

July 2023

# Pier Usage Analysis

**Evidencing Whether Selected Piers in London Are  
Suitable for Future River Freight**



## Woods Quay VivaCity Sensor

## Pier Monitoring

Pier & Sensor Location



Generic VivaCity Sensor





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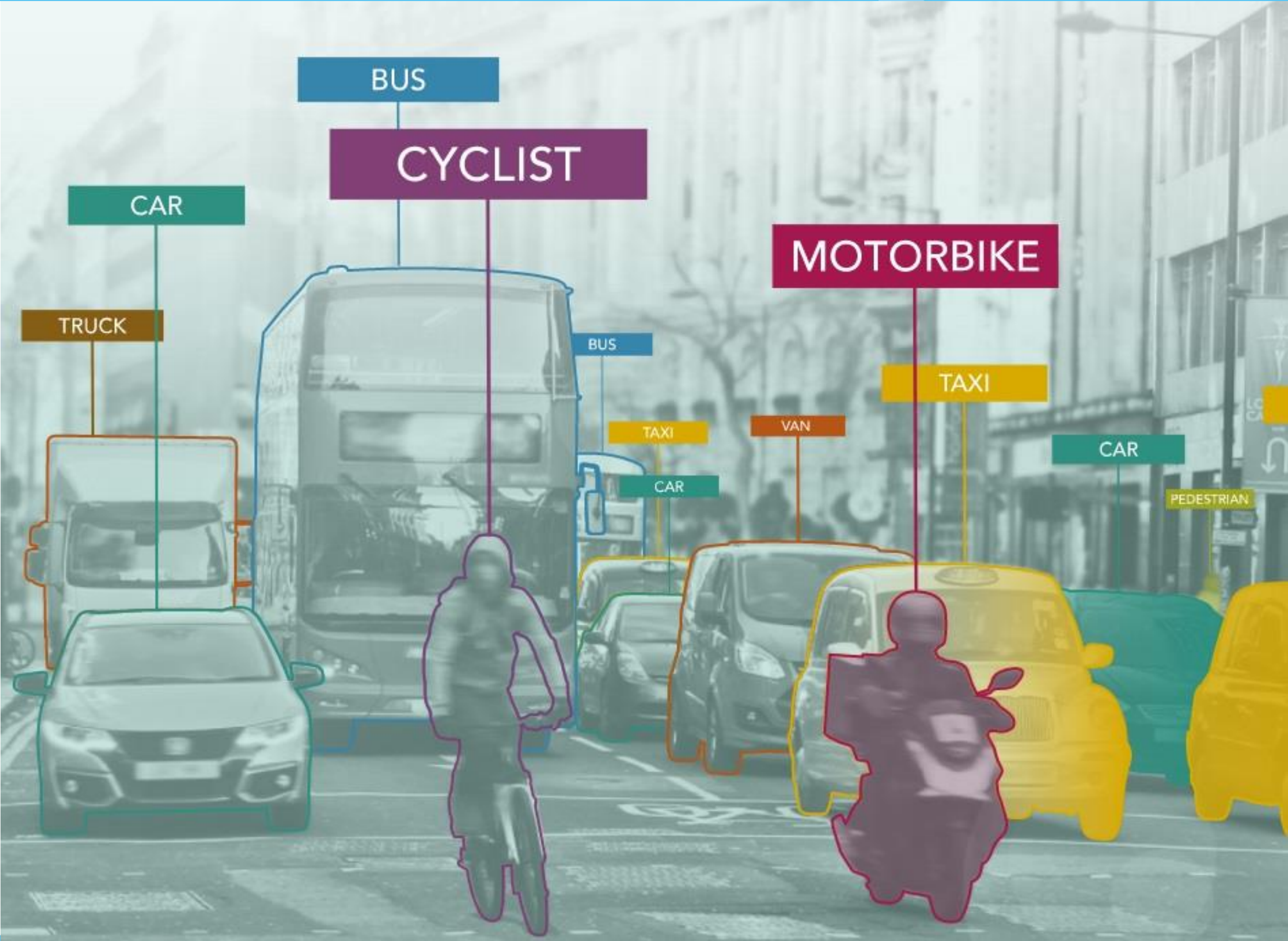
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# Pier Comparisons

## Opportunities for Freight



## How do all CALL piers differ and what do they have in common?

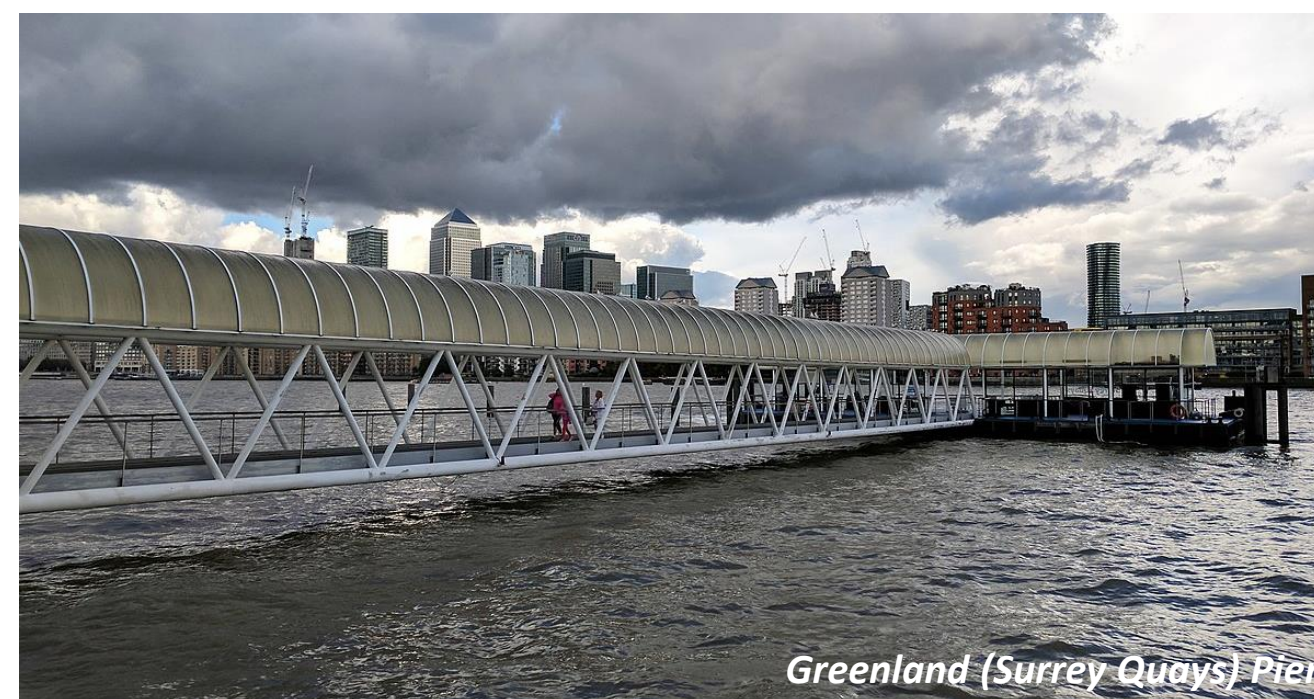
- Woods Quay, located in the City of Westminster, is a privately owned space and pontoon. It is mostly used as an event space and mooring for Woods' Silver Fleet river vessels. Woods Quay is accessible to pedestrians via two steep ramps from Victoria Embankment that lead to the Cormorant Deck and pontoon. Woods Quay links to the A3211 (Victoria Embankment) as well as the Cycleway 3.
- Wapping Pier, located in the London Borough of Tower Hamlets, is a privately owned pier with no passenger services or events spaces. It is accessible to pedestrians via a walkway (called King Henry's Stairs) leading to the pier. The pier links to Wapping High Street but to no listed London Cycleways.
- Greenland (Surrey Quays) Pier, located in the London Borough of Southwark, is a passenger pier owned by Thames Clippers and has regular passenger services, RB1 and RB6, regularly calling here. Greenland Pier is fully accessible to pedestrians, cyclists, and wheelchair users. This pier also links to Cycleway 14.



