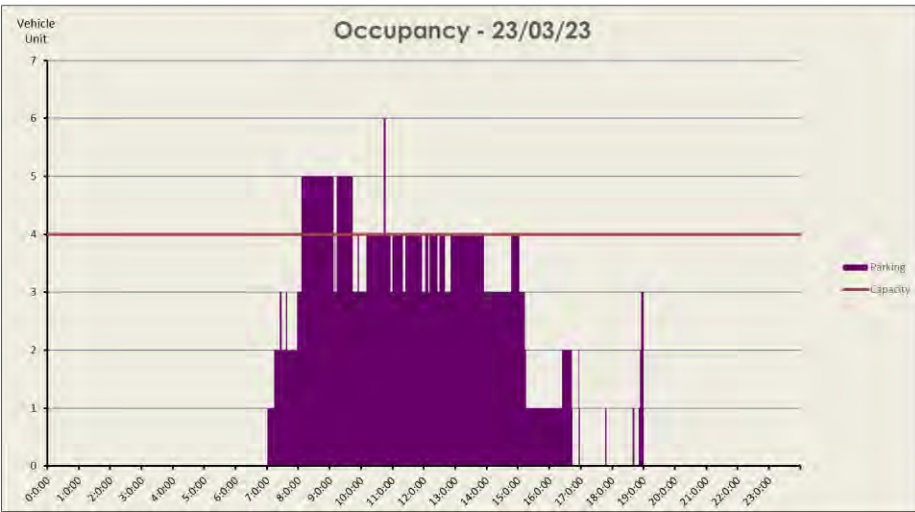


			Degree of saturation	
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	1	0	50%	0%
23/03/2023 0600-1900	1	0	50%	0%
25/03/2023 0600-1900	0	0	0%	0%

Results – Carmelite Street (Pay-by-phone)



Capacity 4

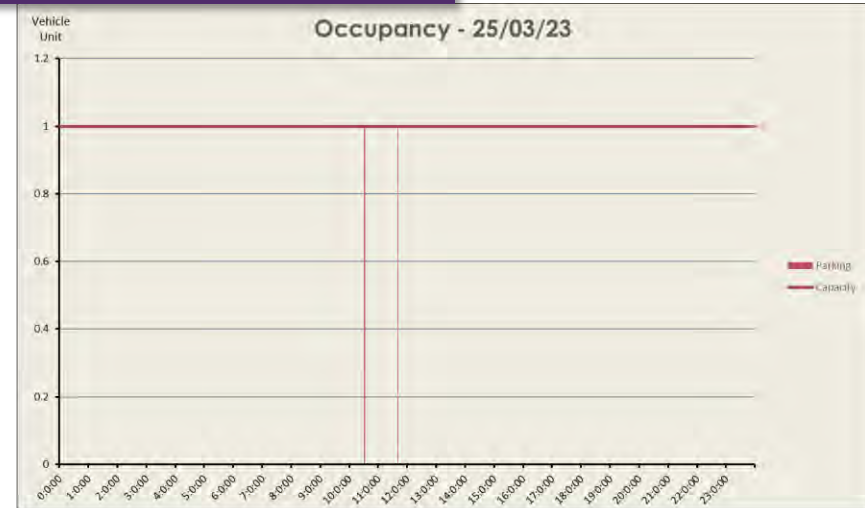
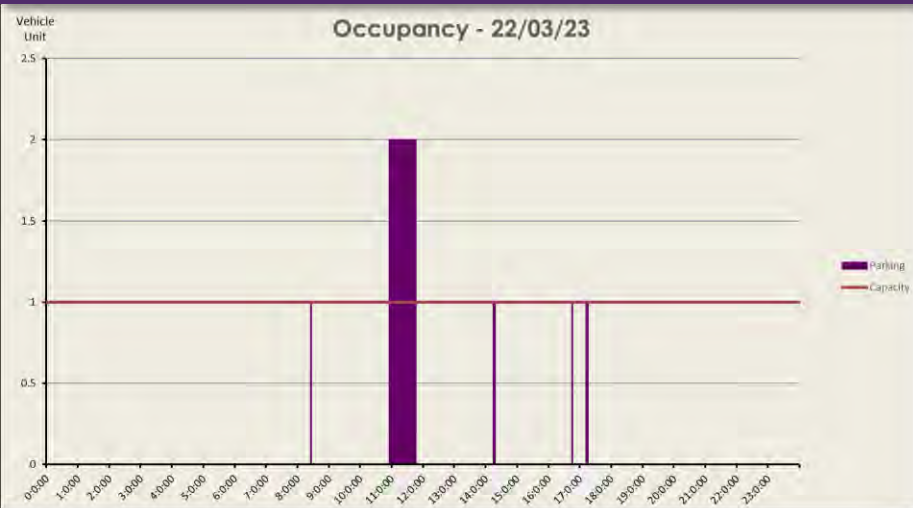


Degree of saturation

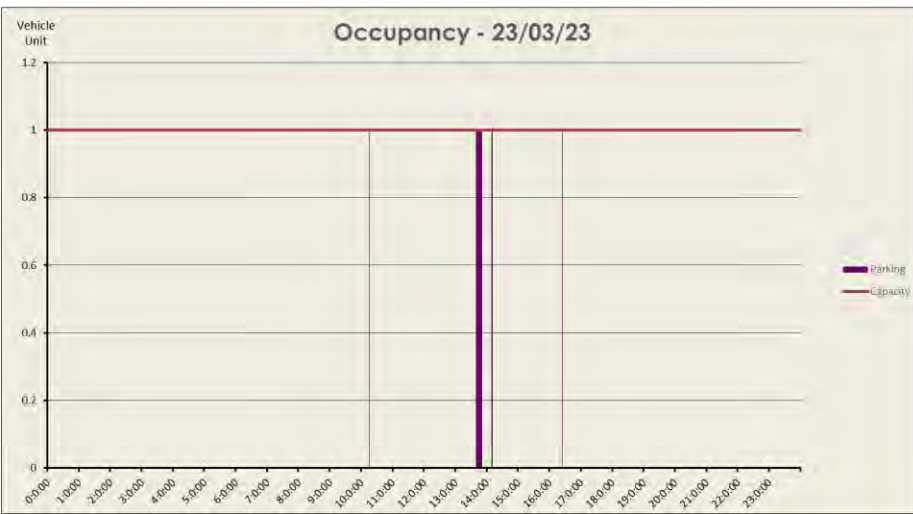
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	5	5	125%	118%
23/03/2023 0600-1900	6	5	150%	125%
25/03/2023 0600-1900	4	4	108%	108%



Results – Carmelite Street (Disabled)

