

## TRAFFIC SURVEY REPORT



**SYSTRA**

# TWICKENHAM ACCESS, SERVICING AND PARKING REVIEW

## TRAFFIC SURVEY REPORT

### IDENTIFICATION TABLE

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# 1. INTRODUCTION

## 1.1 General

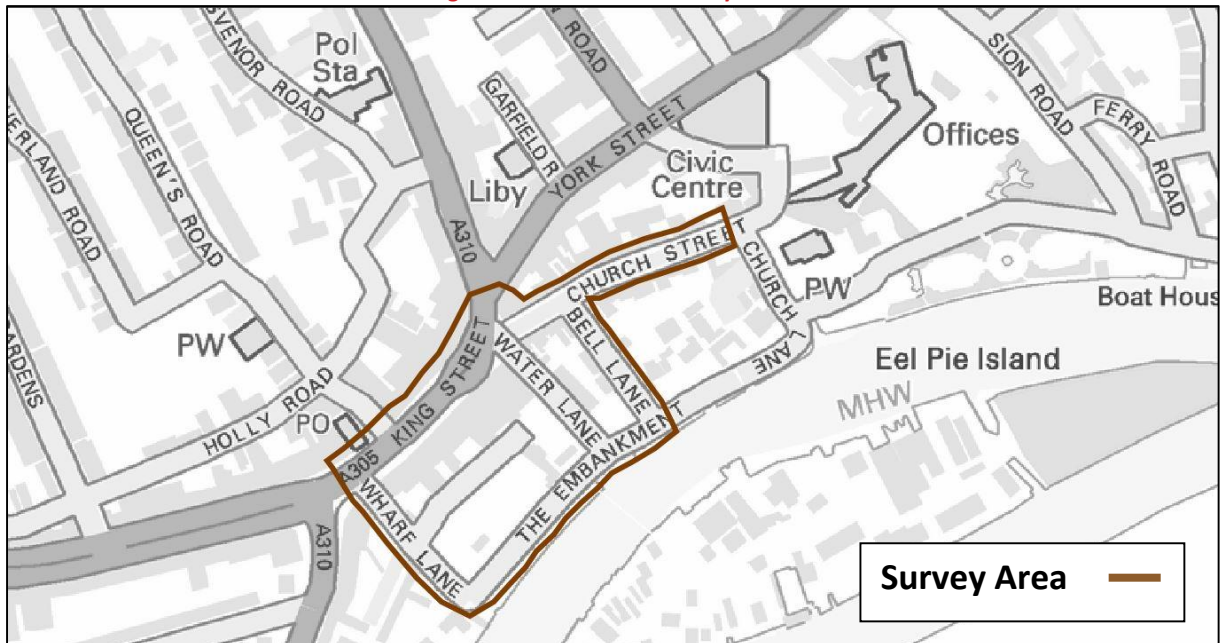
1.1.1 SYSTRA has been commissioned by the London Borough of Richmond upon Thames (LBR) (the Client) to undertake a series of parking, servicing and turning count traffic surveys and associated data analysis in central Twickenham.

1.1.2 This study aims to ascertain vehicle, pedestrian and servicing movements as well as identifying parking stress within an area of central Twickenham. The following streets form part of the survey area:

- Bell Lane;
- Church Street (between Water Lane and Church Lane);
- King Street;
- The Embankment (between Wharf Lane and Bell Lane);
- Water Lane;
- Wharf Lane; and
- The service road behind Nos 3 – 33 King Street (Access Road).

1.1.3 The survey area is shown in **Figure 1** below.

**Figure 1. General Survey Area**



1.1.4 The scope of the work and location was based on information provided by Mick Potter of LBR on 27/02/19 and subsequent clarification discussions.

## 1.2 Report Structure

1.2.1 The report is structured as follows:

- **Section 2: Parking Surveys** – Data analysis of the parking survey results to ascertain parking stress levels within the parking survey area. Identification of trends in demand and type of permit users using graphs.
- **Section 3: Manual Classified Turning Counts (MCCs)** – Presentation of traffic flow diagrams during key network peak hours (08:00-09:00 & 17:00-18:00) at the four identified junctions where MCCs have been undertaken. Key traffic flows have been summarised and analysed.
- **Section 4: Pedestrian and Cyclists** – Analysis of survey area pedestrian and cyclist flows through presentation of diagrams highlighting key trends.
- **Section 5: Servicing Activity** – Data analysis of the servicing activity survey results, identifying trends including volume of servicing activity, time taken for loading/unloading to occur and key locations where servicing activity is occurring.

## 2. PARKING SURVEYS

### 2.1 Introduction

2.1.1 This section summarises the results of the parking surveys undertaken over a two week period. The parking beat survey data is presented and analysed below to identify the parking stress levels across the survey area.

2.1.2 The spatial scope of the parking surveys is shown in **Figure 1**.

2.1.3 **Table 1** lists the parking capacity on each street within the survey area. It is noted that the entire survey area falls within LBR Controlled Parking Zone (CPZ) D, for which the hours of operation are 08:30-18.30.

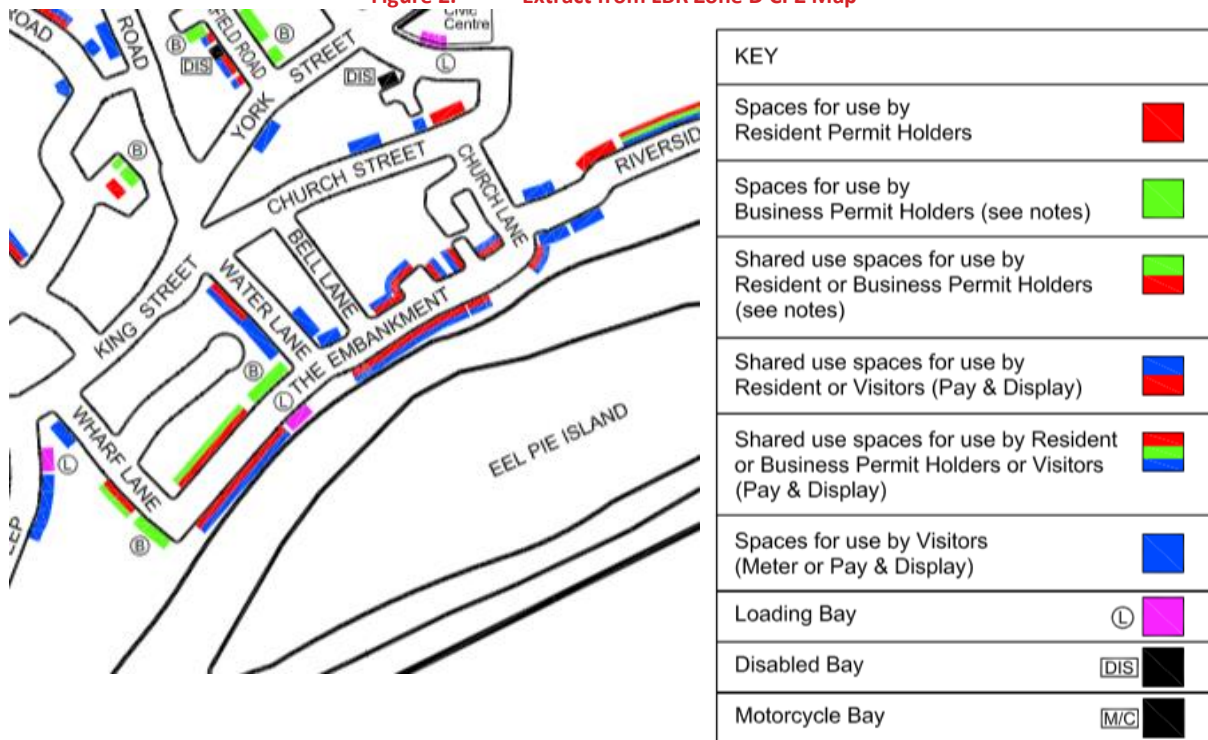
2.1.4 It must be noted that the full extent of Church Street has not been included in the survey scope, therefore the five residential bays located to the east of Church Street have not been assessed.

**Table 1. Survey Area Parking Capacity, by Street**

STREET	CAPACITY
Water Lane	14
Wharf Lane	10
Bell Lane	0
The Embankment	67
Church Street	8
King Street (South Side)	0
Service Road (off Wharf Road)	0
<b>Survey Area Total</b>	<b>99</b>

2.1.5 **Figure 2** shows a map of LBR CPZ Zone D, detailing the types of parking spaces available within the survey area.

Figure 2. Extract from LBR Zone D CPZ Map



2.1.6 The parking occupancy surveys were carried out during the following time periods, with one beat carried out during each time period:

**Week 1 (18<sup>th</sup>-24<sup>th</sup> March):**

**Daytime Counts:**

- Tuesday 19<sup>th</sup> March – (08:30-10:30 & 15:00-17:00)
- Saturday 23<sup>rd</sup> March – (12:00-13:00)

**Overnight Counts:**

- Tuesday 19<sup>th</sup> March and Wednesday 20<sup>th</sup> March – (01:00 – 05:30)
- Sunday 24<sup>th</sup> March – (01:00-05:30)

**Week 2 (25<sup>th</sup> – 31<sup>st</sup> March):**

**Daytime Counts:**

- Tuesday 26<sup>th</sup> March – (08:30-10:30 & 15:00-17:00)
- Saturday 30<sup>rd</sup> March – (12:00-13:00)

**Overnight Counts:**

- Tuesday 26<sup>th</sup> March and Wednesday 27<sup>th</sup> March – (01:00 – 05:30)
- Sunday 31<sup>th</sup> March – (01:00-05:30)



## 2.2 Survey Results

2.2.1 Full parking survey results have been supplied alongside this report. It is noted LBR has its own parking survey methodology, which considers 90% as the threshold for “high” parking stress, however for robustness, a threshold of 85% was used. Therefore, parking stress levels exceeding 85% are identified in red.

2.2.2 **Table 2 to Table 5** summarise the parking survey results, averaged across both weeks the surveys were conducted, with the parking beats being recorded in the AM and PM peaks of the CPZ hours of 08:30-18:30 during the weekdays. The parking stress levels are split into following four scenarios:

- Weekday Daytime (08:30-10:30 & 15:00-17:00);
- Weekend Daytime (12:00-13:00);
- Weekday Overnight (01:00-05:30); and
- Weekend Overnight (01:00-05:30).

2.2.3 It is noted that Bell Lane, King Street and the Service Road were recorded showing low parking stress levels, with either no vehicles or one vehicle parked in each survey period. This is due to the presence of double yellow lines prohibiting parking on King Street and the physical width of the carriageway making it physically impossible to park without blocking the carriageway on Bell Lane and the Service Road off Wharf Lane. Therefore, these three streets have been excluded from the parking analysis and calculations below.

2.2.4 It is noted that spaces for solo motorcycle parking were not included within the capacity figures for each street. Parked motorcycles have been excluded from the occupancy figures.

**Table 2. Average Weekday Daytime Parking Stress**

STREET NAME	CAPACITY	PARKING STRESS (08:30-10:30)	PARKING STRESS (15:00-17:00)
Water Lane	14	75%	68%
Wharf Lane	10	65%	75%
The Embankment	67	72%	84%
Church Street	8	38%	63%
<b>Survey Area Total</b>	<b>99</b>	<b>70%</b>	<b>79%</b>

2.2.1 The overall survey area average weekday daytime parking stress for 15:00-17:00 (79%) is noticeably higher than that for 08:30-10:30 (70%).

2.2.2 The Embankment (between Wharf Lane and Water Lane) was recorded with the highest parking stress levels for the weekday daytime period, with 52 out of 67 spaces occupied

on average over the two survey periods. Therefore, 15 spaces remained empty on average.

**Table 3. Average Weekend Daytime Parking Stress**

STREET NAME	CAPACITY	PARKING STRESS (12:00-13:00)
Water Lane	14	86%
Wharf Lane	10	80%
The Embankment	67	90%
Church Street	8	75%
<b>Survey Area Total</b>	<b>99</b>	<b>88%</b>

2.2.3 The overall survey area average weekend daytime parking stress level was recorded as above 'high' stress threshold, at 88%. On average, 12 spaces remained empty across the weekend daytime survey period.

2.2.4 Water Lane and The Embankment were recorded with the highest parking stress levels during this survey period, above the 85% threshold. The average number of spaces occupied over the two weekend daytime survey periods was 12 spaces of 14 on Water Lane and 61 spaces of 67 on The Embankment.

**Table 4. Average Weekday Overnight Parking Stress**

STREET NAME	CAPACITY	STRESS (01:00-05:30)
Water Lane	14	70%
Wharf Lane	10	55%
The Embankment	67	78%
Church Street	8	28%
<b>Survey Area Total</b>	<b>99</b>	<b>71%</b>

2.2.5 The overall survey area average weekday overnight parking stress level was recorded as 71%, driven largely by The Embankment and Water Lane, at 78% and 70% parking stress respectively. Consequently, 70 car parking spaces were occupied on average during the weekday overnight time periods, with 29 spaces remaining empty.

2.2.6 The Embankment recorded the highest average weekday overnight parking stress level at 78%, with an average of 52 out of 67 parking spaces occupied, and 15 parking spaces empty.

**Table 5. Average Weekend Overnight Parking Stress**

STREET NAME	CAPACITY	STRESS (01:00-05:30)
Water Lane	14	64%
Wharf Lane	10	50%
The Embankment	67	75%
Church Street	8	38%
<b>Survey Area Total</b>	<b>99</b>	<b>69%</b>

2.2.7 The overall average parking stress during the weekend overnight period was 69%, the lowest out of any survey period. On average, 31 parking spaces remained empty during this survey period, across both weeks.

2.2.8 The Embankment recorded the highest occupancy rates, at 75%, with an average of 51 spaces out of 67 occupied.

2.2.9 The overall survey area parking stress is as shown in **Table 6** for each time period.

**Table 6. Survey Area Parking Stress**

SURVEY PERIOD	SURVEY AREA PARKING STRESS
Weekday Daytime	74%
Weekday Overnight	71%
Weekend Daytime	88%
Weekend Overnight	69%

2.2.10 It is noted that average parking occupancy levels only exceeded the 85% threshold during the Weekend Daytime period, therefore there are high occupancy rates during this time. However, this does not exceed LBRs threshold of 90% for high parking stress.

## 2.3 Parking Permit Analysis

2.3.1 SYSTRA has further analysed the parking data, taking into account the type of parking permits displayed on parked vehicles. **Table 7** provides further information regarding each type of parking permit.