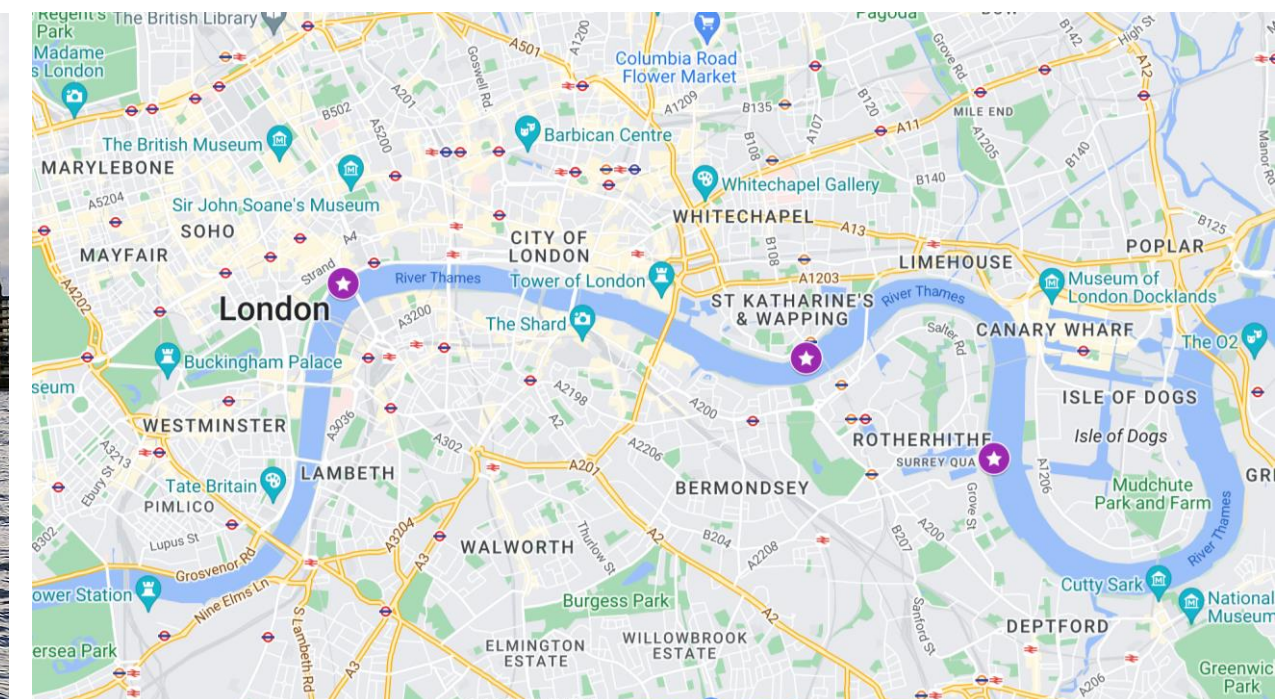
*Woods Quay*



*Wapping Pier*



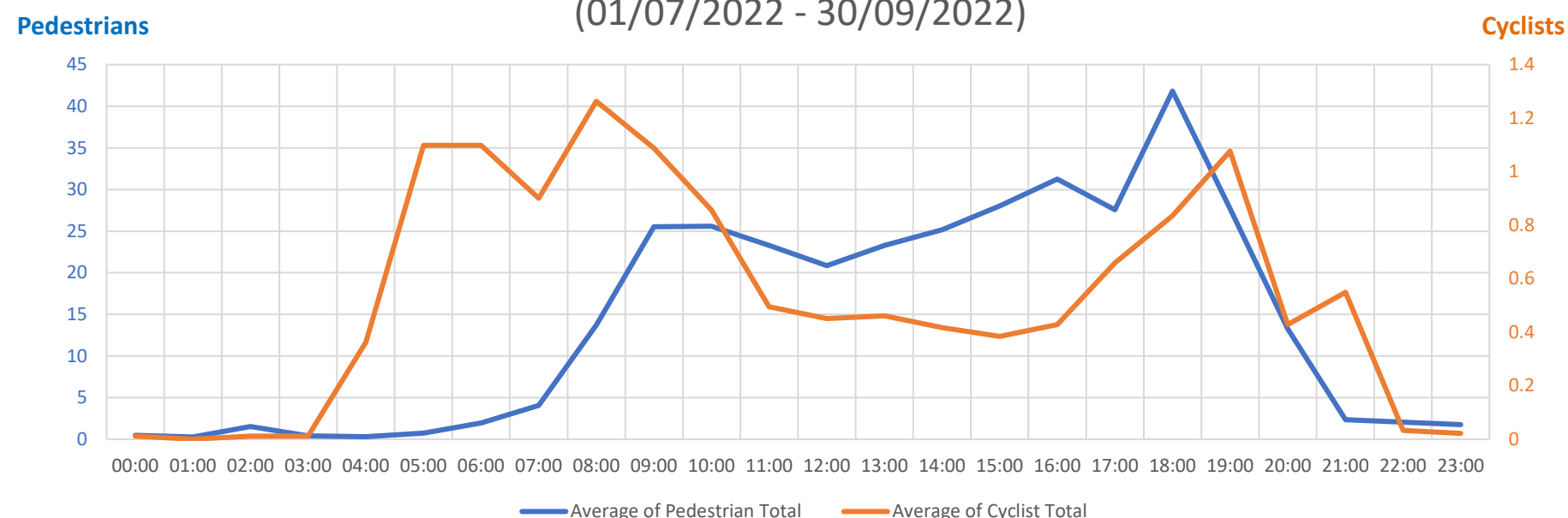
*Greenland (Surrey Quays) Pier*



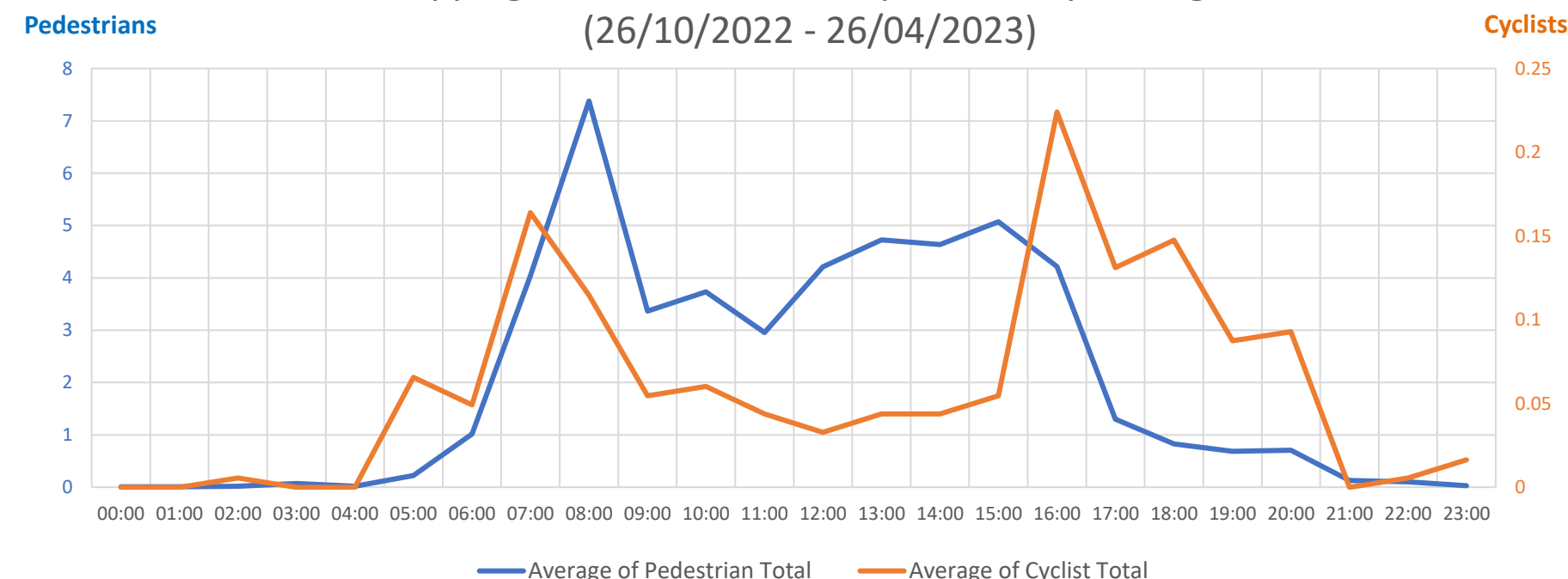


## Movement Onto & From All CALL Piers – Hourly Averages Throughout Entire Monitoring Period

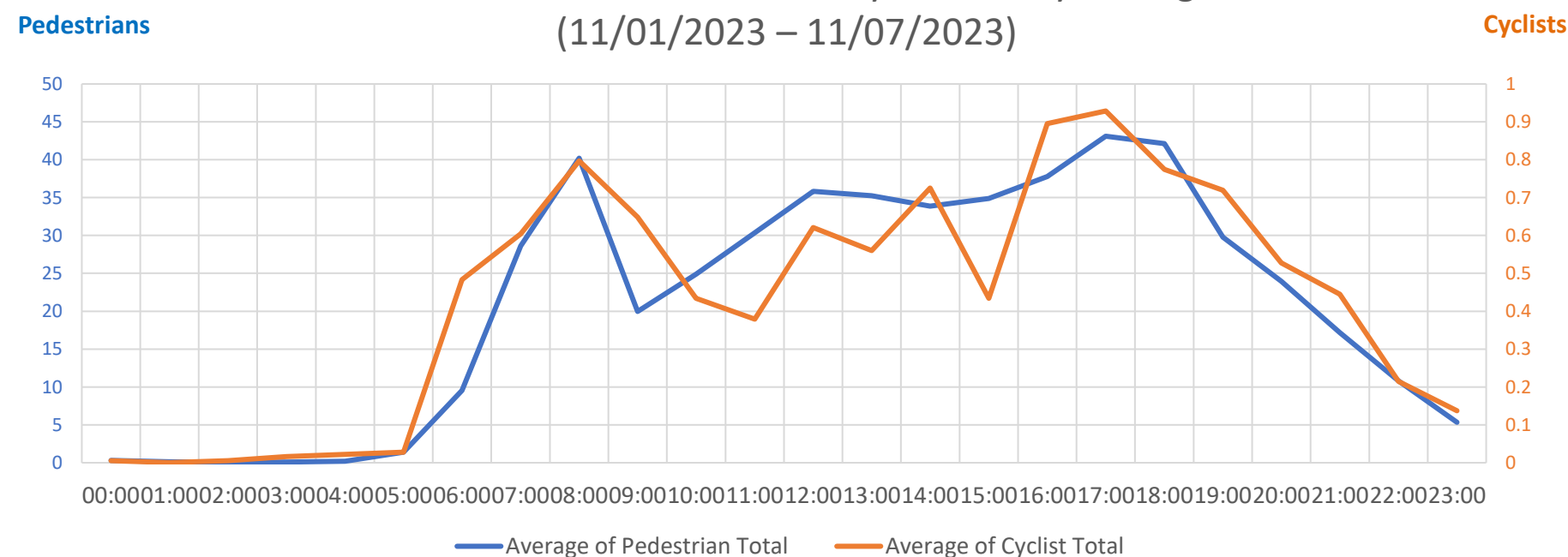
Woods Quay - Pedestrian & Cyclist Hourly Averages  
(01/07/2022 - 30/09/2022)



Wapping Pier - Pedestrian & Cyclist Hourly Averages  
(26/10/2022 - 26/04/2023)



Greenland Pier - Pedestrian & Cyclist Hourly Averages  
(11/01/2023 – 11/07/2023)



- Throughout the entire monitoring periods, pedestrian and cyclist counts at all piers start decreasing in the evening (starting between 19:00 and 23:00) and remain low until the early morning (until between 04:00 and 07:00) when they offer an opportunity for potential river freight operations from these locations. The proposed available timeslots could offer a good opportunity to drop off and/or pick up goods via the river in the evening and early morning to/from low-emission couriers on land.
- Greenland Pier experienced the highest active travel counts, likely due to the regular Thames Clipper river bus services. This is followed by Woods Quay, which can be attributed to this being an events venue. The most underutilised pier is Wapping Pier, due to its private nature.