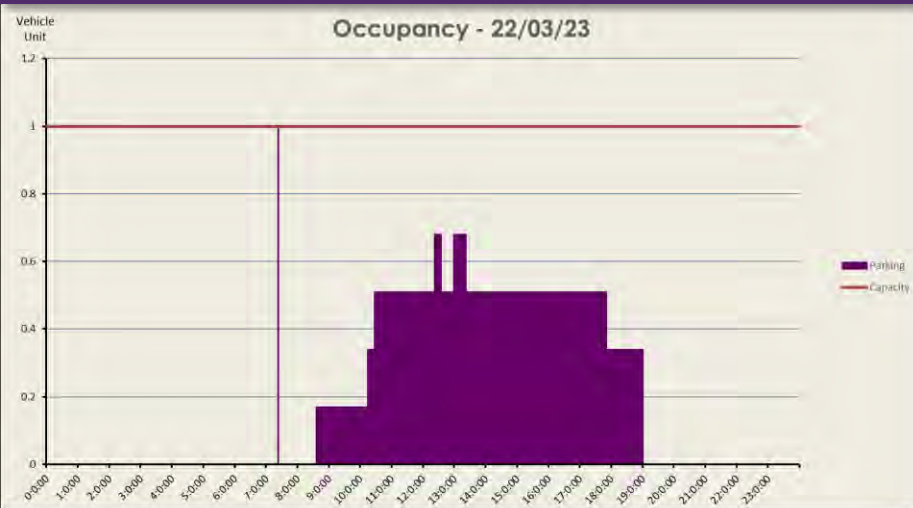


Capacity	1
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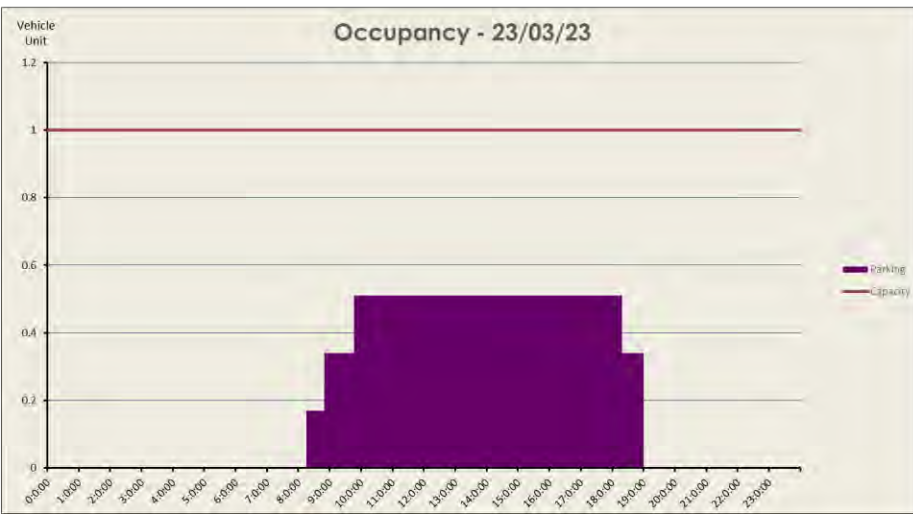


	Max Occupancy	90th %ile	Degree of saturation	
			Max Occupancy	90th %ile
22/03/2023 0600-1900	2	0	200%	0%
23/03/2023 0600-1900	1	0	100%	0%
25/03/2023 0600-1900	1	0	100%	0%

Results – Carmelite Street (Motorcycle)

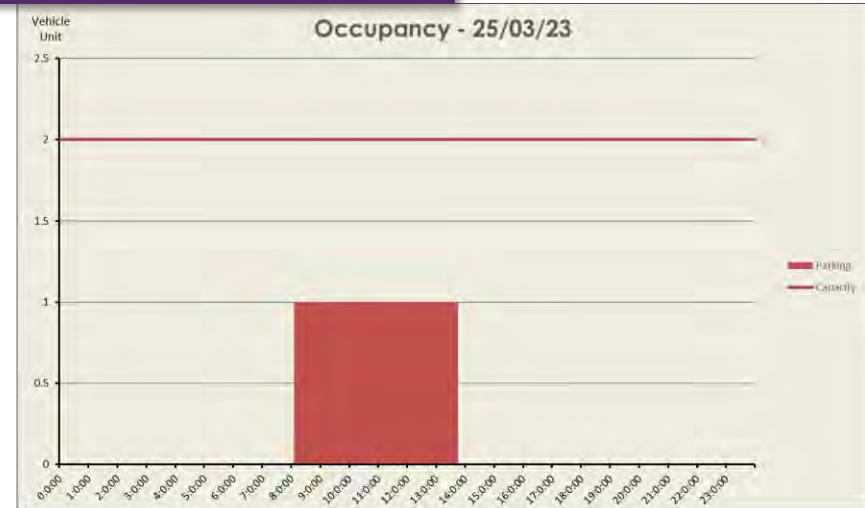
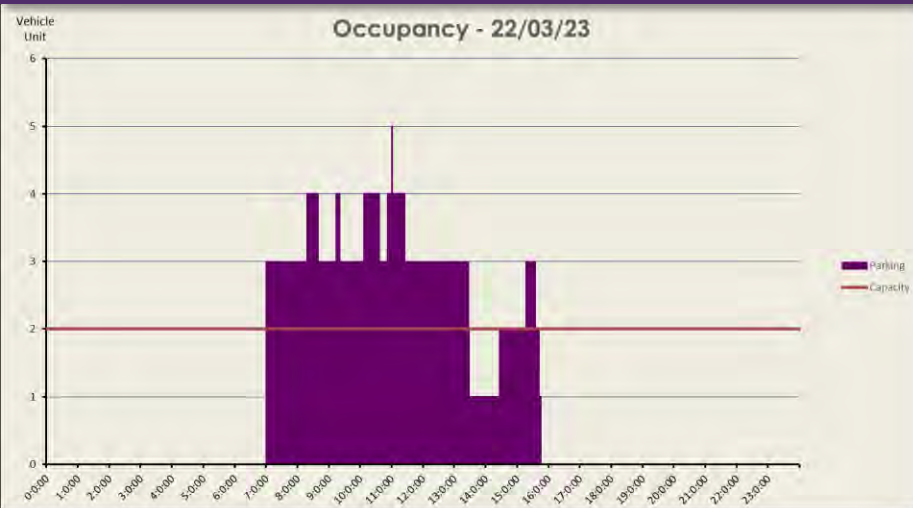