**Table 7. Types of Permits**

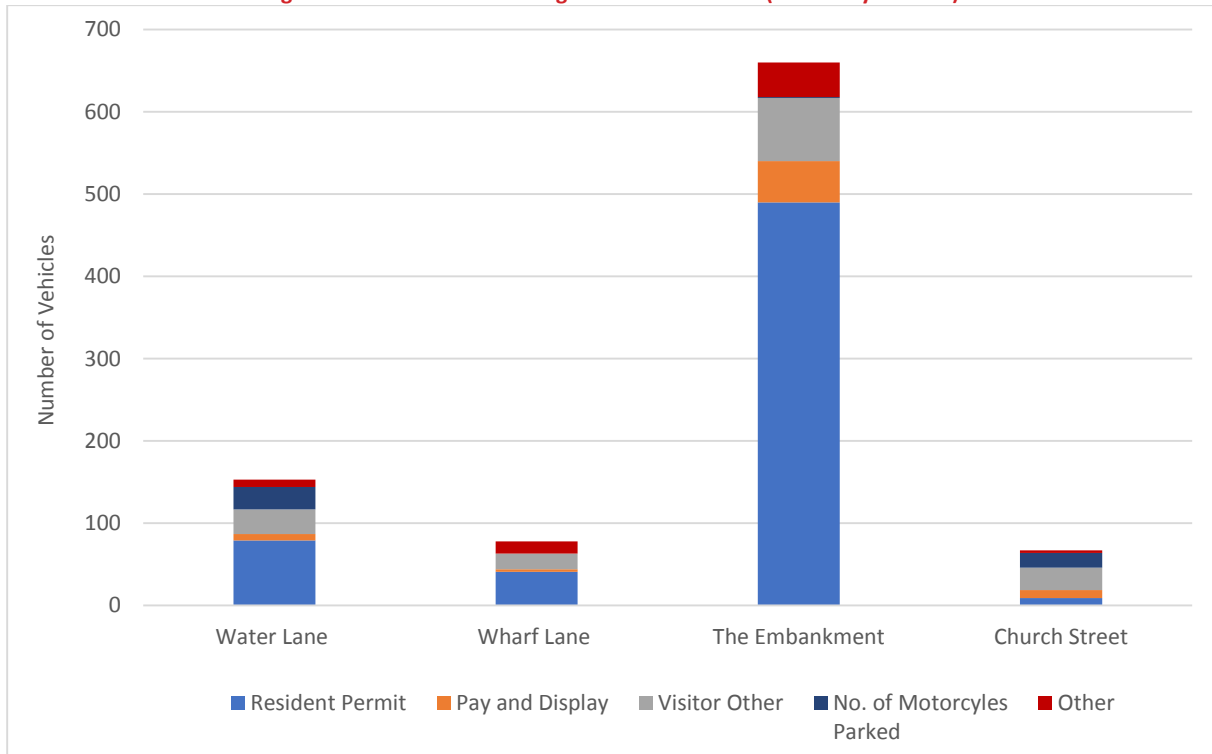
PERMIT TYPE	MEANING
Resident	Allows residents to park within CPZ hours of operation (08:30-18:30, Monday to Saturday, Pay & Display maximum stay two hours).
Resident Visitor	Allows visitors of residents to park within CPZ hours of operation (08:30-18:30, Monday to Saturday, Pay & Display maximum stay two hours).
Business Permit	Allows employees whose business is located within the CPZ to park.
Richmond Card	Allows those who live in the borough to get parking discounts, including 30 minutes free in any pay and display bay or council owned car park.
Blue Badge	Allows those with a Blue Badge to park in Disabled Bays for no specific time limit.
Indigo Parking Services Dispensation Notice	Allows vehicles to park without a permit.
Pay and Display	Allows people to park for a charge.
Visitor Other	Encompasses vehicles parked using mobile/online payments or a virtual visitor permit to park during CPZ operational hours. Includes all vehicles parked without a permit outside of CPZ operational hours.

2.3.2 **Figure 3** shows the overall breakdown of the total number of permits recorded, across the survey area. It is noted that the variety of Penalty Charge Notices (PCNs) has been

included within the retrospective permit (PCN with a Pay and Display ticket or PCN with a Resident permit).

2.3.3 Due to the low numbers of Resident Visitor, Disabled, Indigo, Business and Richmond Card parking permits recorded, these have been grouped together into the ‘Other’ category, for ease of reporting. Bell Lane, King Street and the Access Road off Wharf Lane have been omitted from the graphs below due to minimal parking activity on these streets across all survey periods.

**Figure 3. Overall Parking Permit Breakdown (All Survey Periods)**



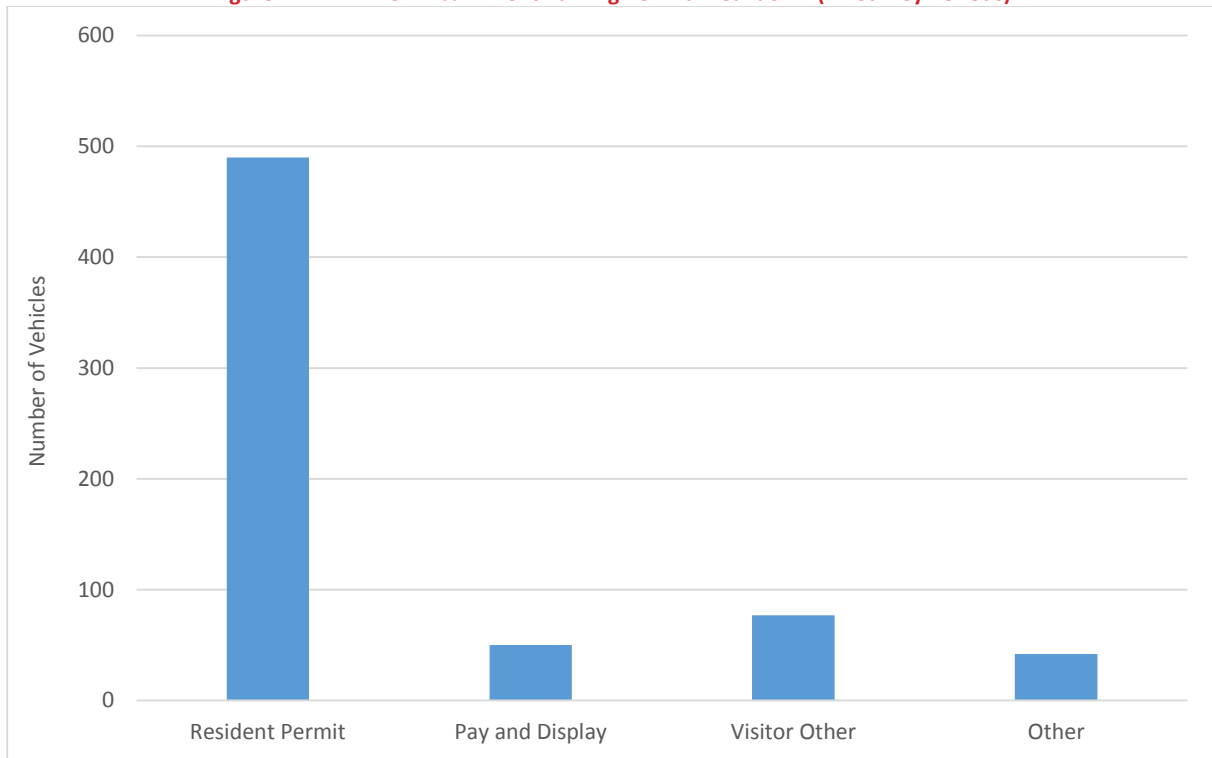
2.3.4 Resident permits were the most common types of permits observed, with 619 recorded over all survey time periods. As the street with the highest parking capacity, The Embankment recorded the highest number of vehicles parking over the four survey periods, at 70% of the total number of vehicles recorded parked within the survey area.

2.3.5 160 vehicles with no permits displayed were recorded across the whole survey period (Visitor Other category). On average, the weekend daytime period had the highest number of vehicles with no permits displayed out of all survey periods, at 17 (30% of the total).

2.3.6 The majority of Resident Visitor permits were observed during daytime hours, at 19 permits. Eight Resident Visitor permits were observed during overnight hours.

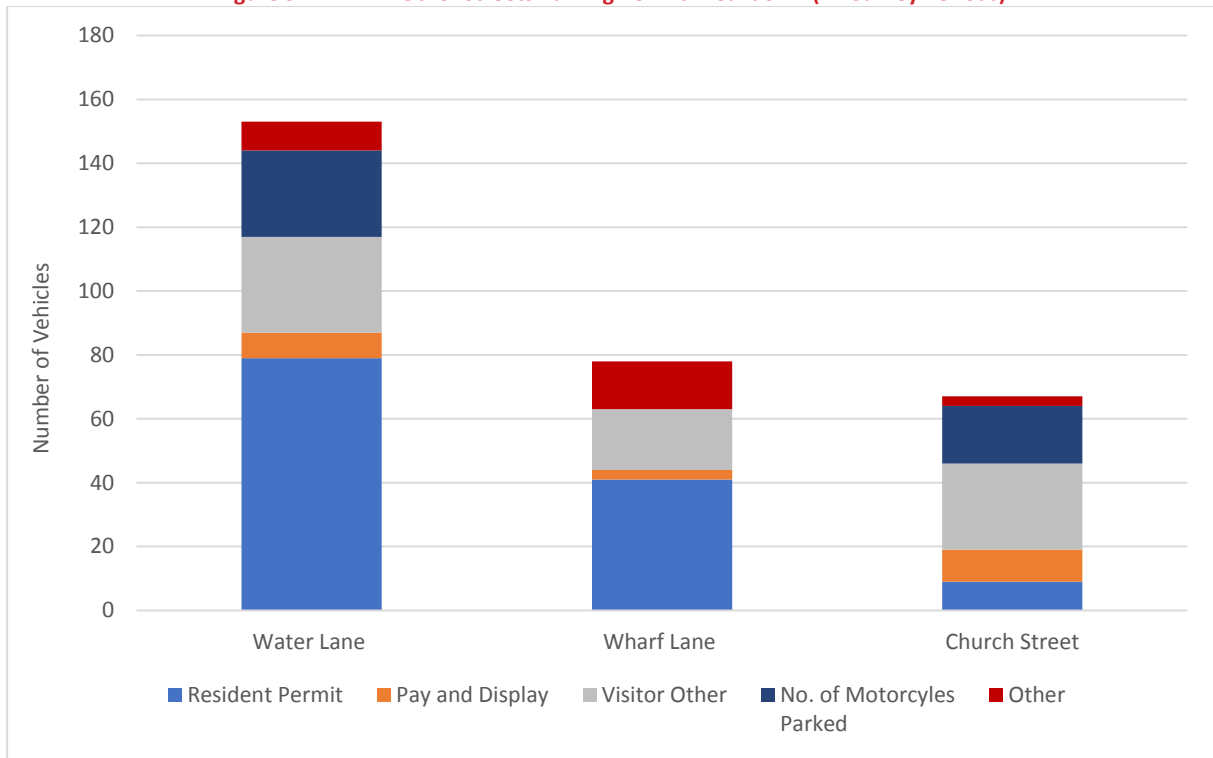
2.3.7 SYSTRA has analysed the split in parking permits observed on The Embankment, due to this being the street with the highest provision of parking. **Figure 4** identifies the overall parking permit use across all four survey periods along The Embankment.

**Figure 4. The Embankment Parking Permit Breakdown (All Survey Periods)**



- 2.3.8 Resident Permits were the most common permit type recorded across all survey periods. 490 Resident permits were recorded, equating to 74% of the total number of permits.
- 2.3.9 The Embankment was the only street observed where vehicles were recorded using Richmond Cards to park, with two recorded during the weekend daytime period.
- 2.3.10 The Embankment recorded the highest total of vehicles using virtual visitor cards, mobile or online payments to park, at 77.
- 2.3.11 Out of vehicles observed using pay and display permits to park over the whole survey period, 50 (70%) were recorded on The Embankment. The weekend daytime period recorded the highest total of pay and display permits of any survey period, at 12.
- 2.3.12 The most common permit type recorded on The Embankment within the 'Other' category was Resident Visitor, with 18 permits. Further permit types within this category included Business (10 permits) and Blue Badge (6 permits).
- 2.3.13 **Figure 5** identifies the overall parking permit split across all survey periods for the survey area excluding The Embankment.

Figure 5. All Other Streets Parking Permit Breakdown (All Survey Periods)



2.3.14 Water Lane was recorded as the street with the highest number of motorcycles parked across all survey periods, at 27. This equates to 59% of all motorcycles parked across the survey area. It is noted that dedicated motorcycle bays are provided on Water Lane.

2.3.15 Along with The Embankment, Wharf Lane was the only other street to record parked vehicles displaying business permits, totalling six. All were recorded during the weekday daytime period.

2.3.16 In total, Church Street recorded the highest number of parked vehicles using virtual visitor cards, mobile or online payments to park, totalling 27 out of 67 vehicles over the four scenarios.

2.3.17 King Street recorded two vehicles parked without permits across all survey periods, one of which was a Royal Mail van observed during the weekday daytime period.

## 2.4 High Tide

2.4.1 High Tide was witnessed during the overnight survey period on Sunday 24<sup>th</sup> March (01:00-05:00). During this time, vehicles were observed to be parked before High Tide, with no vehicle movement recorded. Therefore it has been concluded that High Tide did not impact on parking stress levels within the survey area.

2.4.2 No other High Tides were observed during the remaining survey periods.

### 3. MANUAL CLASSIFIED COUNTS

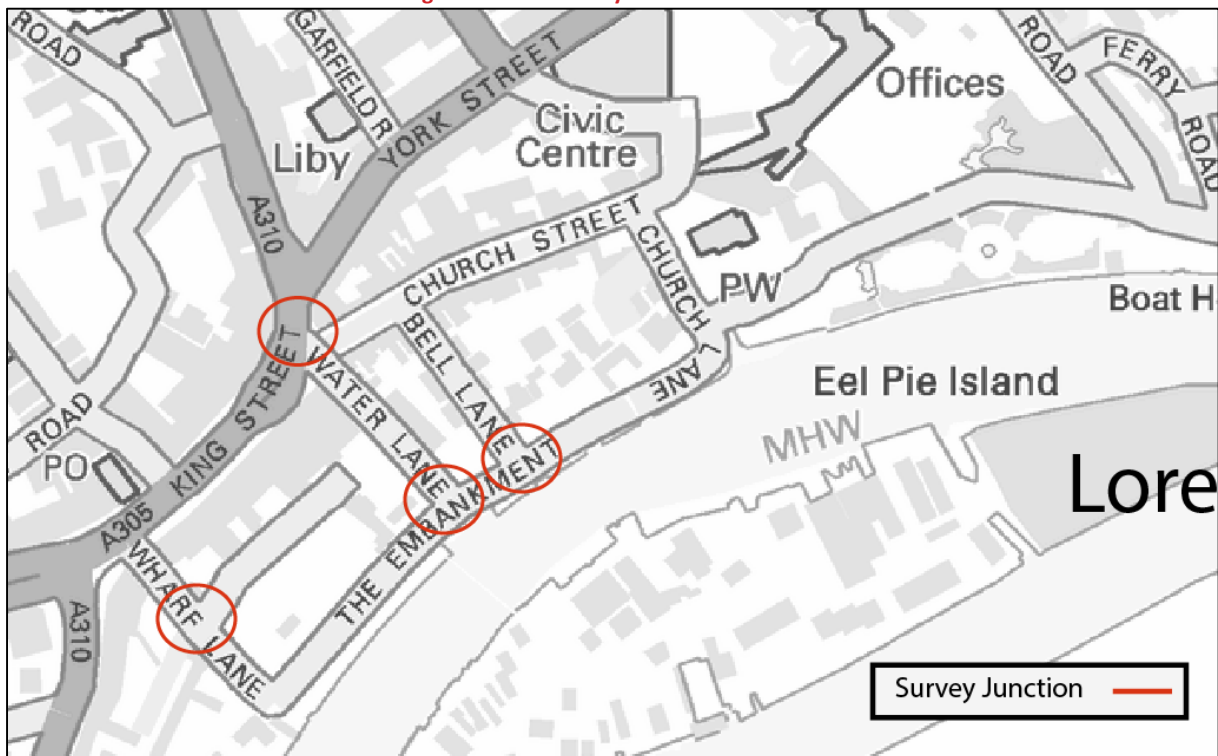
#### 3.1 Introduction

3.1.1 This section summarises the results of the Manual Classified Counts (MCCs) undertaken over a two week period, across the survey area. The survey data has been presented and analysed below to demonstrate the traffic levels across the survey area.