## CALL Project: Pier Comparisons & Suitability for Light Freight Operations

### When are our monitored piers currently being underutilised the most?

#### 1) WOODS QUAY:

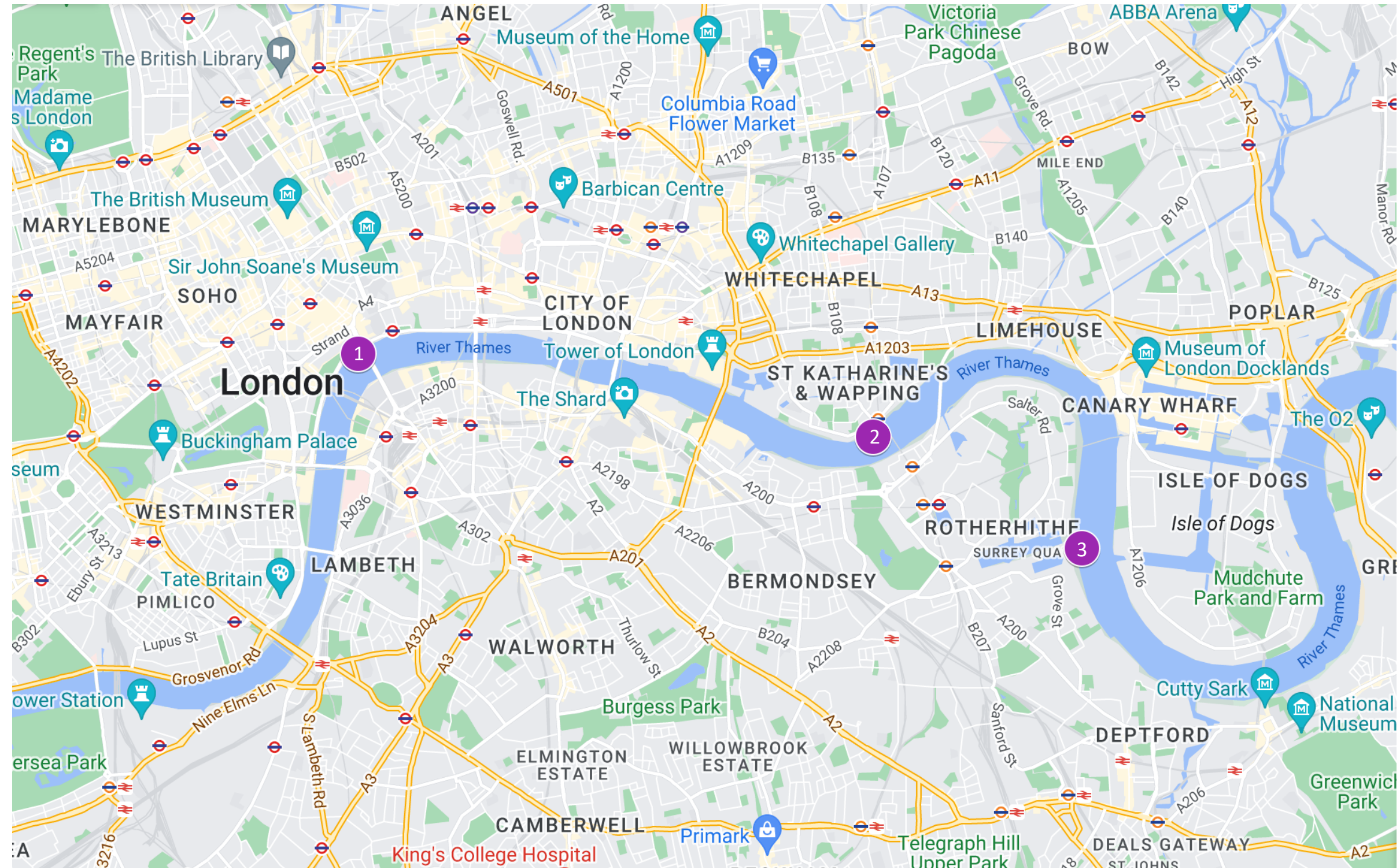
- Woods Quay  
Active Travel
  - Sundays: 20:00 – 05:00
  - Mondays: 23:00 – 07:00
  - Fridays: 19:00 – 06:00

#### 2) WAPPING PIER:

- Wapping High Street (near pier):  
Active Travel
  - Mondays to Thursdays: 21:00 – 06:00
 Motor Vehicles
  - Fridays: 23:00 – 06:00
- Wapping Pier:
  - All week at all times
  - Mostly Fridays to Sundays: 19:00 – 04:00

#### 3) GREENLAND (SURREY QUAYS) PIER:

- Princes Court (near pier):  
Active Travel
  - Mondays to Thursdays: 22:00 – 06:00
 Motor Vehicles
  - All week at all times
  - Mostly Tuesday to Thursday: 00:00 – 09:00
- Greenland Pier:
  - Monday to Wednesday: 22:00 – 05:00



# Woods Quay Introduction



## Project Summary

CRP's Clean Air Logistics for London (CALL) is a Defra-funded project which aims to move more freight into London via river rather than road, supported by zero emission delivery methods in Central London.

This pier monitoring initiative seeks to understand movements around and onto/from certain piers and identify whether they may be suitable for future river freight operations based on their current underutilisation at specific time periods.



Daily average counts captured over the course of the 3-month monitoring period are detailed in the table below (note this is a daily average across all count lines):

	Mode Type	Average Daily Count
Motor Vehicles	Articulate (OGV2)	N/A
	Bus	N/A
	Car	N/A
	Motorcycle	N/A
	Truck (OGV1)	N/A
	Van (LGV)	N/A
Active Travel	Pedestrian	399
	Cyclist	15

## Monitoring Assumptions and Limitations

### Classified Counts:

There are several general limitations associated with the classified counts data that should be taken into consideration when viewing the analysis. These are as follows:

- There are a few instances where vehicles have parked on or along the sensor count lines. This can result in multiple counts being created for a single vehicle. Similarly, there have been a small number of occasions where vehicles have reversed over a count line to park on a one-way street, causing outliers in the analysis.
- Stalls or other temporary objects can also be picked up as vehicles by the sensors.