Capacity	1
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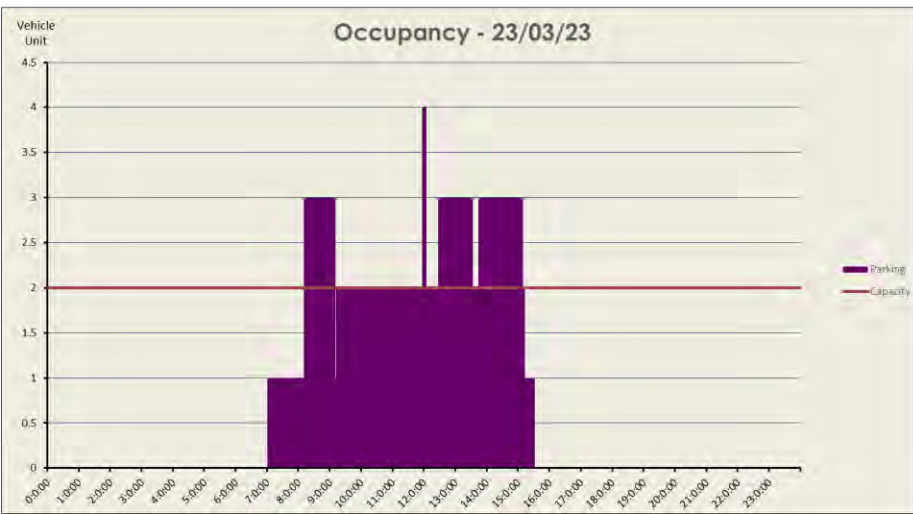


		Degree of saturation	
	Max Occupancy	90th %ile	
22/03/2023 0600-1900	1	1	100%
23/03/2023 0600-1900	1	1	51%
25/03/2023 0600-1900	0	0	0%

Results – Carmelite Street (Loading bay)

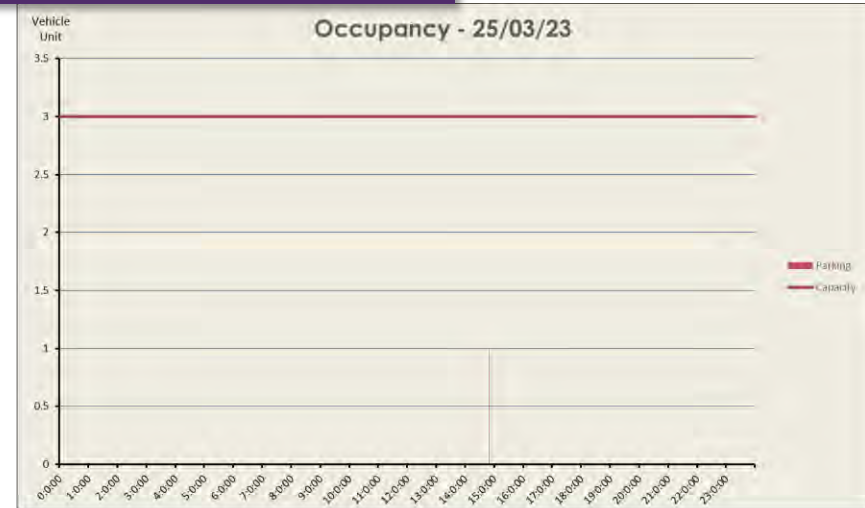
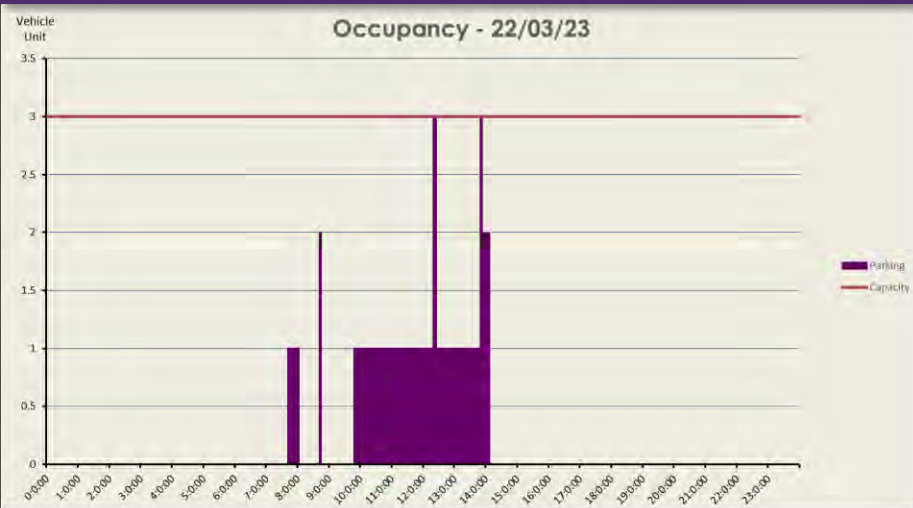


Capacity 2

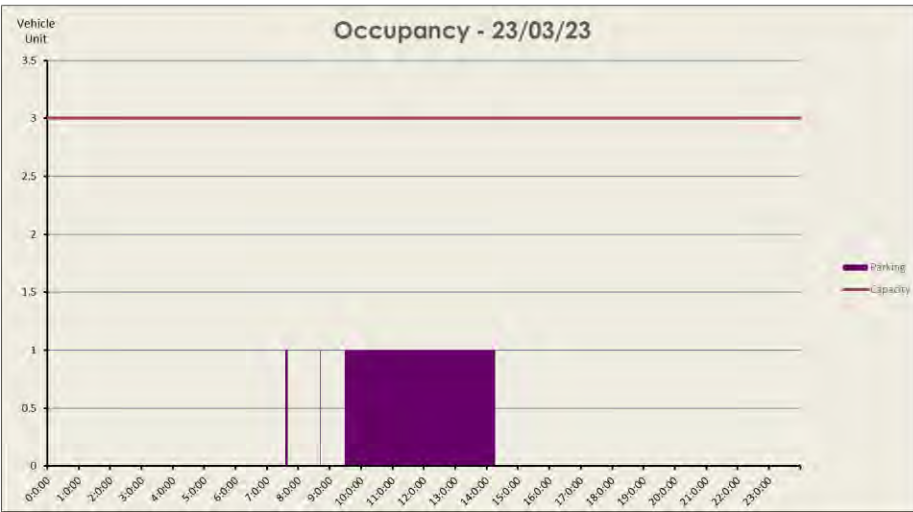


			Degree of saturation	
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	5	4	250%	200%
23/03/2023 0600-1900	4	3	200%	150%
25/03/2023 0600-1900	1	1	50%	50%

Results – Kingscote Street (Disabled)