3.1.2 **Figure 6** shows the location of the junctions where MCC data was collected. The following junctions were surveyed:

- King Street/Church Street/Water Lane;
- Water Lane/The Embankment;
- The Embankment/Bell Lane; and
- Wharf Lane/Service Road at rear of 3-33 King Street.

**Figure 6. Survey Junction Locations**



3.1.3 Counts were carried out over a 24 hour period on Monday 18<sup>th</sup>, Friday 22<sup>nd</sup>, Monday 25<sup>th</sup> and Friday 29<sup>th</sup> March using video cameras.

3.1.4 The vehicle counts for each junction took into account the turning movement of vehicles.

#### 3.2 Survey Results

3.2.1 **Table 8** summarises the peak period results of the MCC surveys, showing the number of vehicles approaching from each arm across the four junctions. An average flow has been calculated for both AM (08:00 – 09:00) and PM (17:00 – 18:00) peak periods.



**Table 8. Survey Area Average Peak Period Vehicle Flow**

JUNCTION	ARM	AM FLOW	PM FLOW
King Street/Church Street/Water Lane	King Street (N)	958	1,075
	Church Street	0	0
	Water Lane	0	0
	King Street (S)	1,241	1,184
The Embankment/Bell Lane	The Embankment (N)	1	3
	The Embankment (S)	9	17
	Bell Lane	0	0
The Embankment/Water Lane	The Embankment (N)	1	4
	The Embankment (S)	2	5
	Water Lane	40	54
Wharf Lane/Service Road	Wharf Lane (N)	0	0
	Service Road	1	6
	Wharf Lane (S)	21	43

3.2.2 The junctions are discussed below in further detail.

**King Street/Church Street/Water Lane**

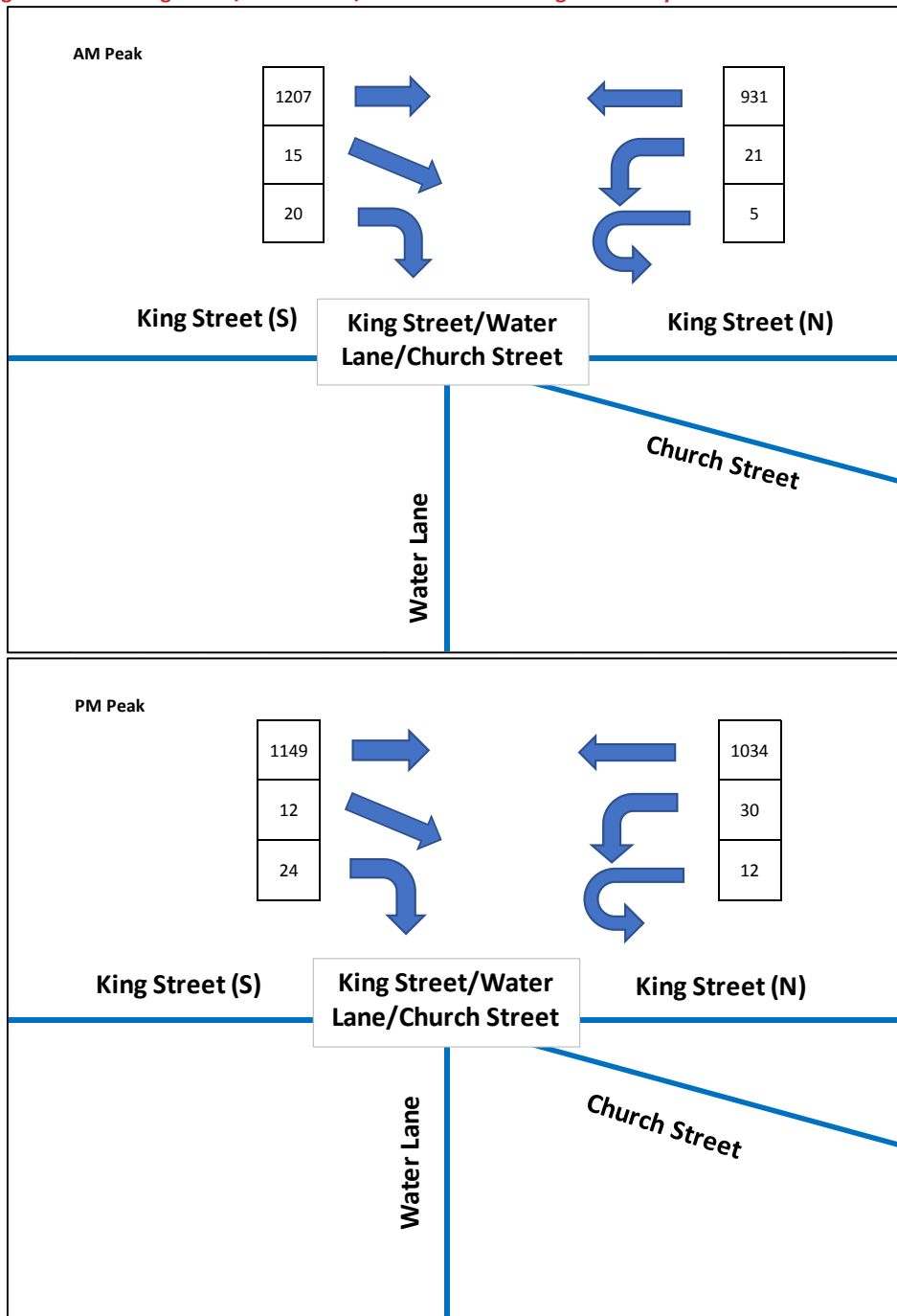
3.2.3 The King Street/Church Street/Water Lane junction is a four arm junction located on the main high street in Central Twickenham. King Street runs northeast to southwest and forms one of the major through routes in the Twickenham area. Water Lane is a one-way side street running southeast towards the River Thames. Church Street is a one-way narrow side street running east and is a pedestrian zone restricted to servicing vehicles or blue badge holders. It is noted that Church Street branches off Water Lane approximately 10 metres away from the junction with King Street, however it was decided to include Church Street within this junction for ease of reporting.

3.2.4 It is evident that the King Street/Church Street/Water Lane junction is the busiest junction in terms of vehicle flow. The vast majority of flow makes a through movement on King Street, with northbound traffic slightly heavier.

3.2.5 As both Water Lane and Church Street are one-way orientated away from the junction, no traffic enters the junctions from these arms.

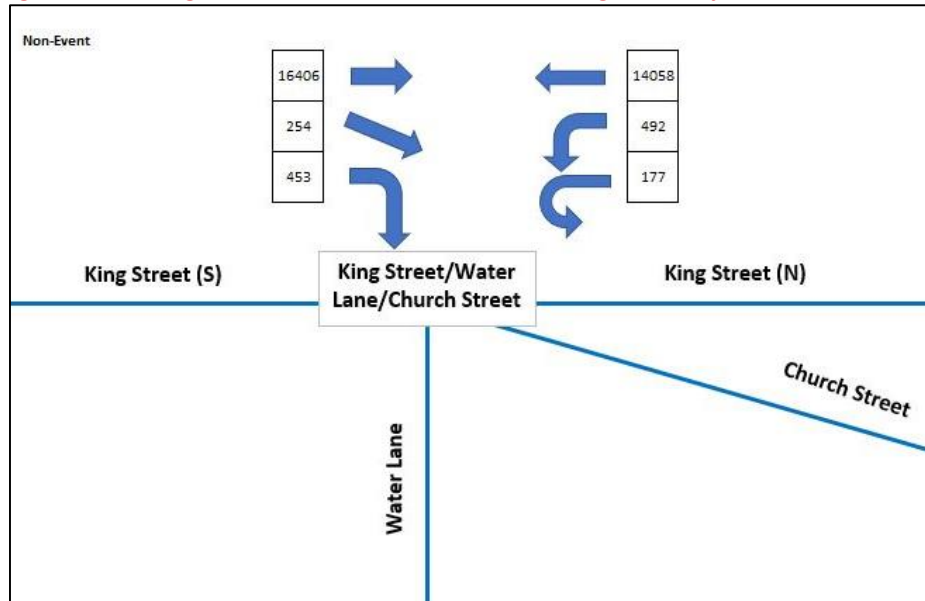
3.2.6 **Figure 7** shows the flows at the King Street/Water Lane/Church Street junction.

**Figure 7. King Street/Water Lane/Church Street Average Weekday Peak Period Vehicle Flows**



3.2.7 **Figure 8** shows the average weekday flows over a 24 hour period at the King Street/Water Lane/Church Street junction.

Figure 8. King Street/Water Lane/Church Street Average Weekday 24 hour Vehicle Flows



3.2.8 **Figure 8** shows that the average 24 hour weekday scenarios recorded a total of 1376 vehicles turning into Water Lane from King Street, of which 431 vehicles turn into Church Street and 945 vehicles travel down Water Lane.

**The Embankment/Bell Lane**

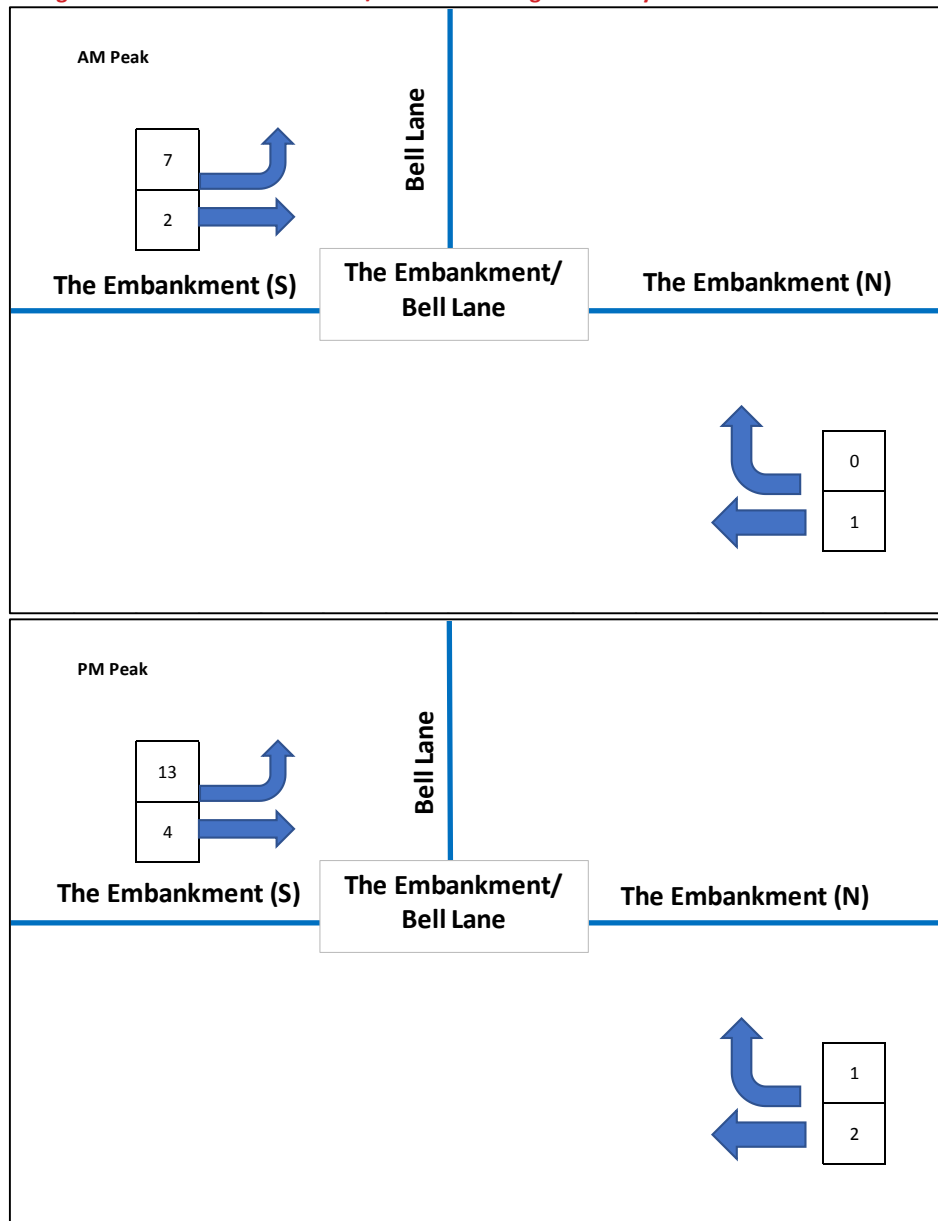
3.2.9 The Embankment/Bell Lane junction is a three arm junction located on the banks of the River Thames. The Embankment runs parallel to the river on a northeast-southwest alignment, with the stretch northeast of the junction leading to a parking area with no through access for vehicles. Bell Lane is a one-way narrow street running northwest, connecting with Church Street.

3.2.10 The Embankment/Bell Lane is only lightly used by vehicles. The heaviest movement is The Embankment (South) to Bell Lane at 13 vehicles on average in the PM Peak Period.

3.2.11 As Bell Lane is one-way orientated away from the junction, no traffic enters from this arm.

3.2.12 **Figure 9** shows the vehicle flows across The Embankment/Bell Lane junction.