### Specific to Woods Quay:

- The count line on Woods Quay is not directly placed at the entrance but rather at an access point between the indoor event space and the pier outdoors. This means that captured counts, especially during events, may capture the same people multiple times as they move between the indoor and outdoor sections of Woods Quay while crossing the count line.





## Sensor Location and Context

The VivaCity sensor (27) is located on the outside of Woods Quay's Cormorant Deck facing the River Thames, as indicated on the map below. Woods Quay is accessible to mainly pedestrians via two ramps from Victoria Embankment that lead to the Cormorant Deck and pontoon.

Woods Quay's event space is open from 09:00 to 02:00

Woods Quay links to the A3211 (Victoria Embankment) as well as the Cycleway 3.



## Key Findings

Key findings from the 3-month monitoring project are detailed on the right. Further information on each key finding is detailed within this pack.

Referenced weather data and facts can be viewed at [www.visualcrossing.com](http://www.visualcrossing.com) and [www.timeanddate.com](http://www.timeanddate.com).

- **River Freight Trial Dates (Tuesdays; 6 weeks):**

- 26/07/22 around 14:00
- 02/08/22 around 17:00
- 09/08/22 around 11:30
- 16/08/22 around 17:30
- 22/08/22 around 10:30
- 30/08/22 around 16:30

- **River Freight Trial Impact:**

- The data shows that the river freight trial operations on Woods Quay had a minimal impact on the pier's usual functionality
- On days and times where the trial's vessel arrived at the pier to unload goods, there was often only a small increase in footfall due to team members carrying goods from the vessel onto the pier and then to the electric cargo bike on street level

- **Summary & Opportunities:**

The days and times below show when the pier is underutilised, which poses an opportunity for more river freight operations during these days and times:

- Weekdays with lowest pedestrian and cyclist levels:
  - Sundays (!)
  - Mondays and Fridays during the work week
- Hours with lowest pedestrian and cyclist levels on these days (see graphs below):
  - Sundays: 20:00 – 05:00 (overnight)
  - Mondays: 23:00 – 07:00 (overnight)
  - Fridays: 19:00 – 06:00 (overnight)

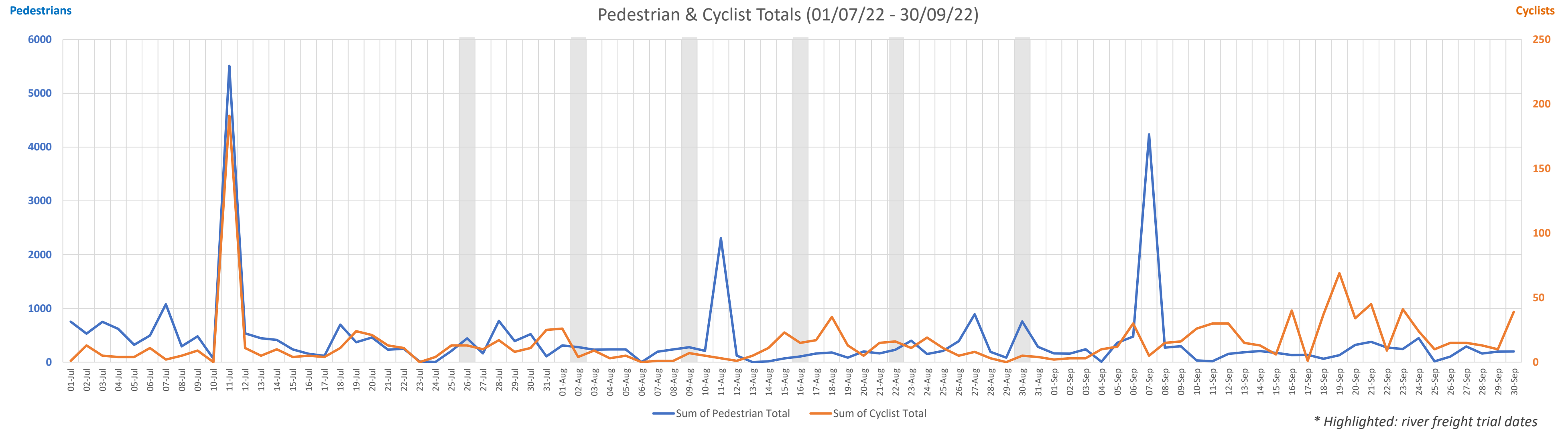


# Pier Usage Analysis



## Analysis: Movement Onto & From the Pier

### Active Travel Counts – Totals

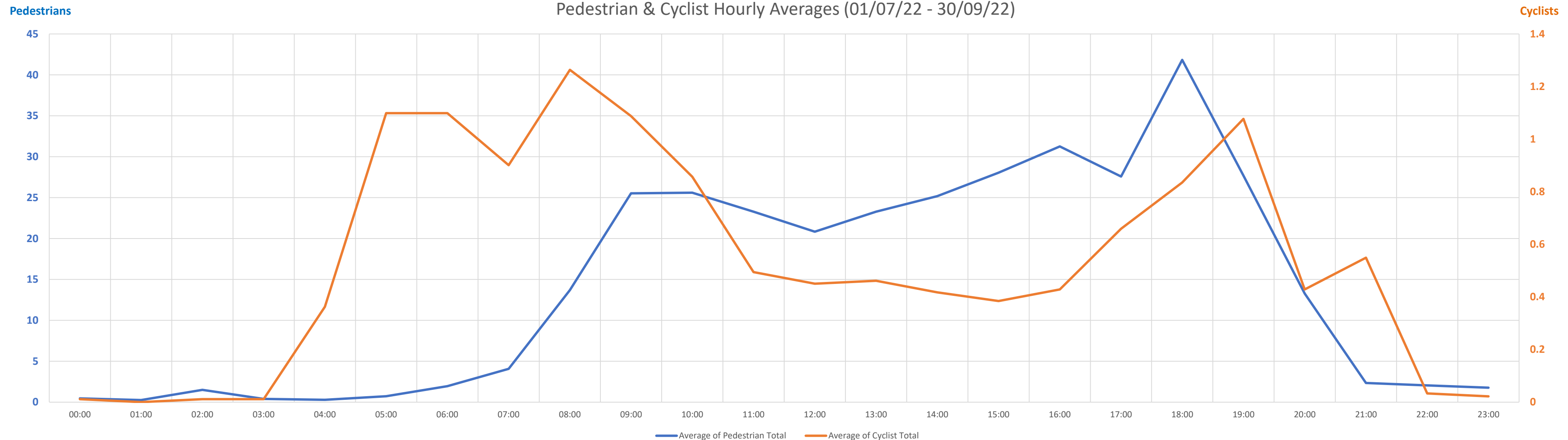


- The highest number of pedestrian (5,510) and cyclist (191) counts can be seen on Monday, 11<sup>th</sup> July 2022. This is due to a private event which inaugurated the London Christmas Party Show exhibition. The event also included some vendors who sold items such as ice cream from their cargo bikes.
- Other increases in counts, such as on 11<sup>th</sup> August and 7<sup>th</sup> September 2022, are also likely to have been caused by private events on Woods Quay.
- Low counts can be seen on Sunday 24<sup>th</sup> July 2022, Saturday 6<sup>th</sup> August 2022 and Saturday 13<sup>th</sup> August 2022.