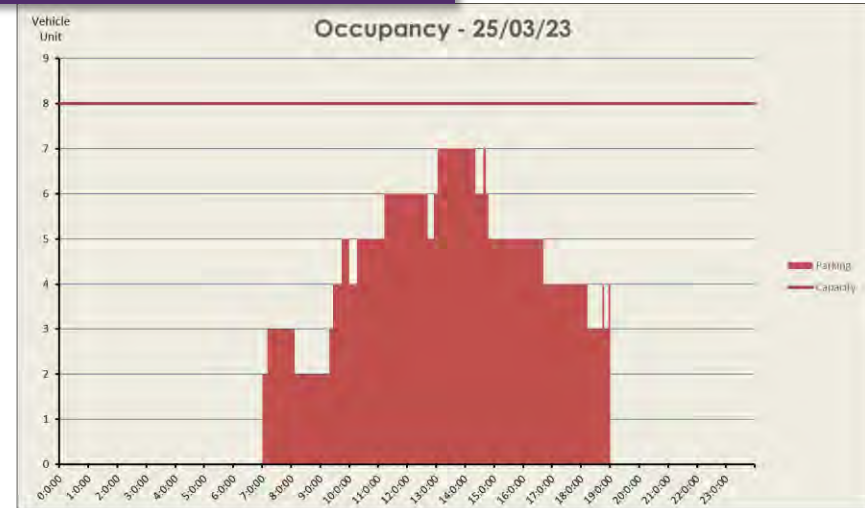
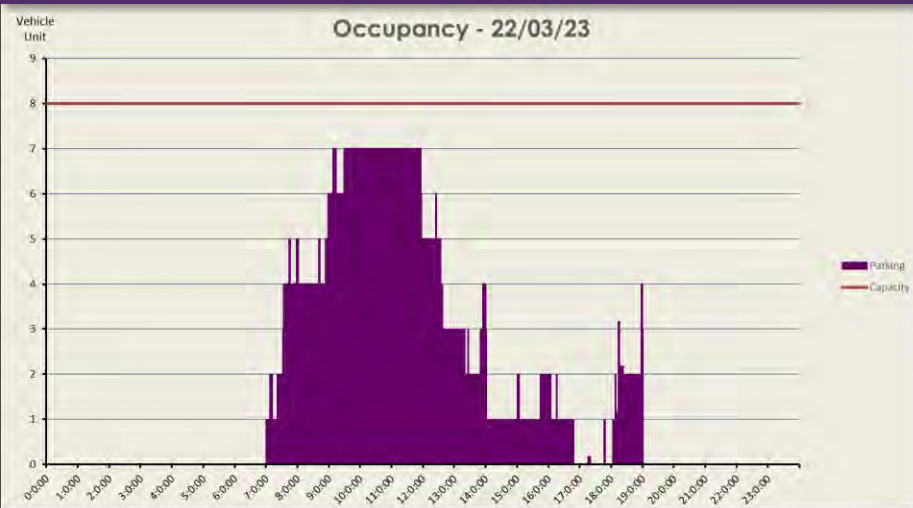


Capacity 3

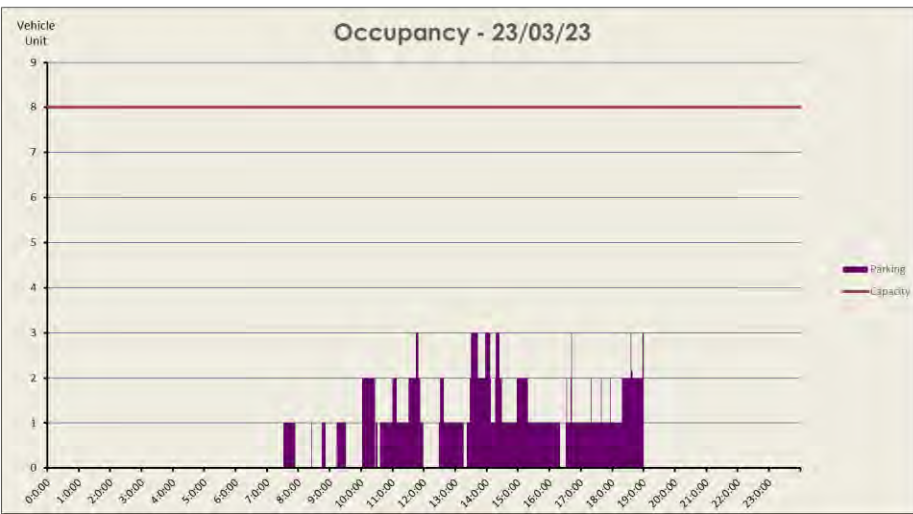


		Degree of saturation	
	Max Occupancy	90th %ile	
22/03/2023 0600-1900	3	1	100%
23/03/2023 0600-1900	1	1	33%
25/03/2023 0600-1900	1	0	0%

Results – Watergate (Pay-by-phone)

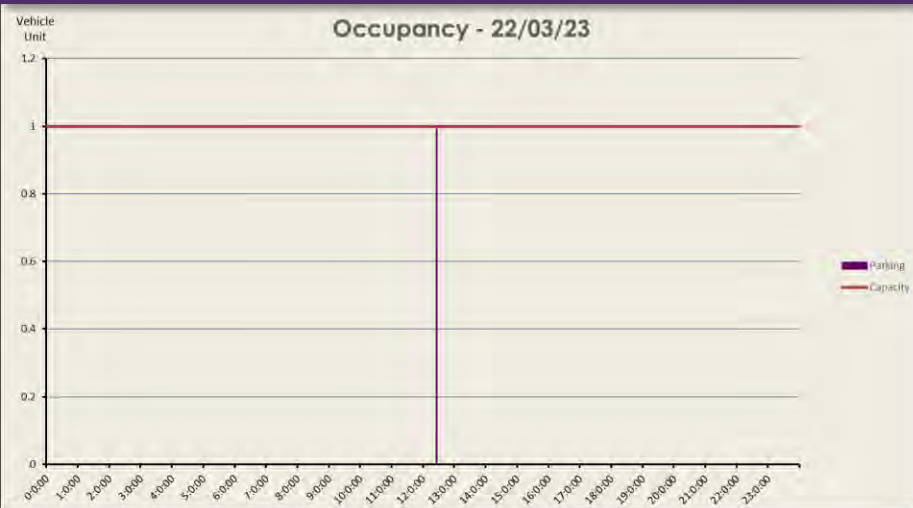


Capacity 8

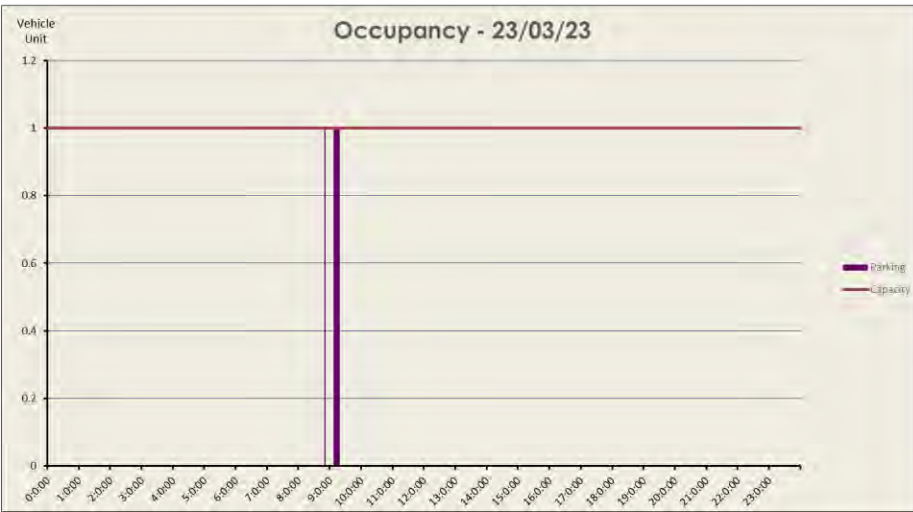


		Degree of saturation		
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	7	7	88%	88%
23/03/2023 0600-1900	3	2	38%	25%
25/03/2023 0600-1900	7	7	88%	88%