**Figure 9. The Embankment/Bell Lane Average Weekday Peak Period Vehicle Flows**

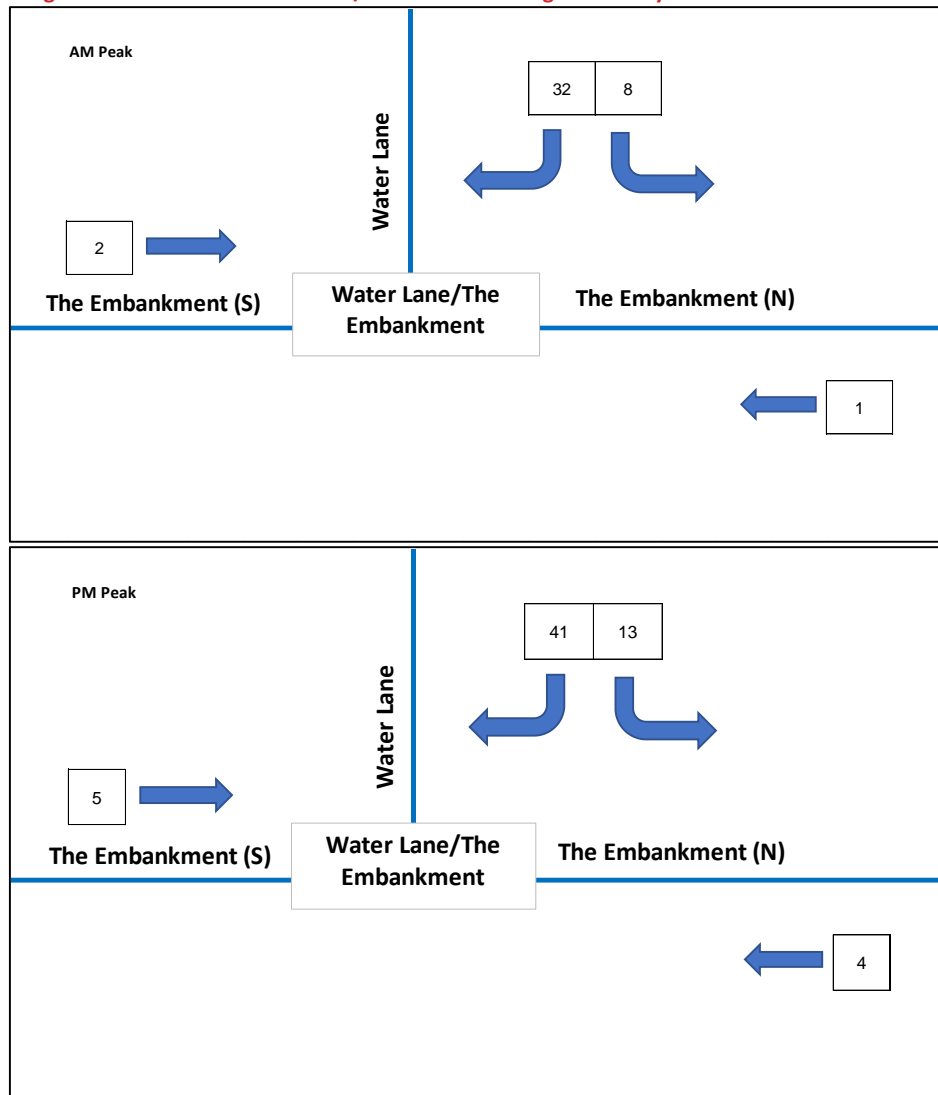


### The Embankment/Water Lane

- 3.2.13 The Embankment/Bell Lane junction is a three arm junction located on the banks of the River Thames, approximately 40m southwest of the junction with Bell Lane. Water Lane is a one-way street connecting with King Street, with vehicle traffic permitted to enter from the King Street end only.
- 3.2.14 The Embankment/Water Lane is lightly used by vehicles. The heaviest movement is Water Lane to The Embankment (South) at 41 vehicles on average in the PM Peak Period.
- 3.2.15 As Water Lane is one-way orientated running towards the junction, traffic is not permitted to enter Water Lane from The Embankment.

3.2.16 **Figure 10** shows the vehicle flows across The Embankment/Water Lane junction.

**Figure 10. The Embankment/Water Lane Average Weekday Peak Period Vehicle Flows**



**Wharf Lane/Service Road**

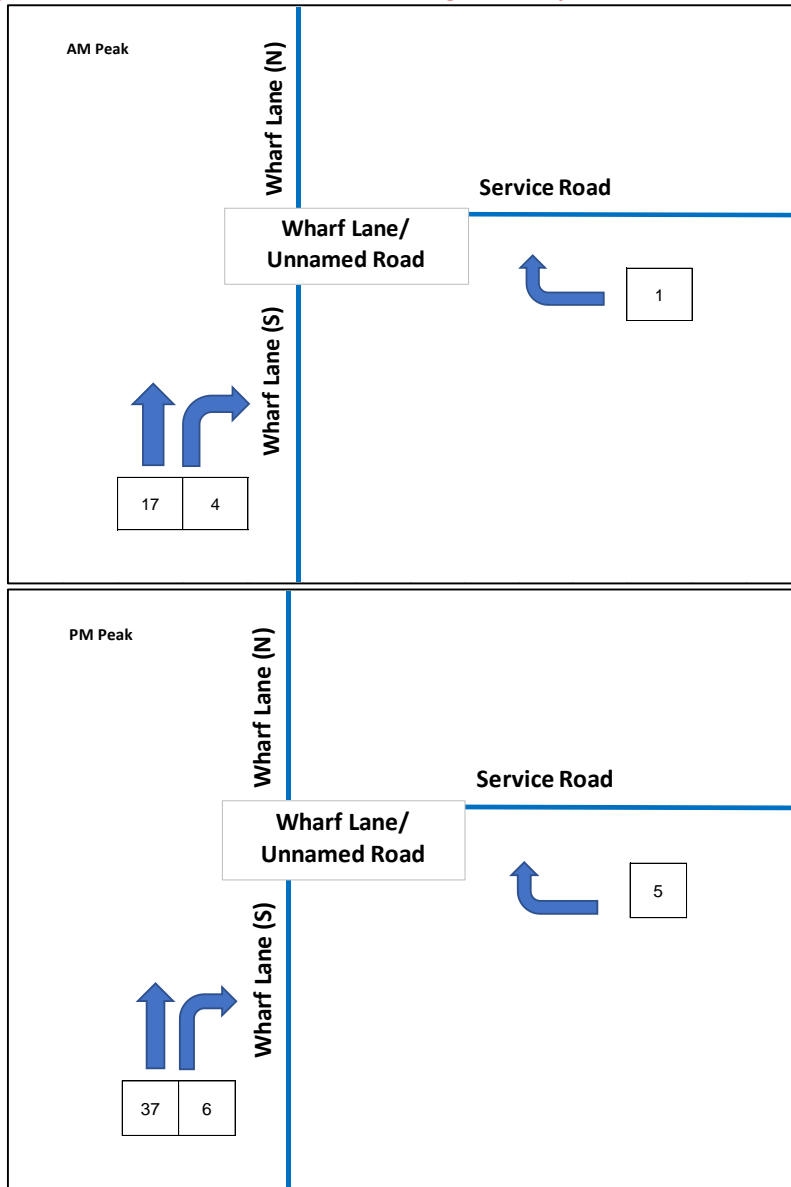
3.2.17 Wharf Lane/Service Road is a three arm junction located between the river and King Street. Wharf Lane is one-way with traffic running northwest from The Embankment to King Street. The Service Road is unnamed and runs northeast from the junction to the rear of the adjacent properties fronting King Street, with through traffic not possible.

3.2.18 Wharf Lane/Service Road is lightly used by vehicles. The heaviest movement is the through movement on Wharf Lane at 37 vehicles on average in the PM Peak Period.

3.2.19 As Wharf Lane is one-way orientated running towards King Street, vehicles are not permitted to enter the junction from this direction or travel towards the Embankment.

3.2.20 **Figure 11** shows the vehicle flows across Wharf Lane/Service Road junction.

**Figure 11. Wharf Lane/Service Road Average Weekday Peak Period Vehicle Flows**



## 4. PEDESTRIAN AND CYCLIST SURVEYS

### 4.1 Introduction

4.1.1 This section summarises the results of the pedestrian and cyclist surveys undertaken on four days over a two week period, across the survey area.

4.1.2 **Figure 6** shows the location of the junctions where pedestrian and cycle counts were undertaken. The following junctions were surveyed:

- King Street/Church Street/Water Lane;
- Water Lane/The Embankment;
- The Embankment/Bell Lane; and
- Wharf Lane/Service Road at rear of 3-33 King Street.

4.1.3 The counts were carried out over a 24 hour period on Monday 18<sup>th</sup>, Friday 22<sup>nd</sup>, Monday 25<sup>th</sup> and Friday 29<sup>th</sup> March using video cameras.

4.1.4 Two sets of cycle survey data have been recorded. The first dataset was recorded with the manual classified vehicle counts and recorded standard origin-destination movements in the same way vehicles were counted, herein referred to as “on-road” cycle counts. The second dataset recorded cyclists making movements that did not follow a standard origin-destination movement and mirror the possible movements made by pedestrians. These datasets have been structured so that cyclists are not double counted.

### 4.2 On-Road Cyclist Survey Results

4.2.1 **Table 9** summarises the Peak Period results of the manual classified turning count surveys, showing the number of on-road cyclists on each arm across the four junctions. An average flow of the four survey days has been calculated for both AM (08:00 – 09:00) and PM (17:00 – 18:00) peak periods.

Table 9. Survey Area Average Peak Period On-Road Cycle Flows

JUNCTION	ARM	AM FLOW	PM FLOW
King Street/Church Street/Water Lane	King Street (N)	62	126
	Church Street	1	7
	Water Lane	1	3
	King Street (S)	139	69
The Embankment/Bell Lane	The Embankment (N)	17	14
	The Embankment (S)	19	11
	Bell Lane	0	1
The Embankment/Water Lane	The Embankment (N)	19	14
	The Embankment (S)	18	12
	Water Lane	7	3
Wharf Lane/Service Road	Wharf Lane (N)	20	8
	Service Road	1	1
	Wharf Lane (S)	16	19

4.2.2 The junctions are discussed below in further detail.

**King Street/Church Street/Water Lane**

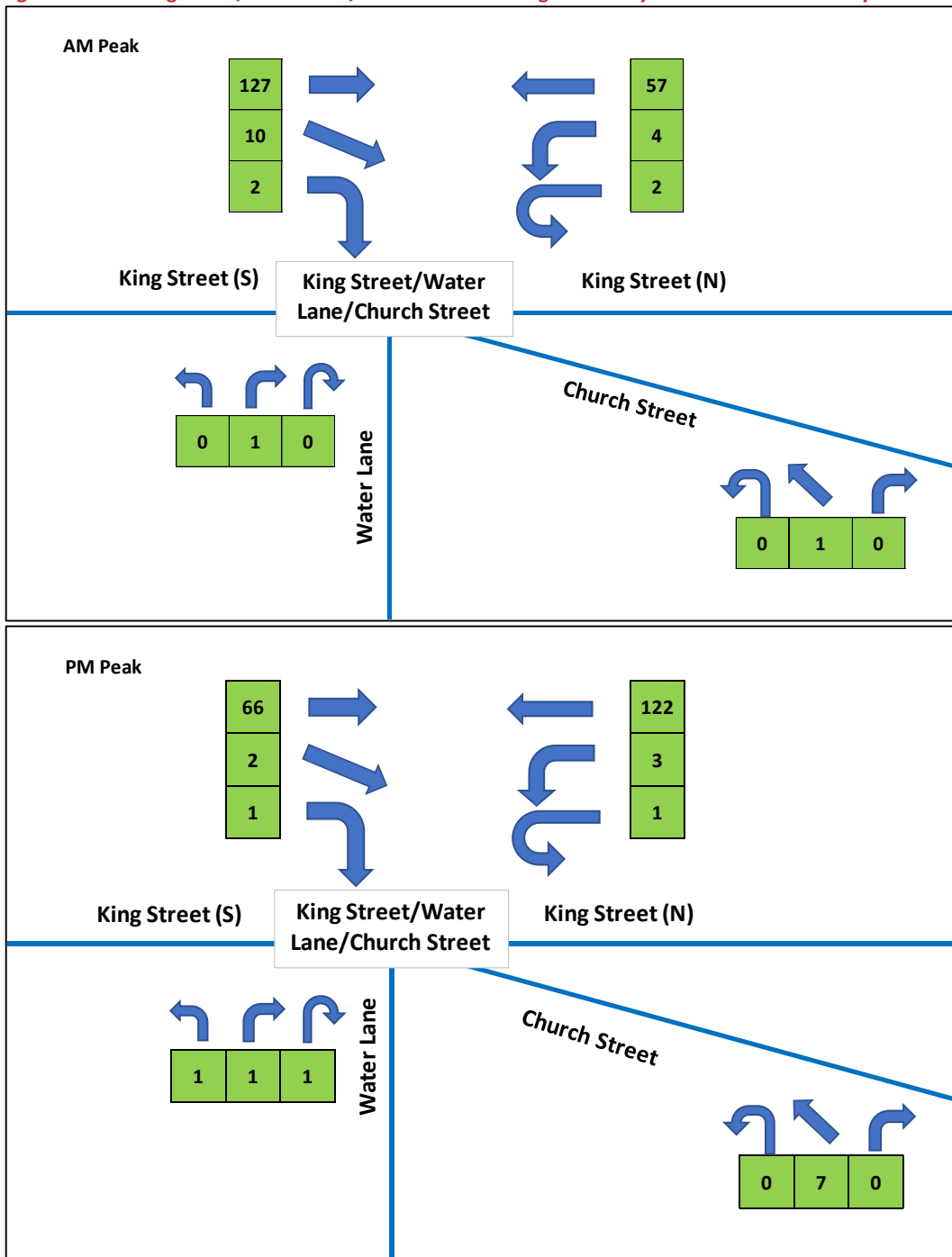
4.2.3 The sections of Church Street and Water Lane in close proximity to the junction with King Street provide a ‘shared space’ environment with near-level kerbsides separating footway and carriageway. This encourages vehicles to travel at slower speeds and provides a safer environment for pedestrians and cyclists.

4.2.4 The majority of on-road cyclists make a through movement on King Street, with higher flows travelling northbound in the AM Peak and southbound in the PM Peak. A small number of on-road cyclists were recorded travelling against the one-way orientation of Church Street and Water Lane.

4.2.5 **Figure 12** shows the on-road cyclist flows for the King Street/Water Lane/Church Lane junction.