## Analysis: Movement Onto & From the Pier

### Active Travel Counts – Hourly Averages



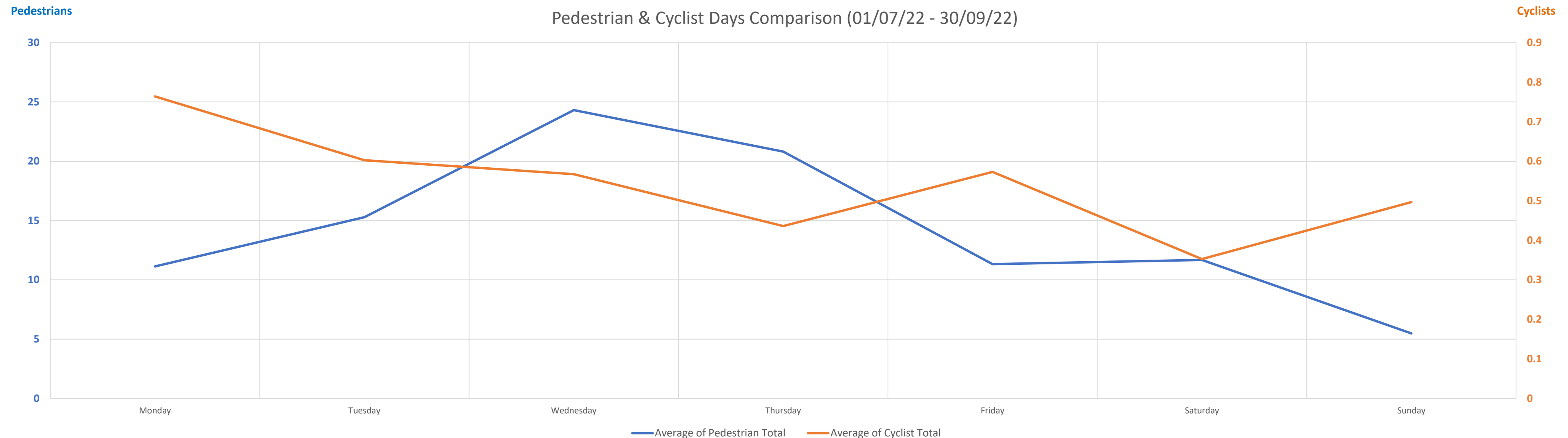
- Hourly average pedestrian counts start rising from around 07:00 onwards, slightly decreasing at 12:00, and peaking at 16:00 (31) and 18:00 (42). Counts then steadily decrease from 19:00 onwards and remain low until 06:00. This pattern could be due to the majority of events and movements taking place in the evening.
- Hourly average cyclist counts are usually low. They tend to slightly rise at 08:00 and 19:00.



# CRP River Freight Trial Impact Analysis

## Analysis: Movement Onto & From the Pier

### Active Travel Counts – Weekday Averages



- The graph summarises the average pedestrian and cyclist counts per weekday on Woods Quay, based on the 3-month monitoring data.
- Weekday average pedestrian counts remain low on Mondays (11) before rising and peaking on Wednesdays (24). Counts then steadily decrease and reach their minimum on Sundays (5).
- Weekday average cyclist counts generally remain low. They peak on Mondays before decreasing steadily. They slightly rise on Fridays and reaching their minimum on Saturdays.



## River Freight Trial Impact Analysis: CRP River Freight Trial Summary

In July and August 2022, Cross River Partnership and 10 partners, delivered goods into central London using the river. The pilot operated one delivery per week, for six weeks and aimed to make the case for expanding river freight into London. The pilot formed part of the Defra-funded Clean Air Villages 4 and Clean Air Logistics for London projects. This was the first river freight project in London with two pick-up points. Office supplies were loaded in Dartford and janitorial supplies at Woolwich. Goods were unloaded at Woods Quay, where they were picked up by electrically-assisted cargo bikes and taken to their destinations around The Northbank BID area and beyond.



### Key Details:

- Trial officially started on 26<sup>th</sup> July 2022
- Trial officially finished on 30<sup>th</sup> August 2022

### Operational Times (Arrival Times at Woods Quay):

- 14:00 on 26<sup>th</sup> July 2022
- 17:00 on 2<sup>nd</sup> August 2022
- 11:30 on 9<sup>th</sup> August 2022
- 17:30 on 16<sup>th</sup> August 2022
- 16:30 on 30<sup>th</sup> August 2022

### Goods transported:

- Office supplies
- Janitorial supplies

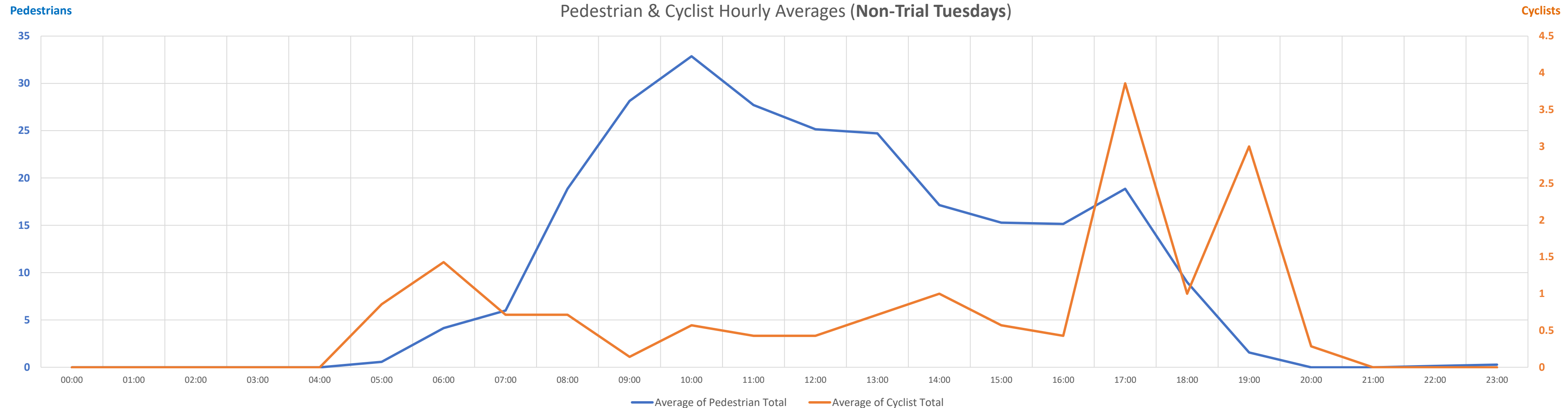
### Onward deliveries:

- Businesses in the Northbank BID
- Organisations such as a local school, university, theatres, cultural institutions, church, property owners, hotels and corporate offices.