Results – Tallis Street (Disabled)

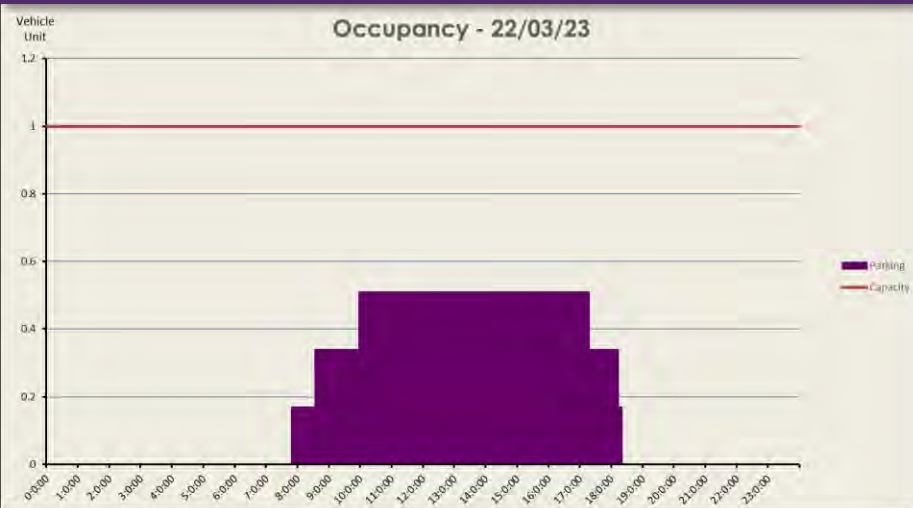


Capacity	1
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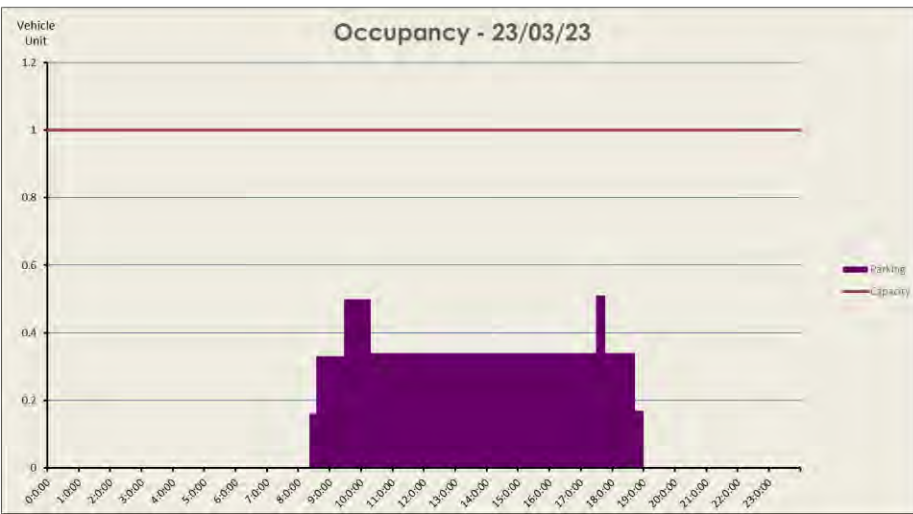


	Max Occupancy	90th %ile	Degree of saturation	
			Max Occupancy	90th %ile
22/03/2023 0600-1900	1	0	100%	0%
23/03/2023 0600-1900	1	0	100%	0%
25/03/2023 0600-1900	1	0	100%	0%

Results – Tallis Street (Motorcycle)

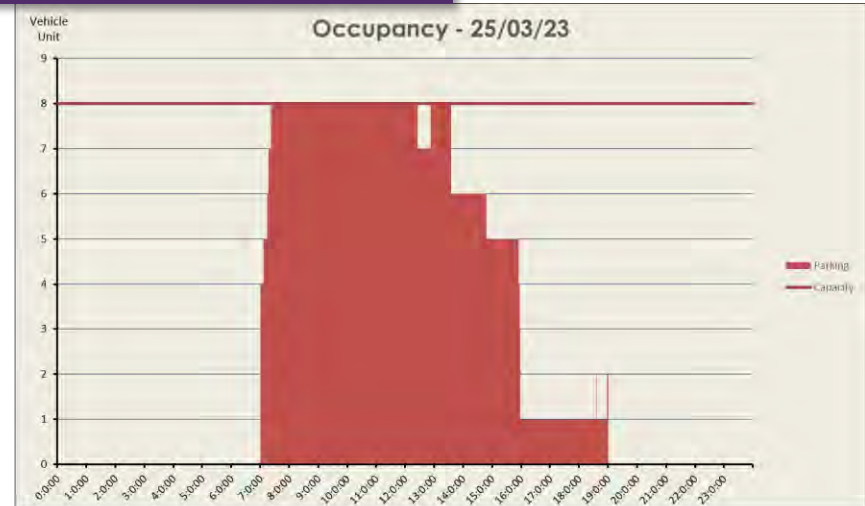
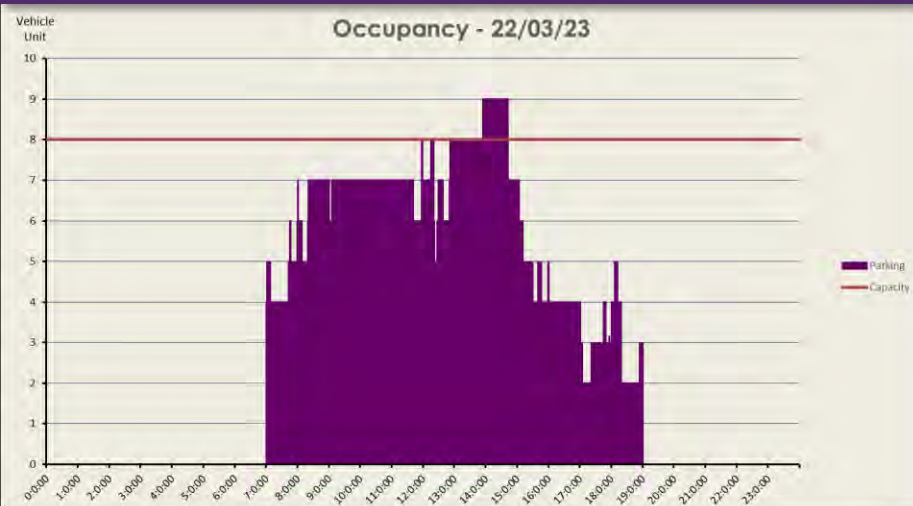