Figure 12. King Street/Water Lane/Church Street Average Weekday Peak Period On-Road Cyclist Flows

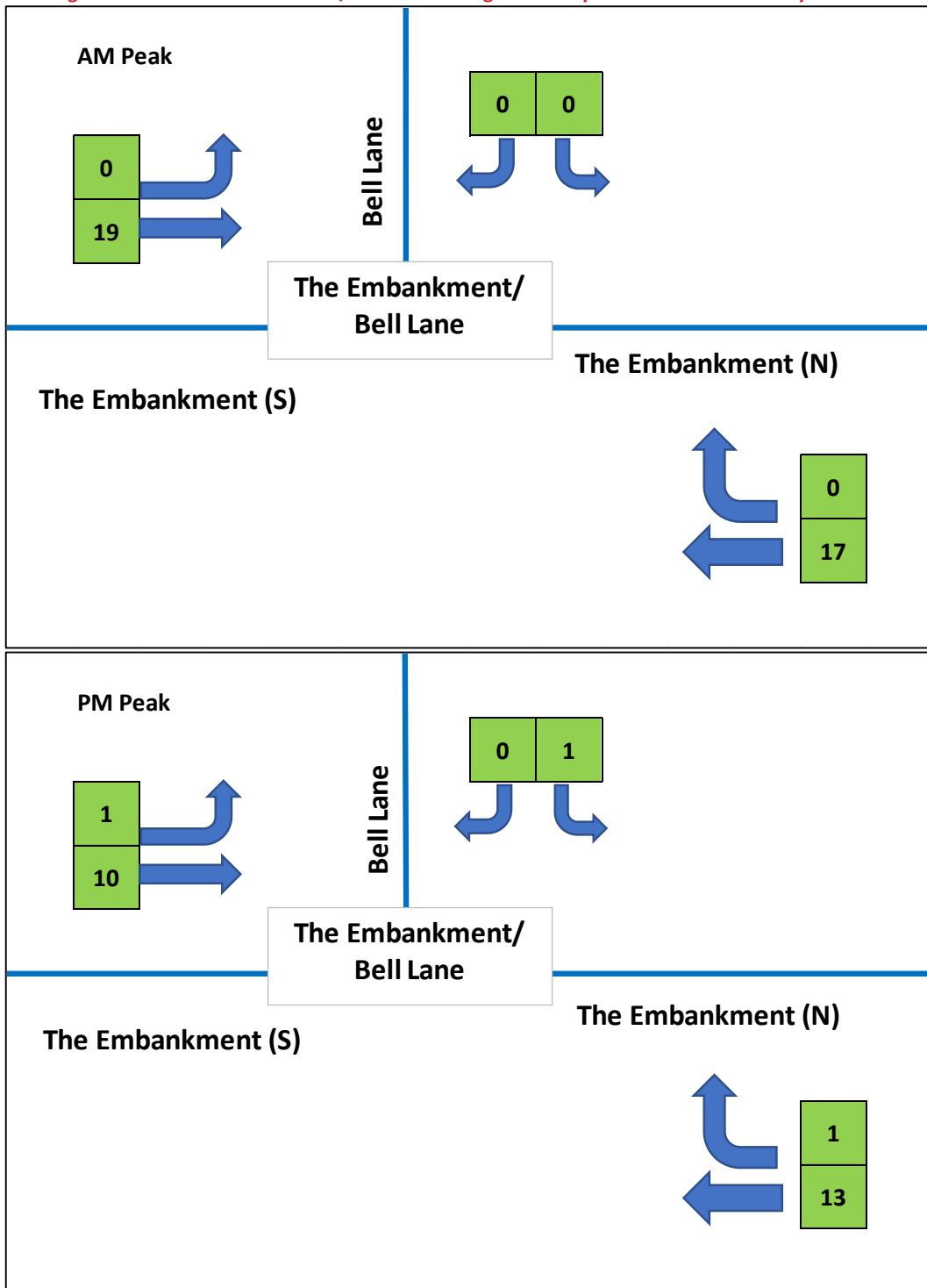


**The Embankment/Bell Lane**

4.2.6 The majority of on-road cyclists make a through movement on The Embankment, with the highest average movement recorded being 19 cyclists travelling northbound through the junction along The Embankment. It is noted that cyclists are able to continue northwards along the riverside beyond the vehicle barriers.

4.2.7 **Figure 13** shows the on-road cyclist flows for The Embankment/Bell Lane junction.

Figure 13. The Embankment/Bell Lane Average Weekday Peak Period On-Road Cycle Flows

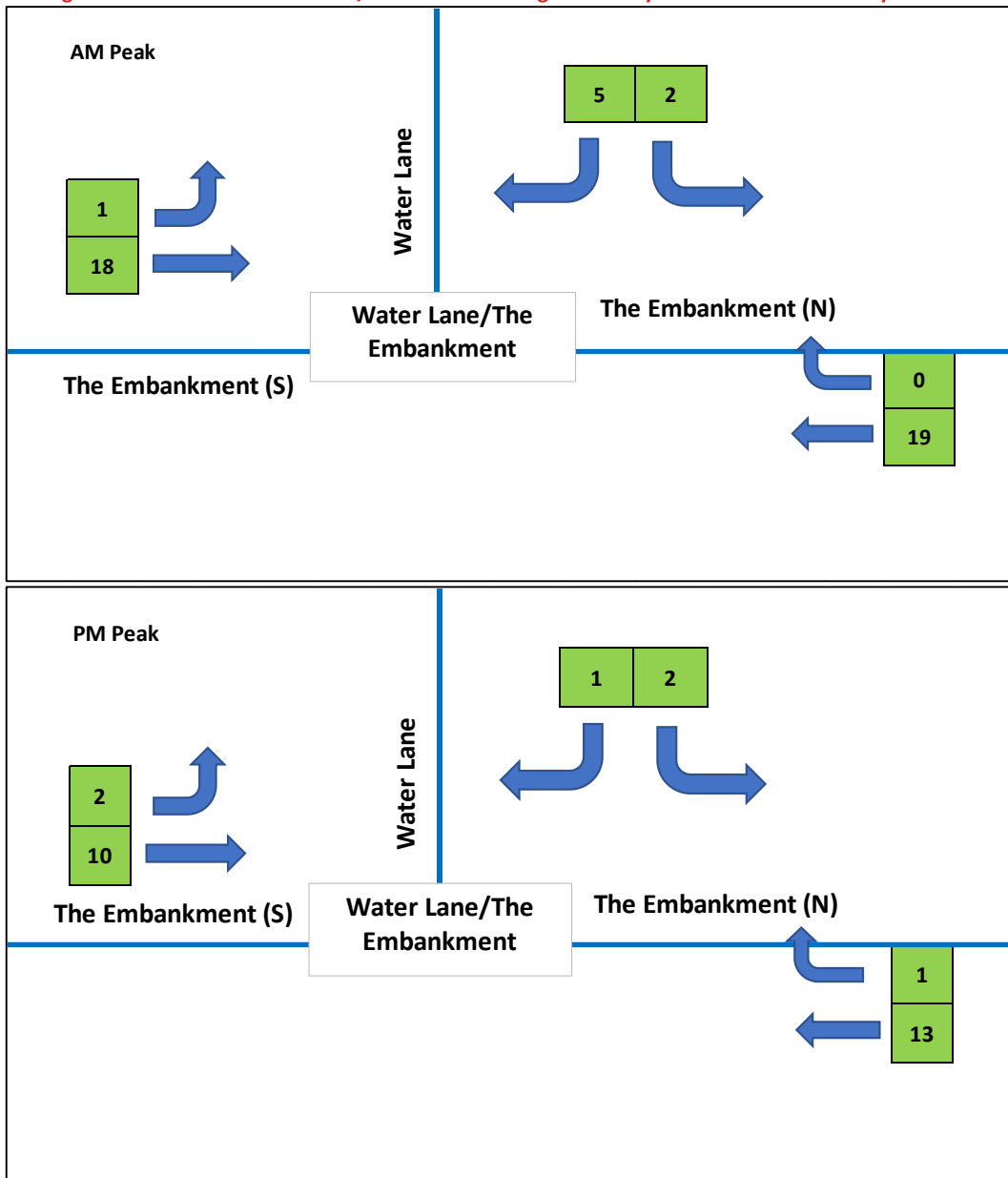


**The Embankment/Water Lane**

4.2.8 The majority of on-road cyclists make a through movement on The Embankment, with the highest average movement recorded being 19 cyclists travelling southbound through the junction during the AM Peak.

4.2.9 **Figure 14** shows the on-road cyclist flows for The Embankment/Water Lane junction.

**Figure 14. The Embankment/Water Lane Average Weekday Peak Period On-Road Cycle Flows**



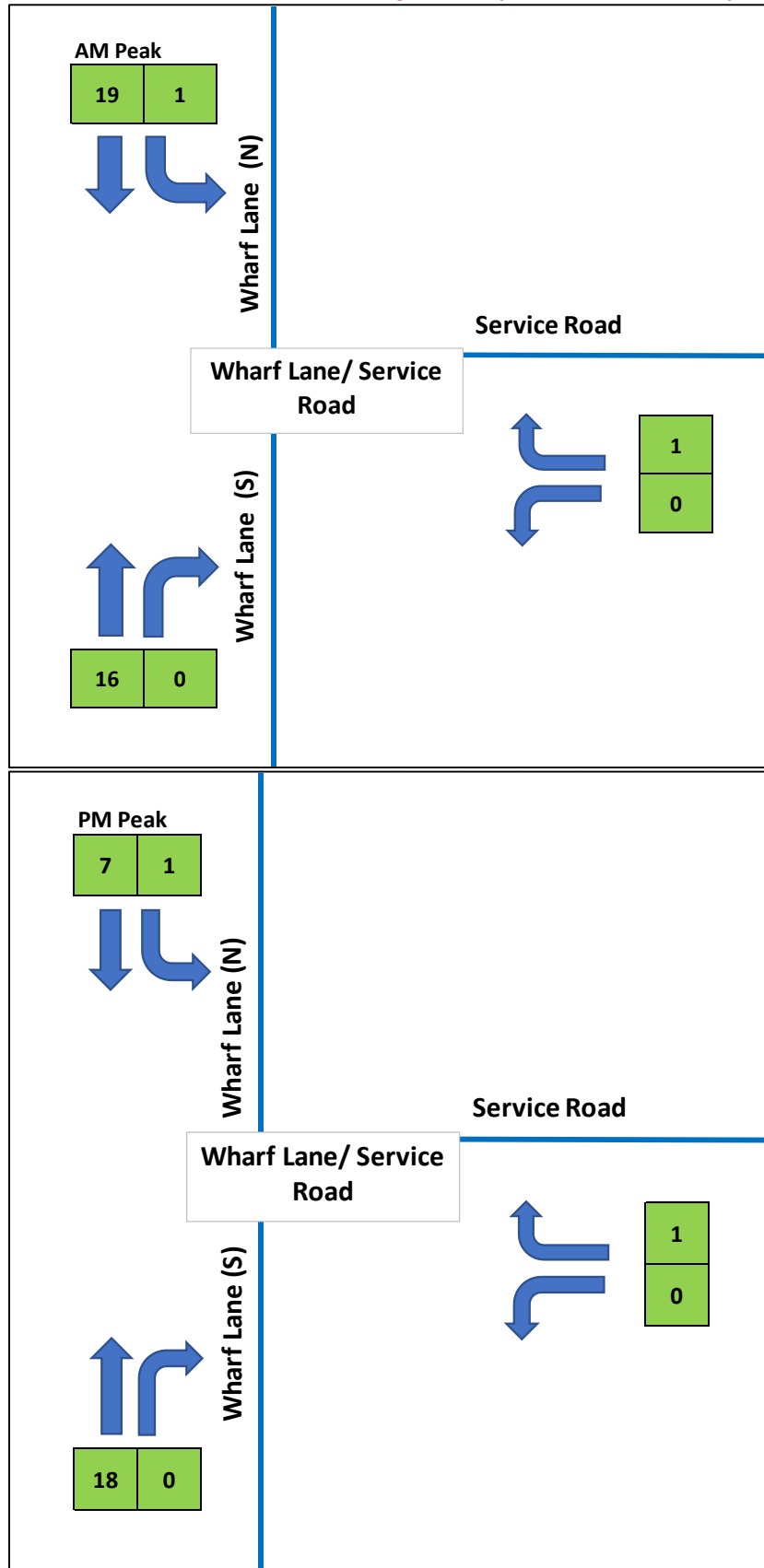
**Wharf Lane/Service Road**

4.2.10 It is noted that a contraflow cycle track is painted onto the east side of the Wharf Lane carriageway running southwards towards The Embankment.

4.2.11 The highest average on-road cycle movement recorded was the Wharf Lane southbound through movement of 19 bicycles in the AM Peak.

4.2.12 **Figure 15** shows the on-road cyclist flows for the Wharf Lane/Service Road junction.

Figure 15. Wharf Lane/Service Road Average Weekday Peak Period On-Road Cycle Flows



### 4.3 Pedestrian & Other Cyclist Survey Results

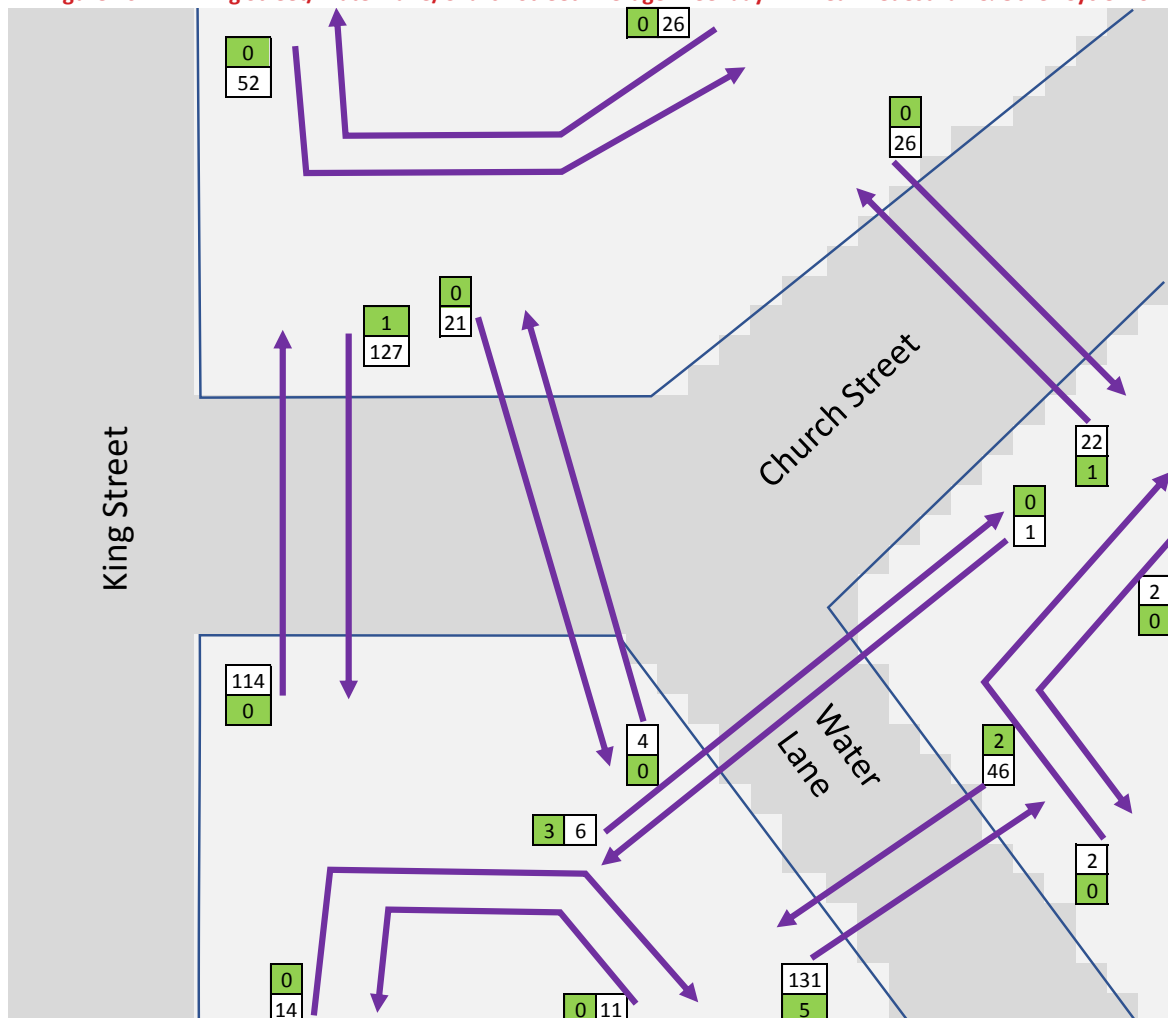
4.3.1 This section summarises the peak period results of the pedestrian counts and for cyclists not observed on-road. An average flow of the four survey days has been calculated for both AM (08:00 – 09:00) and PM (17:00 – 18:00) Peak Periods.

4.3.2 The junctions are discussed below in further detail.

#### King Street/Water Lane/Church Street

4.3.3 **Figure 16** shows the average AM Peak pedestrian and remaining cycle movements at the junction. The heaviest average pedestrian movements in the AM Peak were recorded crossing Water Lane, both southeast of the junction itself and between the intersections with King Street and Church Street. Relatively high numbers of pedestrians travel from King Street (North) to Church Street.