Read more about the trial here: [River Freight Pilot Case Study: Summer 2022](#)

## River Freight Trial Impact Analysis: Pier Usage

### Active Travel Counts – Impact on Non-Trial Tuesdays (Baseline Data)

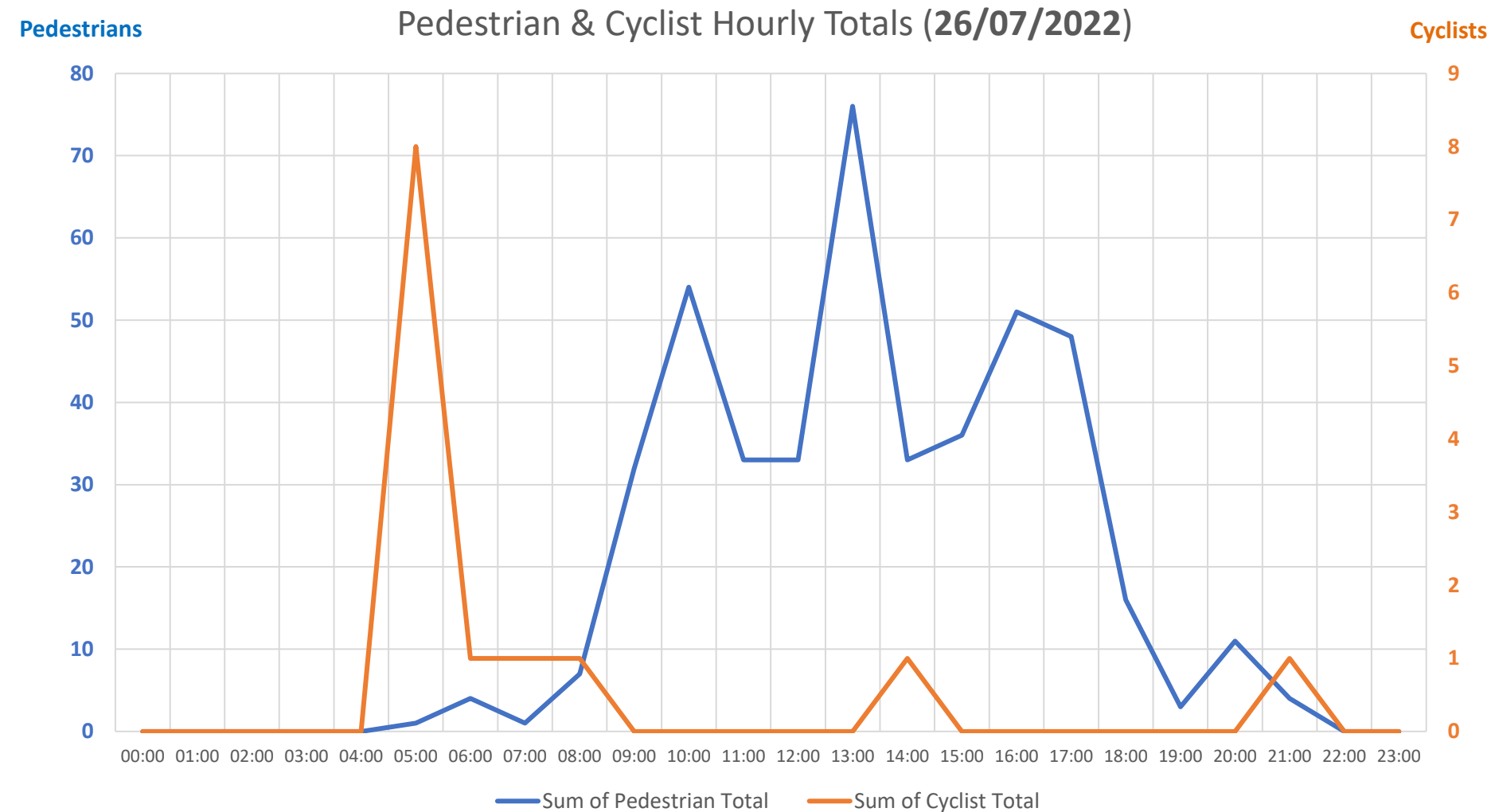


- The graph above shows the hourly pedestrian and cyclist counts on Tuesdays where no river freight trials took place. This serves as a baseline for the following hourly count and impact analysis on trial days (Tuesdays 26<sup>th</sup> July – 30<sup>th</sup> August 2022).
- Pedestrian counts usually peak around 10:00 (33) and slightly rise at 17:00 (19) again.
- Cyclist counts also usually peak at 17:00 (4) and 19:00 (3).