Capacity	1
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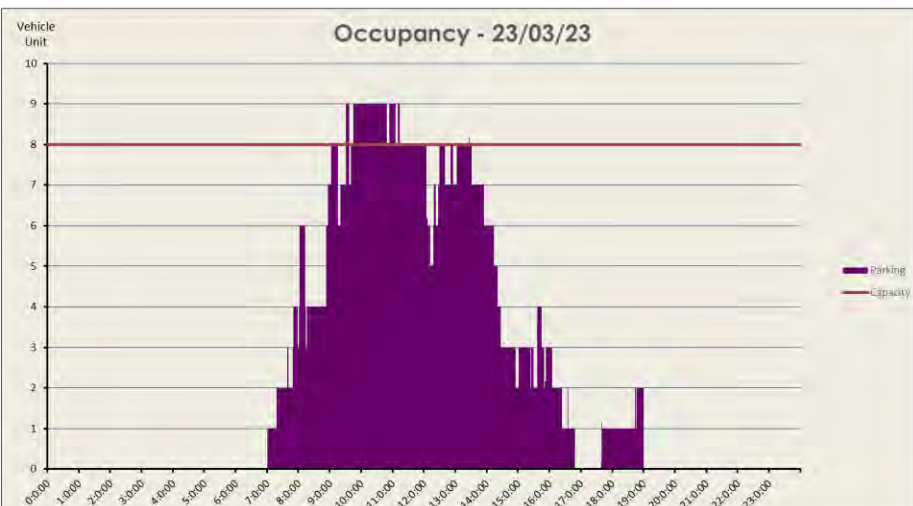


		Degree of saturation		
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	1	1	51%	51%
23/03/2023 0600-1900	1	0	51%	34%
25/03/2023 0600-1900	0	0	0%	0%

Results – Temple Avenue (Pay-by-phone)

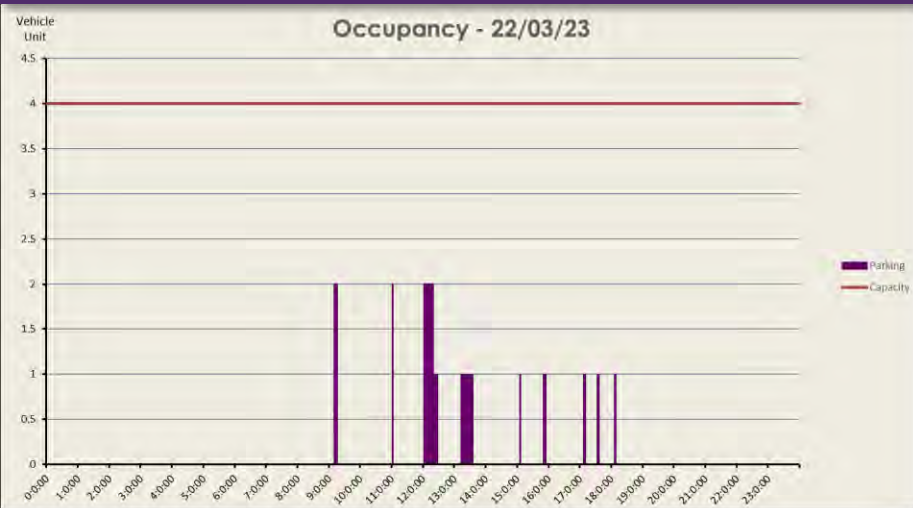


Capacity 8

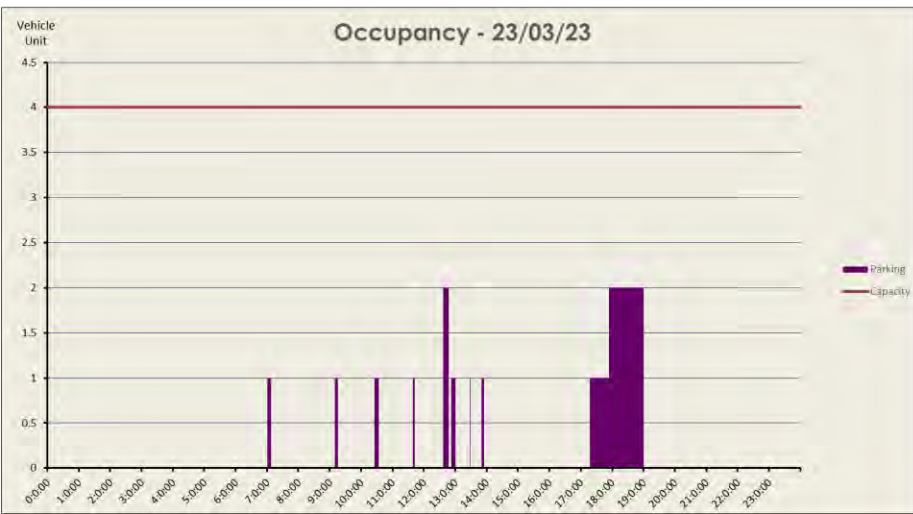


		Degree of saturation		
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	9	8	113%	100%
23/03/2023 0600-1900	9	9	113%	113%
25/03/2023 0600-1900	8	8	100%	100%

Results – Temple Avenue (Disabled)