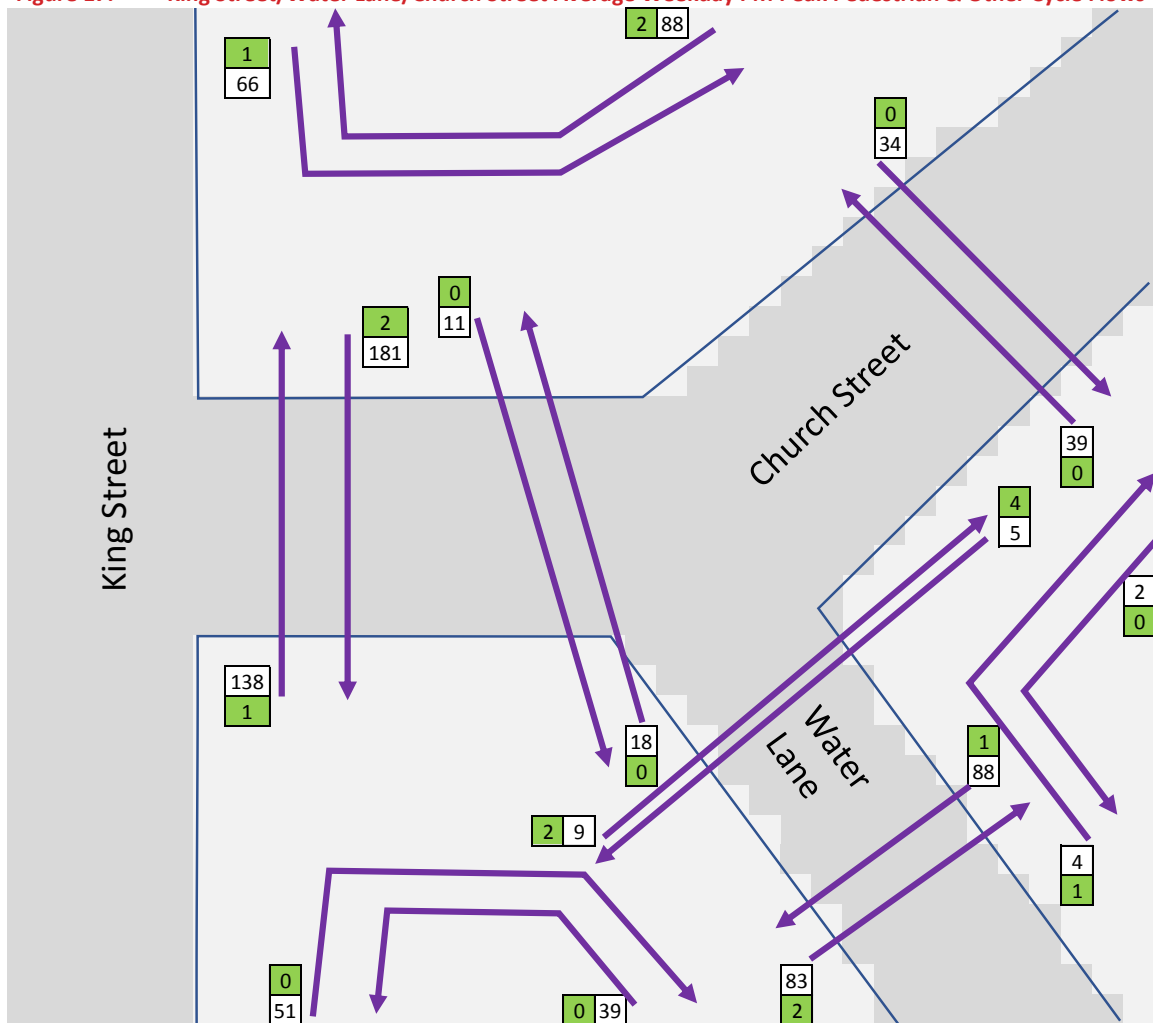
**Figure 16. King Street/Water Lane/Church Street Average Weekday AM Peak Pedestrian & Other Cycle Flows**



Pedestrian Counts  
 Cycle Counts

- 4.3.4 **Figure 17** shows the average PM Peak pedestrian and remaining cycle movements at the junction. Noticeably higher average pedestrian flows were observed crossing Water Lane between the intersections with King Street and Church Street.
- 4.3.5 Similar to the AM Peak, high average pedestrian movements were recorded crossing Water Lane southeast of the junction with Church Street.
- 4.3.6 High average pedestrian flows were also observed moving between King Street (North) and Church Street as well as from King Street (South) to Water Lane.

**Figure 17. King Street/Water Lane/Church Street Average Weekday PM Peak Pedestrian & Other Cycle Flows**



Pedestrian Counts  
 Cycle Counts

**The Embankment/Bell Lane**

- 4.3.7 **Figure 18** and **Figure 19** show the average AM and PM Peak pedestrian and remaining cycle movements respectively, at The Embankment/Bell Lane junction.

- 4.3.8 It is evident that this junction is lightly used by pedestrians and cyclists off-road. This could be due to the lack of adequate footways in the immediate vicinity.
- 4.3.9 It is noted that pedestrians making a through movement along the Embankment are not included in the counts for this junction, due to the location of the survey cameras. The results for The Embankment/Water Lane junction provide a better indication of pedestrian flows along the Embankment.

**Figure 18. The Embankment/Bell Lane Average Weekday AM Peak Pedestrian & Other Cycle Flows**

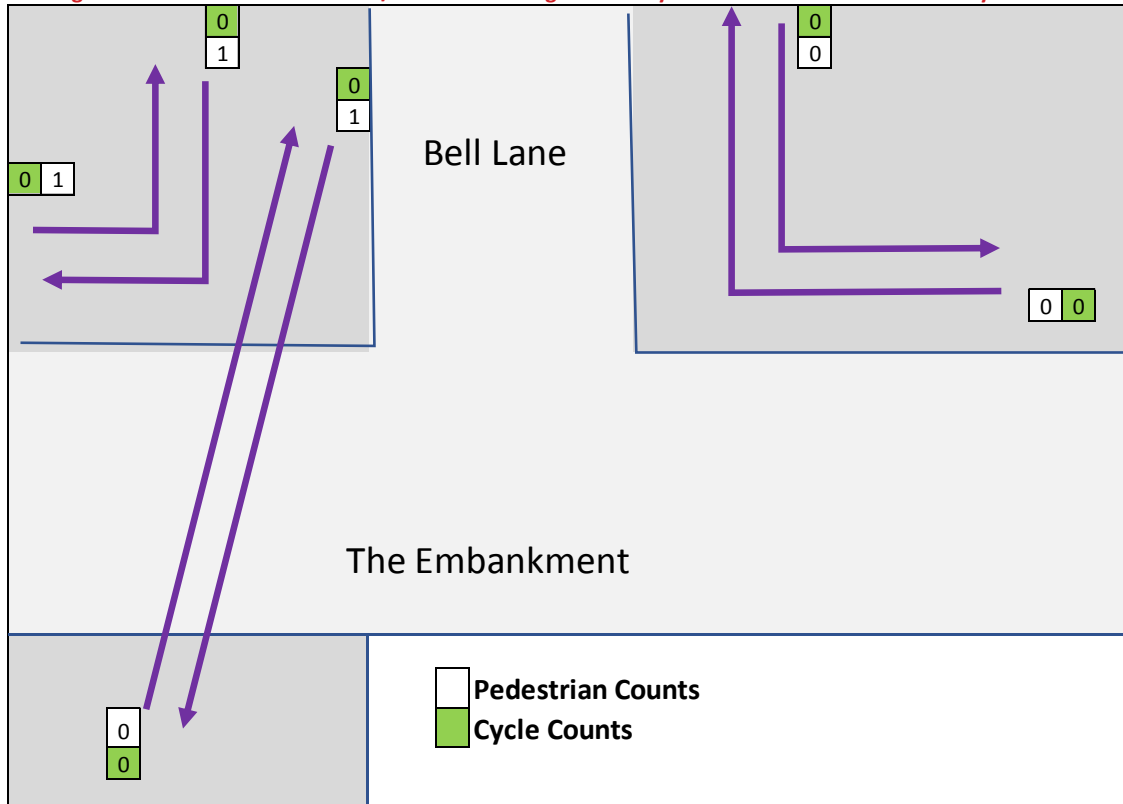
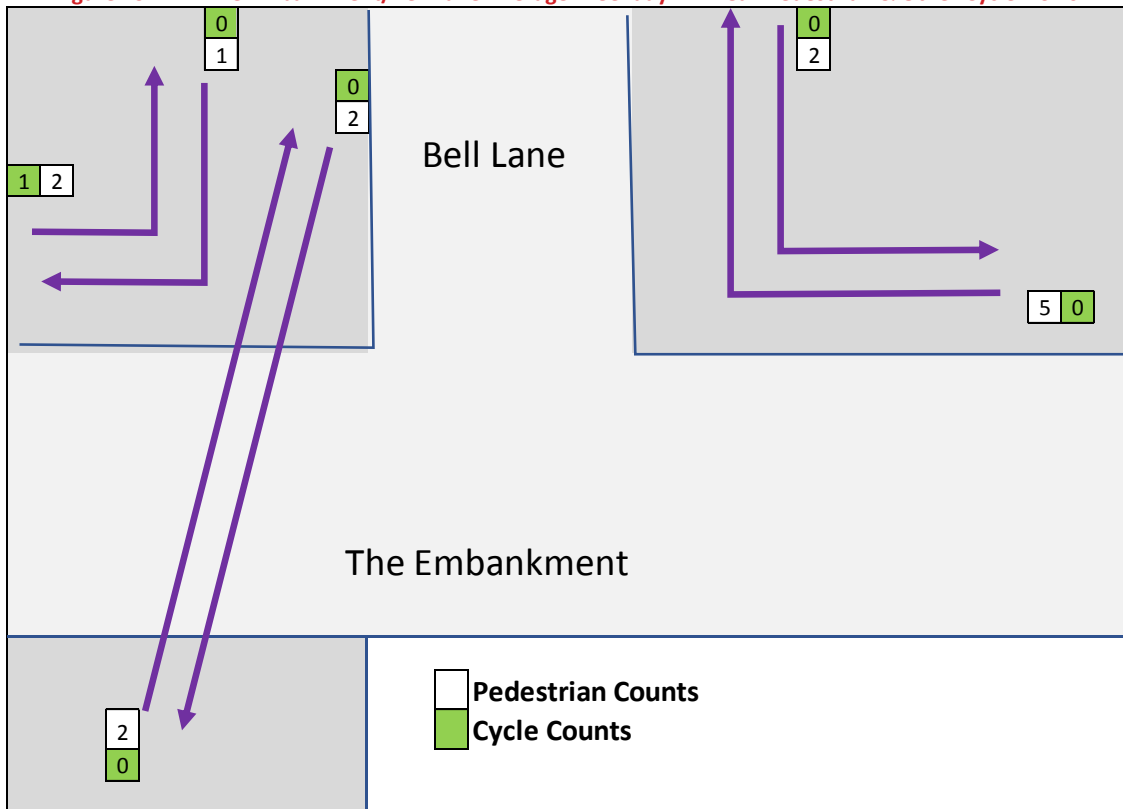


Figure 19. The Embankment/Bell Lane Average Weekday PM Peak Pedestrian & Other Cycle Flows

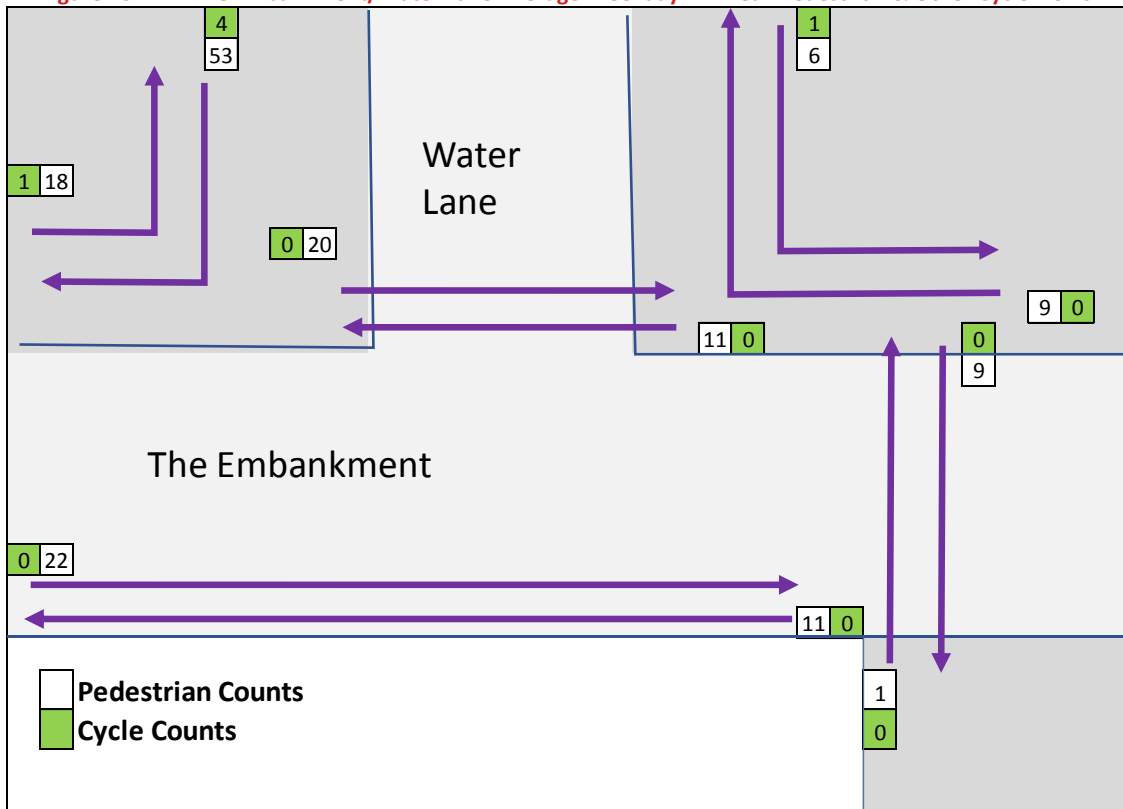


**The Embankment/Water Lane**

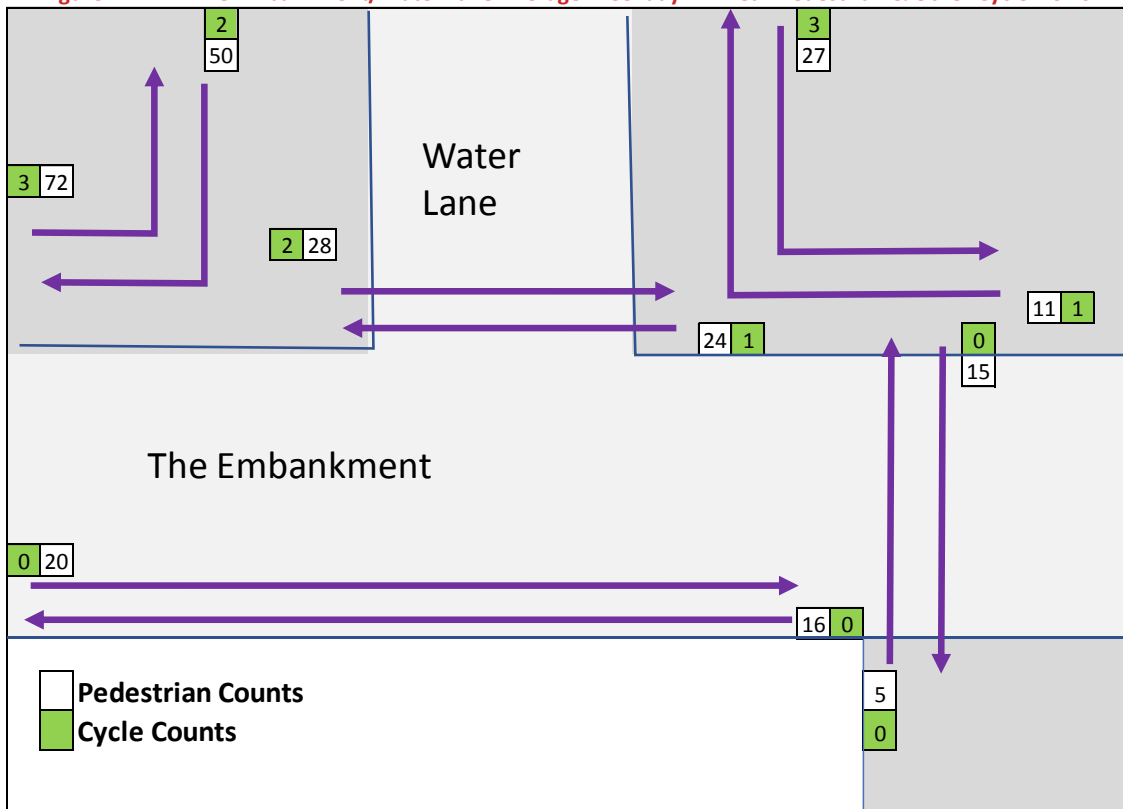
- 4.3.10 **Figure 20** and **Figure 21** show the average AM and PM Peak pedestrian and cycle movements respectively, at The Embankment/Water Lane junction.
- 4.3.11 The highest average pedestrian movement in the AM Peak is from Water Lane to The Embankment (South). Average pedestrian movements between Water Lane and The Embankment (South) in both directions are noticeably high in the PM Peak.



**Figure 20. The Embankment/Water Lane Average Weekday AM Peak Pedestrian & Other Cycle Flows**



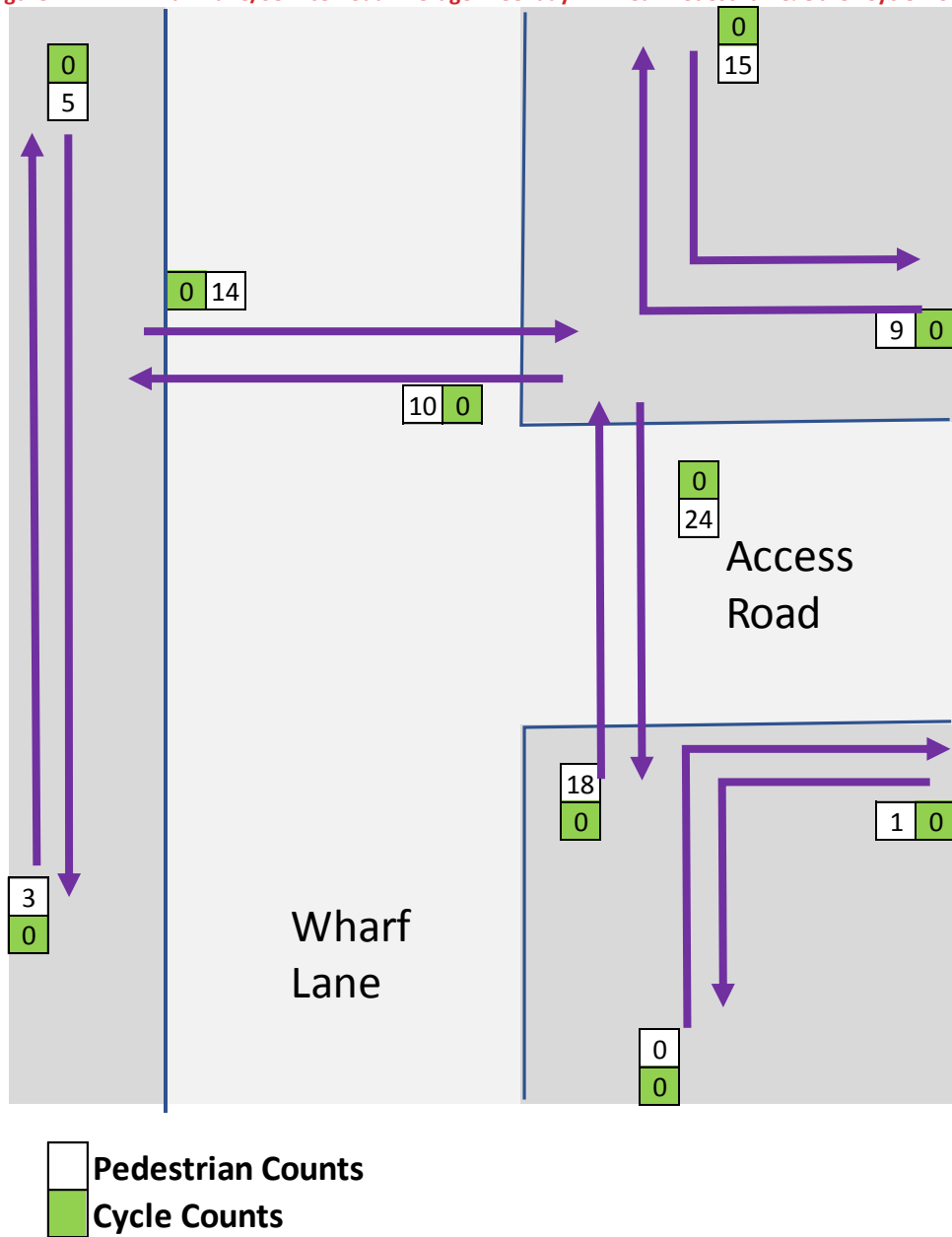
**Figure 21. The Embankment/Water Lane Average Weekday PM Peak Pedestrian & Other Cycle Flows**



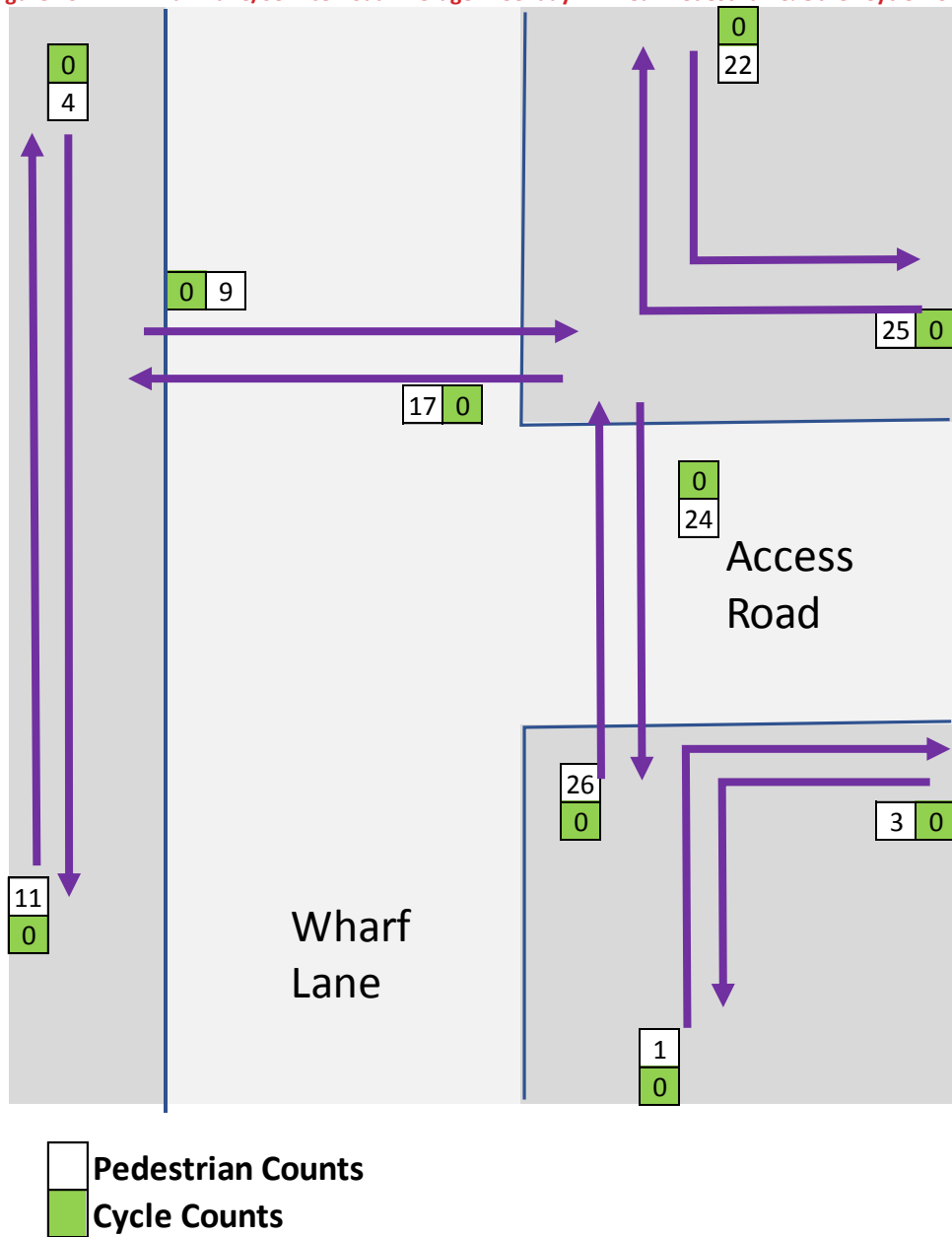
**Wharf Lane/Service Road**

- 4.3.12 **Figure 22** and **Figure 23** show the average AM and PM Peak pedestrian and remaining cycle movements respectively, at the Wharf Lane/Service Road junction.
- 4.3.13 Relatively high pedestrian flows were observed in both peak periods crossing the Service Road on the east side footway of Wharf Lane, in both directions. In the PM Peak, relatively high average pedestrian flows were recorded moving between Wharf Lane (North) and the Service Road in both directions.
- 4.3.14 It is noted that the west side footway of Wharf Lane is lightly used by pedestrians compared to the opposite footway. This is likely due to the eastern footway being wider and not obstructed by parked vehicles.

**Figure 22. Wharf Lane/Service Road Average Weekday AM Peak Pedestrian & Other Cycle Flows**



**Figure 23. Wharf Lane/Service Road Average Weekday PM Peak Pedestrian & Other Cycle Flows**



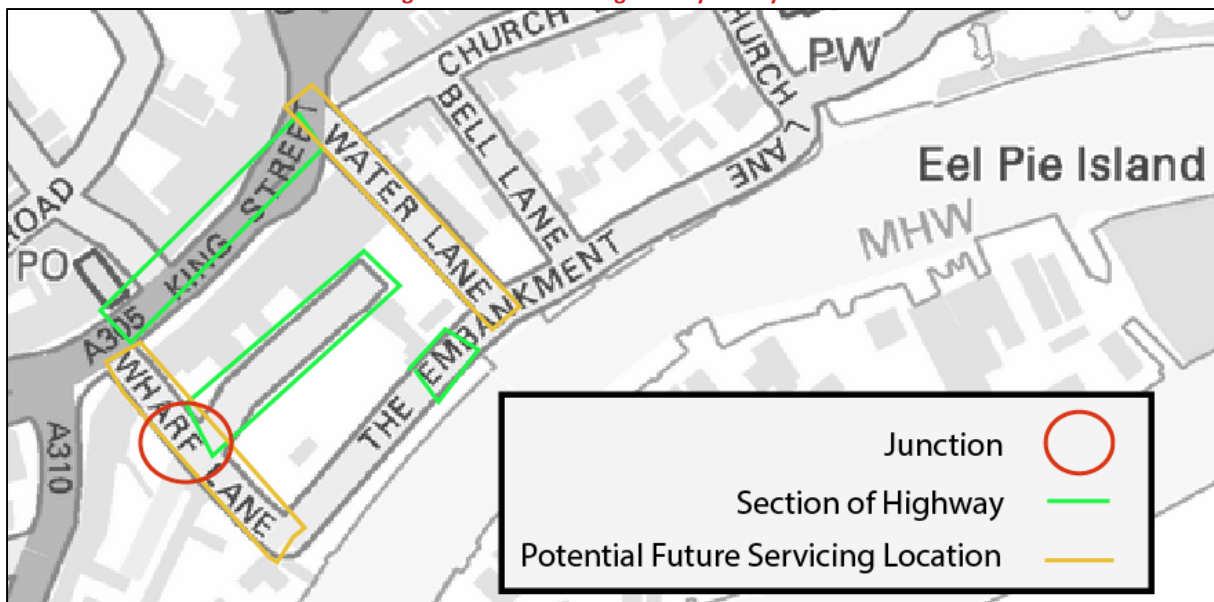
## 5. SERVICING ACTIVITY

### 5.1 Introduction

5.1.1 This section summarises the results of the servicing activity surveys undertaken over the two week survey period. The data has been presented below to analyse servicing activity across the survey area.

5.1.2 **Figure 24** shows the locations of sections of road and junctions where servicing activities were recorded. Sections of highway identified by the Client where servicing activity might be used in future have also been marked for reference.

Figure 24. Servicing Activity Survey Area



5.1.3 The servicing surveys were carried out over a 24 hour period on Monday 18<sup>th</sup>, Friday 22<sup>nd</sup>, Monday 25<sup>th</sup> and Friday 29<sup>th</sup> March.

5.1.4 The following servicing locations have been included:

- Loading bays on The Embankment adjacent to footbridge leading to Eel Pie Island;
- Unnamed Service Road off Wharf Lane; and
- Kerb on the south side of King Street, between Water Lane and Wharf Lane.

5.1.5 In addition where possible, servicing activity has been identified at Wharf Lane, Water Lane and the junction of Wharf Lane and the Service Road.