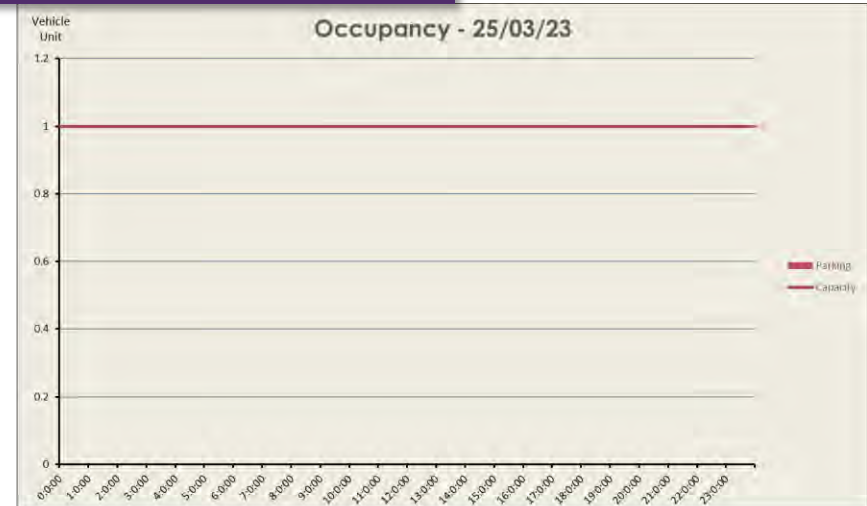
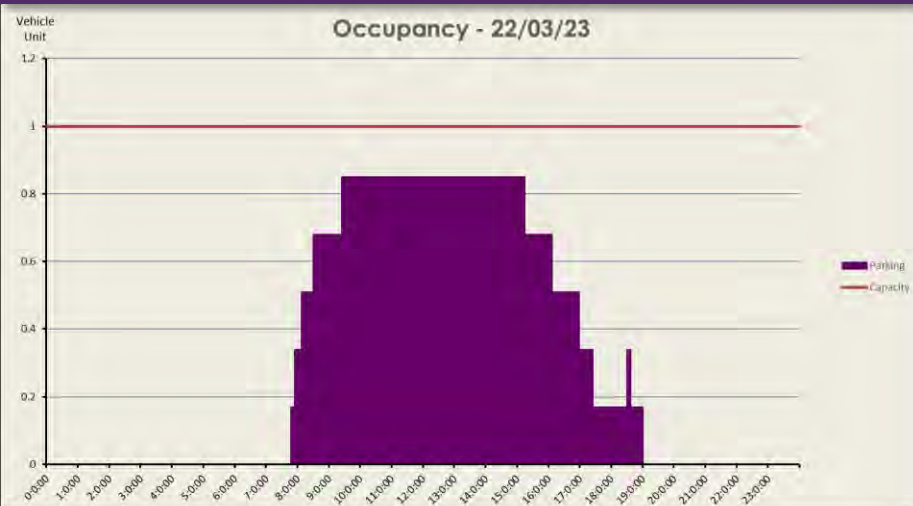


Capacity 4

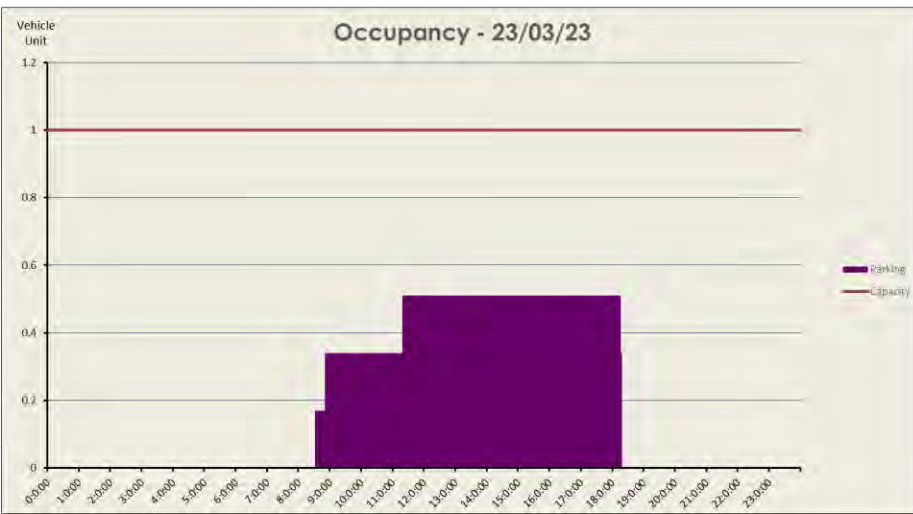


	Max Occupancy	90th %ile	Degree of saturation	
			Max Occupancy	90th %ile
22/03/2023 0600-1900	2	0	50%	0%
23/03/2023 0600-1900	2	1	50%	25%
25/03/2023 0600-1900	0	0	0%	0%

Results – Temple Avenue (Motorcycle)



Capacity	1
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		Degree of saturation		
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	1	1	85%	85%
23/03/2023 0600-1900	1	1	51%	51%
25/03/2023 0600-1900	0	0	0%	0%

Results – Study area by yellow line type

Kerbside restriction	Total capacity	Maximum occupancy	90 th percentile occupancy
Single yellow line	176	15%	10%
Double yellow line	22	17%	5%

KEY

- <75%
- 75-85%
- >85%

Notes

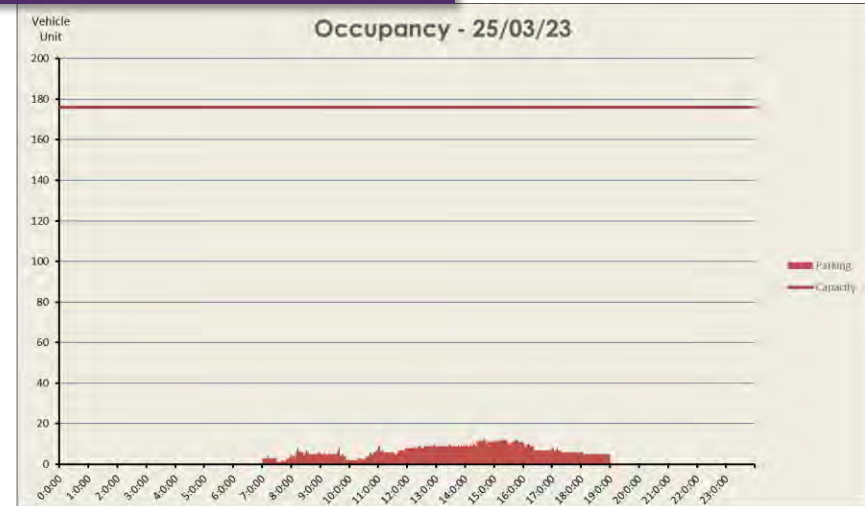
- Maximum occupancy is the highest value of all days surveyed
- 90th percentile value is the highest of the 3 days surveyed
- The 90th percentile occupancy refers to the level of occupancy that is higher than 90% of the observed values in a given dataset. In other words, if you rank all the occupancy values in a dataset from the lowest to the highest, the 90th percentile occupancy is the value that is higher than 90% of the other values

- *The City of London is a Controlled Parking Zone (CPZ), meaning parking is controlled by hours and is only permitted in designated parking bays during these times, with the rest of the kerbside space subject to yellow line restrictions*
- *The CPZ hours are 7am-7pm Monday to Friday, and 7am-11am on Saturdays*
- *Parking is prohibited at all times on double yellow lines, and on single yellow lines during the CPZ controlled hours*
- *Loading is permitted at any time on a double yellow line and during displayed times where there are single kerb markings. Loading is not permitted at any time where there are double kerb markings*