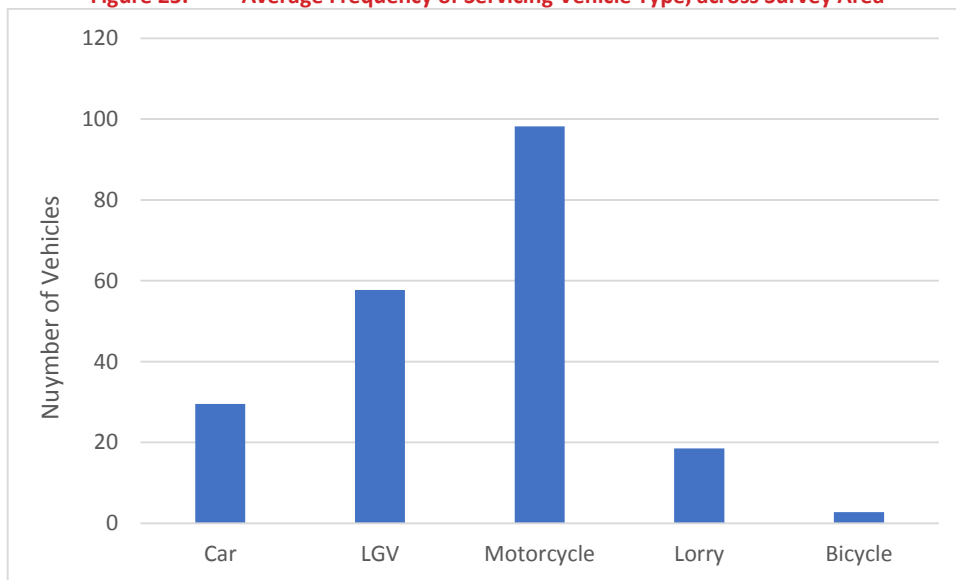
5.1.6 The length of vehicle dwell time, type of vehicle and where appropriate, the servicing location within a section of highway have been identified for each delivery or service vehicle recorded. All figures reported in this section are representative of an average day, out of the four survey days.

**5.2 Servicing Activity Analysis**

5.2.1 For the purposes of this analysis, servicing dwell times have been divided into four categories. These are: 0-5 minutes; 5-10 minutes; 10-20 minutes; and over 20 minutes.

5.2.2 **Figure 25** shows the average number of each type of vehicle observed making deliveries or unloading goods. It is noted that the Light Goods Vehicle (LGV) category includes small vans, box vans and “transit” type vans. The Lorry category includes vehicles classed as both OGV1 (larger rigid vehicles with two or three axles) and OGV2 (all rigid vehicles with four or more axles and all articulated vehicles).

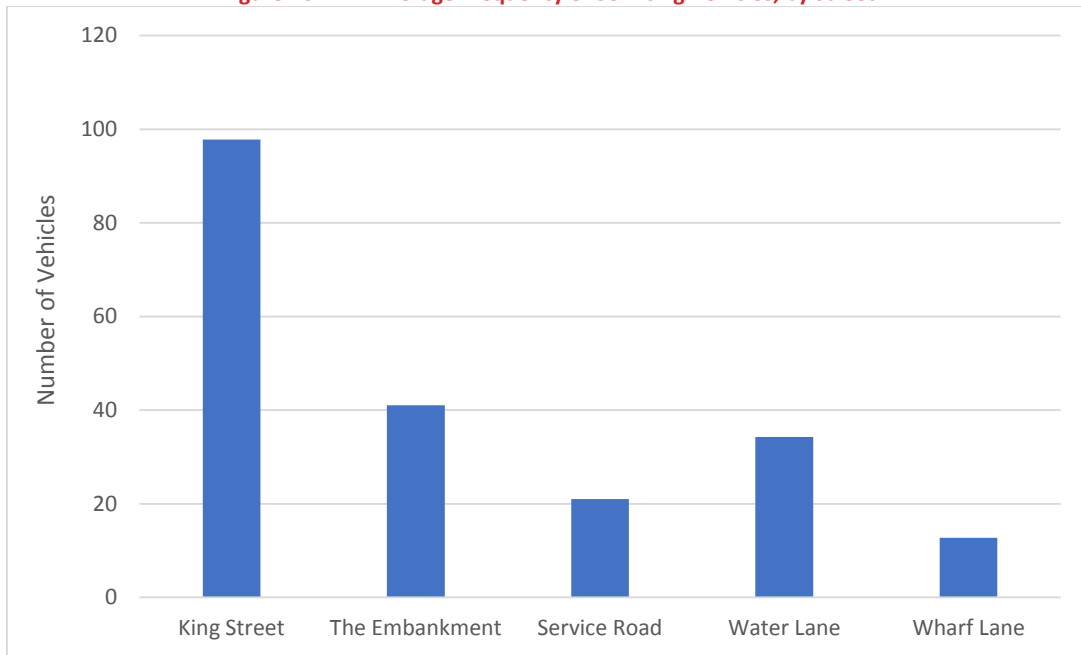
**Figure 25. Average Frequency of Servicing Vehicle Type, across Survey Area**



5.2.3 The most common servicing vehicle observed in the survey area was the motorcycle (98), consisting of just under half of all service vehicles. LGVs were the second most common servicing vehicle type with 28% (58).

5.2.4 **Figure 26** shows the average frequency of service vehicles across the survey area, broken down by street.

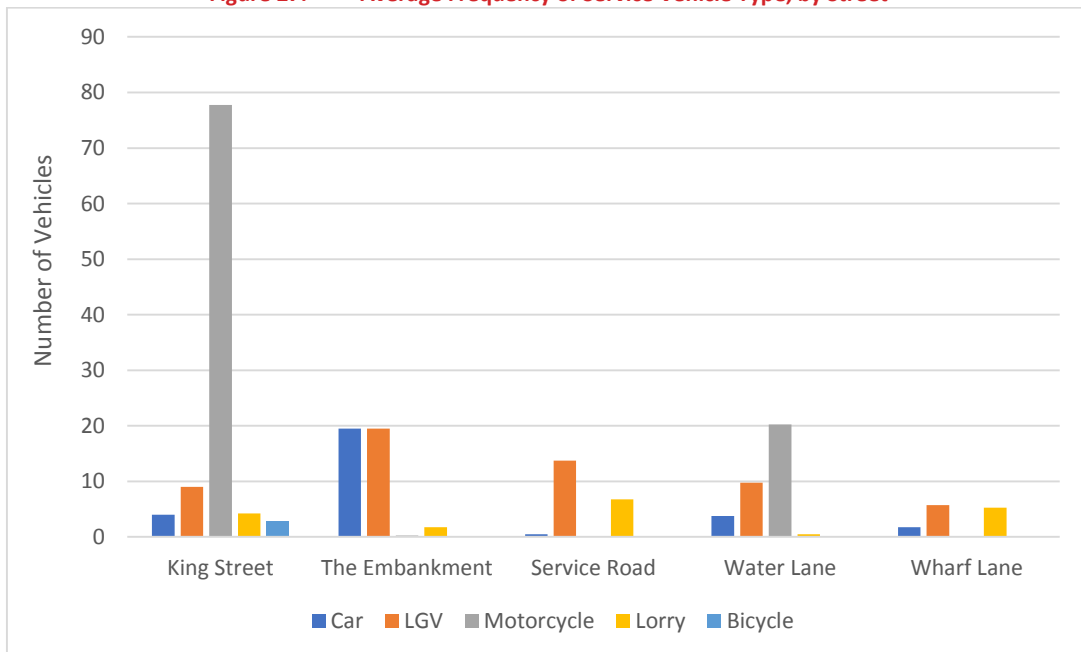
Figure 26. Average Frequency of Servicing Vehicles, by Street



5.2.5 Almost half of all vehicles undertaking servicing activity were recorded on King Street (98), with the overwhelming majority occurring on the 80m section of highway between the junction with Water Lane and the pedestrian crossing. Almost all of the servicing activity was related to the retail units fronting King Street, with KFC generating the most trips.

5.2.6 **Figure 27** breaks down service vehicles in each location by vehicle type.

Figure 27. Average Frequency of Service Vehicle Type, by Street



5.2.7 Motorcycles are the dominant service vehicle type on King Street and Water Lane, representing 80% (78) and 59% (20) respectively of the vehicles recorded in these

locations. Motorcycles were not recorded undertaking servicing activity at any other location.

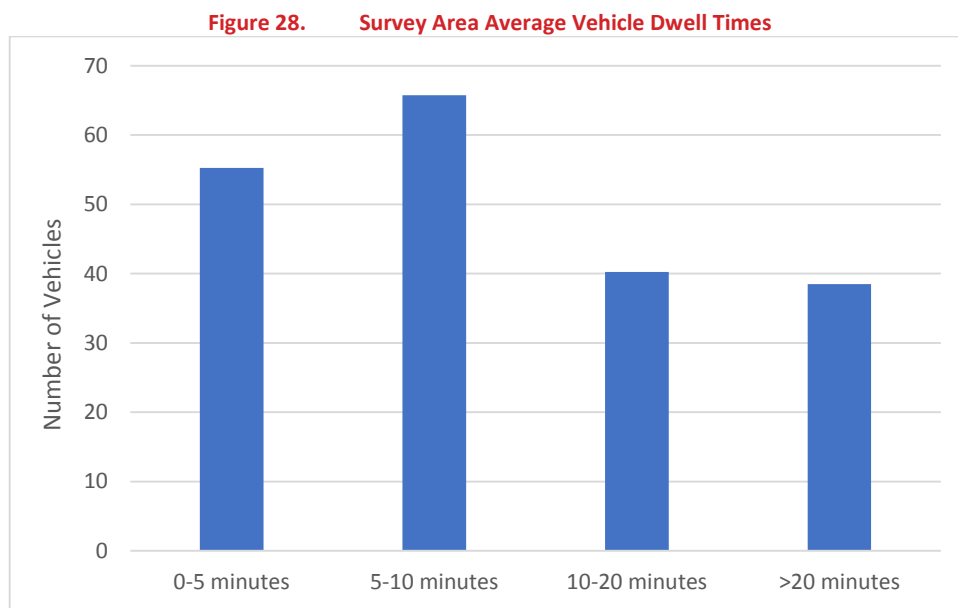
5.2.8 Cars and LGVs were the highest vehicle types undertaking servicing activity on The Embankment, with just under half each (20).

5.2.9 LGVs were the most common vehicle undertaking servicing activity on the Service Road off Wharf Lane, comprising two thirds (14) of all vehicles at this location.

5.2.10 The highest number of lorries were observed undertaking servicing activity on the Service Road off Wharf Lane, with seven observed, equating to one-third of all lorries observed within the survey area. Of the larger OGV2 vehicle type, an average of one per day was recorded undertaking servicing activity on both Wharf Lane and the Service Road, despite these roads being unsuitable for vehicles of this size.

5.2.11 The only location recording bicycles undertaking servicing activity was King Street, with three recorded.

5.2.12 **Figure 28** summarises vehicle dwell times across the survey area.

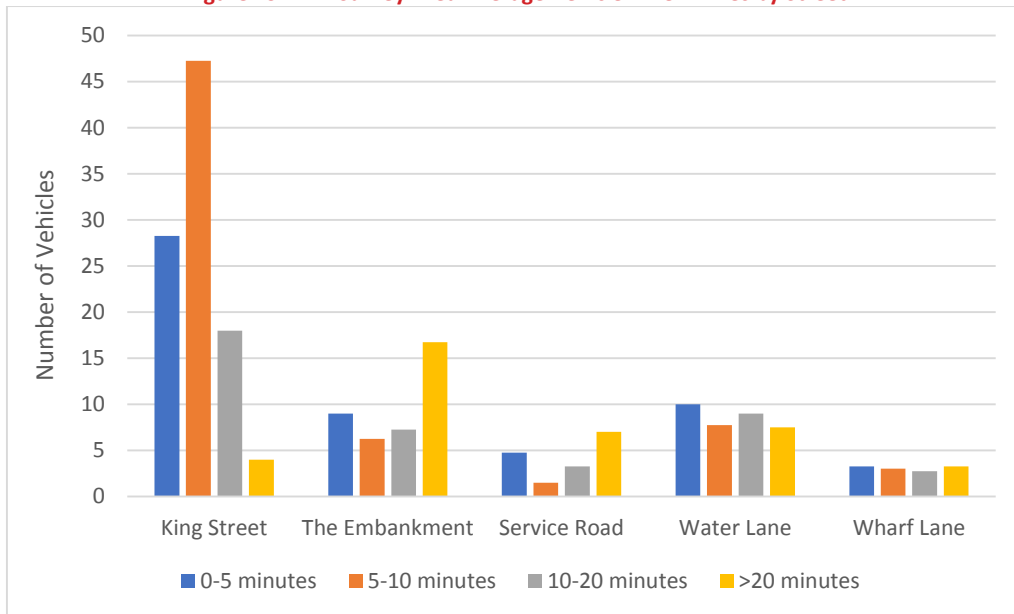


5.2.13 One third of servicing vehicles (66) recorded dwell time of between five and 10 minutes, the highest dwell time category observed. The next highest dwell time period was 0-5 minutes at 28% of service vehicles (55). The higher dwell time categories of 10-20 minutes and over 20 minutes both recorded approximately 20% of service vehicles (40 and 39 respectively).

5.2.14 **Figure 29** breaks down the vehicle dwell times by location.



Figure 29. Survey Area Average Vehicle Dwell Times by Street



- 5.2.15 Over three quarters of service vehicles observed unloading or delivering on King Street (76), the busiest street within the survey area, recorded dwell times concentrated in the lower categories of 0-5 minutes and 5-10 minutes.
- 5.2.16 Conversely, over 60% of service vehicle observed unloading or delivering on The Embankment (24) recorded dwell times within the higher categories of 10-20 minutes and over 20 minutes.
- 5.2.17 Service vehicles observed unloading or delivering on the Service Road off Wharf Lane, Wharf Lane and Water Lane recorded a relatively even spread across all four dwell time categories.
- 5.2.18 It is evident that the majority of servicing activity observed within the survey area takes place on King Street, at almost half of all vehicles recorded. The most common type of vehicle observed on King Street were motorcycles with dwell times of ten minutes or less.

## 6. SUMMARY

- 6.1.1 SYSTRA has been commissioned by the London Borough of Richmond Upon Thames to undertake a series of parking, servicing and turning count traffic surveys and associated data analysis in Central Twickenham.
- 6.1.2 In summary, the results of the parking survey show The Embankment as the street with the highest average parking stress levels, across all weekday and weekend survey periods. Minimal to no parking activity was observed on King Street, Bell Lane and the unnamed service road off Wharf Lane.
- 6.1.3 The average parking occupancy levels only exceeded the 85% threshold during the Weekend Daytime period, therefore there are significantly high occupancy rates during this time. However, this does not exceed LBRs threshold of 90% for high parking stress.
- 6.1.4 Resident permits were the most common types of permits observed. Out of all the streets within the survey area, The Embankment recorded the highest number of all types of permits used over the four survey periods, at 70% of the total number of vehicles. The majority of resident visitor permits were observed during daytime hours.
- 6.1.5 The King Street/Church Street/Water Lane junction was recorded as the busiest survey area junction in terms of vehicle flow. The vast majority of flow was recorded making a through movement on King Street, with northbound traffic slightly heavier. All remaining junctions were relatively lightly used by vehicles during the peak hours.
- 6.1.6 The King Street/Church Street/Water Lane junction was recorded as the busiest survey area junction in terms of pedestrian movements, in particular moving between the north and south arms of King Street.
- 6.1.7 The majority of servicing activity observed within the survey area was observed on King Street, at almost half of all vehicles recorded. The most common type of vehicle observed on King Street were motorcycles with dwell times of ten minutes or less.

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The SYSTRA logo is rendered in a bold, red, sans-serif typeface. The letters are thick and closely spaced, with a distinctive design where the 'S' and 'Y' have a slightly irregular, hand-drawn quality. The 'A' is also bold and blocky. The overall appearance is clean and professional, typical of a corporate brand identity.