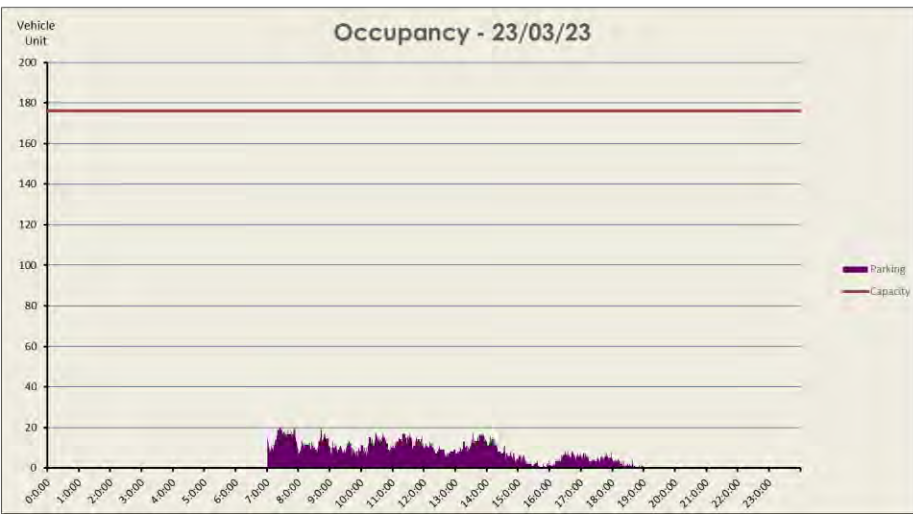
Summary for study area

- Both single and double yellow lines have low occupancy. This suggests generally good compliance with the CPZ restrictions
- Results suggest opportunity to reorganise kerbside provision in line with Healthy Streets strategy

Results – Study area (Single yellow line)

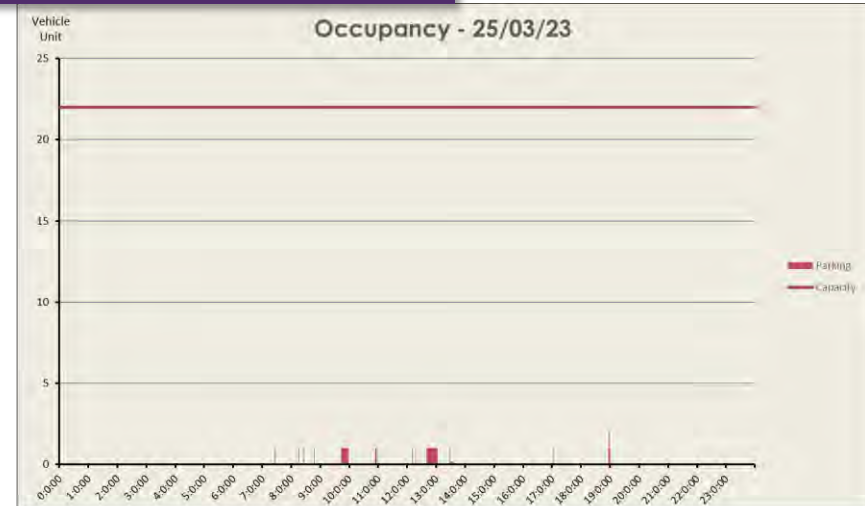
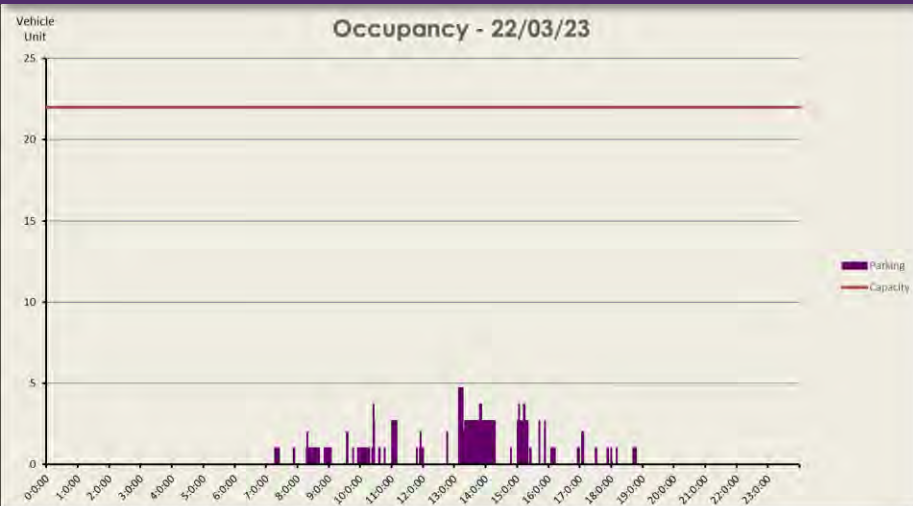


Capacity	176
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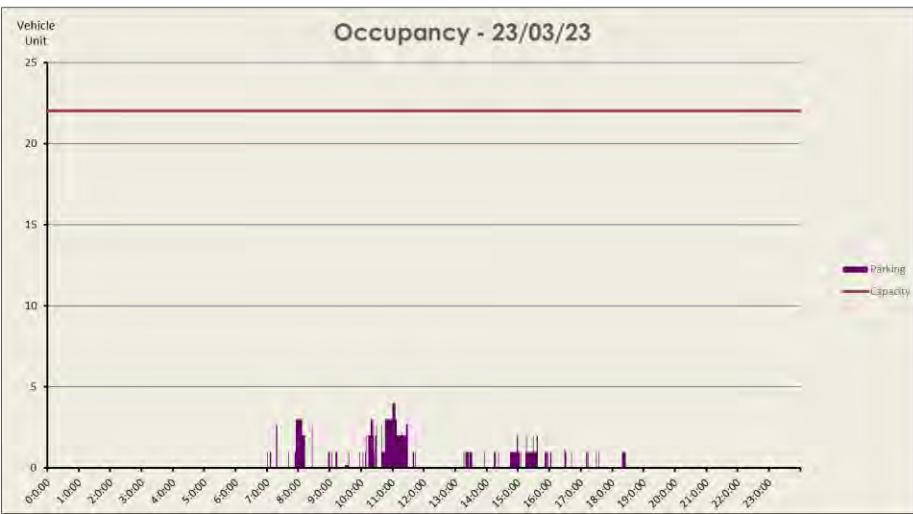


		Degree of saturation		
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	26	17	15%	10%
23/03/2023 0600-1900	20	15	11%	9%
25/03/2023 0600-1900	13	11	7%	6%

Results – Study area (Double yellow line)



Capacity 22



		Degree of saturation		
	Max Occupancy	90th %ile	Max Occupancy	90th %ile
22/03/2023 0600-1900	5	3	21%	12%
23/03/2023 0600-1900	4	2	18%	9%
25/03/2023 0600-1900	2	0	9%	0%

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