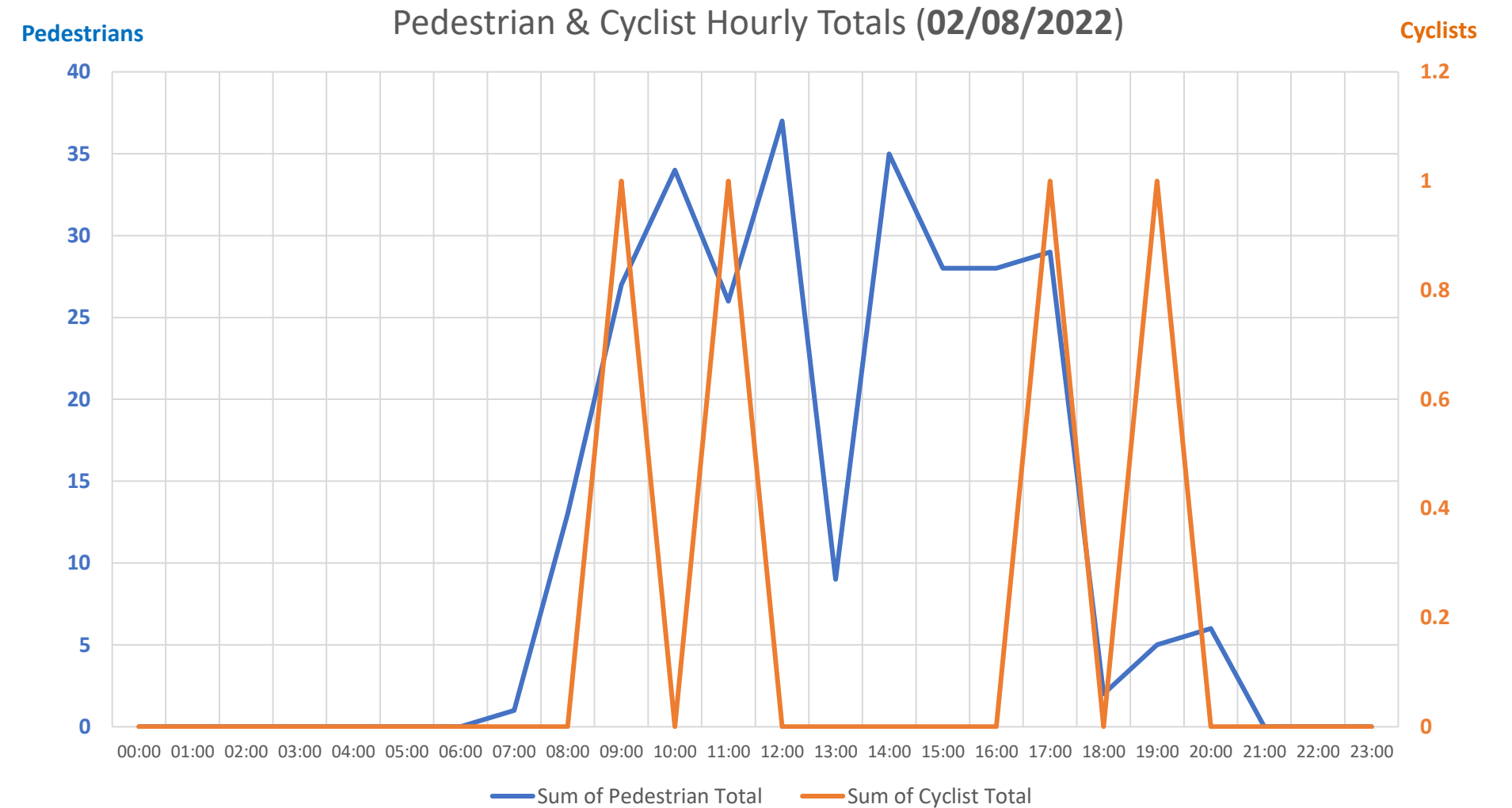


## River Freight Trial Impact Analysis: Pier Usage

### Active Travel Counts – Impact on Trial Days



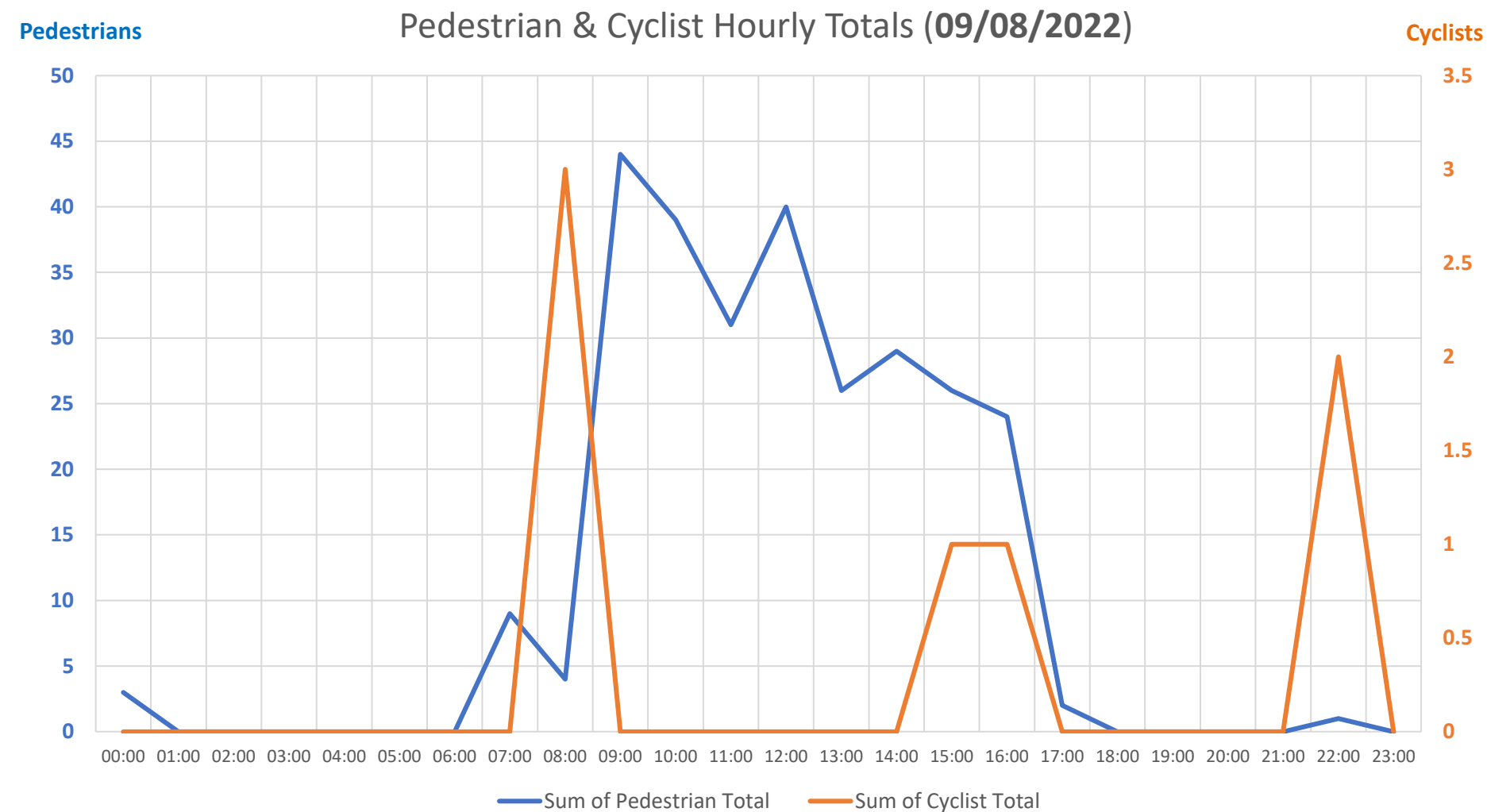
- The vessel on Tuesday, 26<sup>th</sup> July 2022, arrived at Woods Quay at around 14:00.
- Pedestrian counts peak at 13:00, possibly as staff and team members gathered and waited at the pier before the vessel arrived.
- Cyclist counts only slightly rise at 14:00 (1).



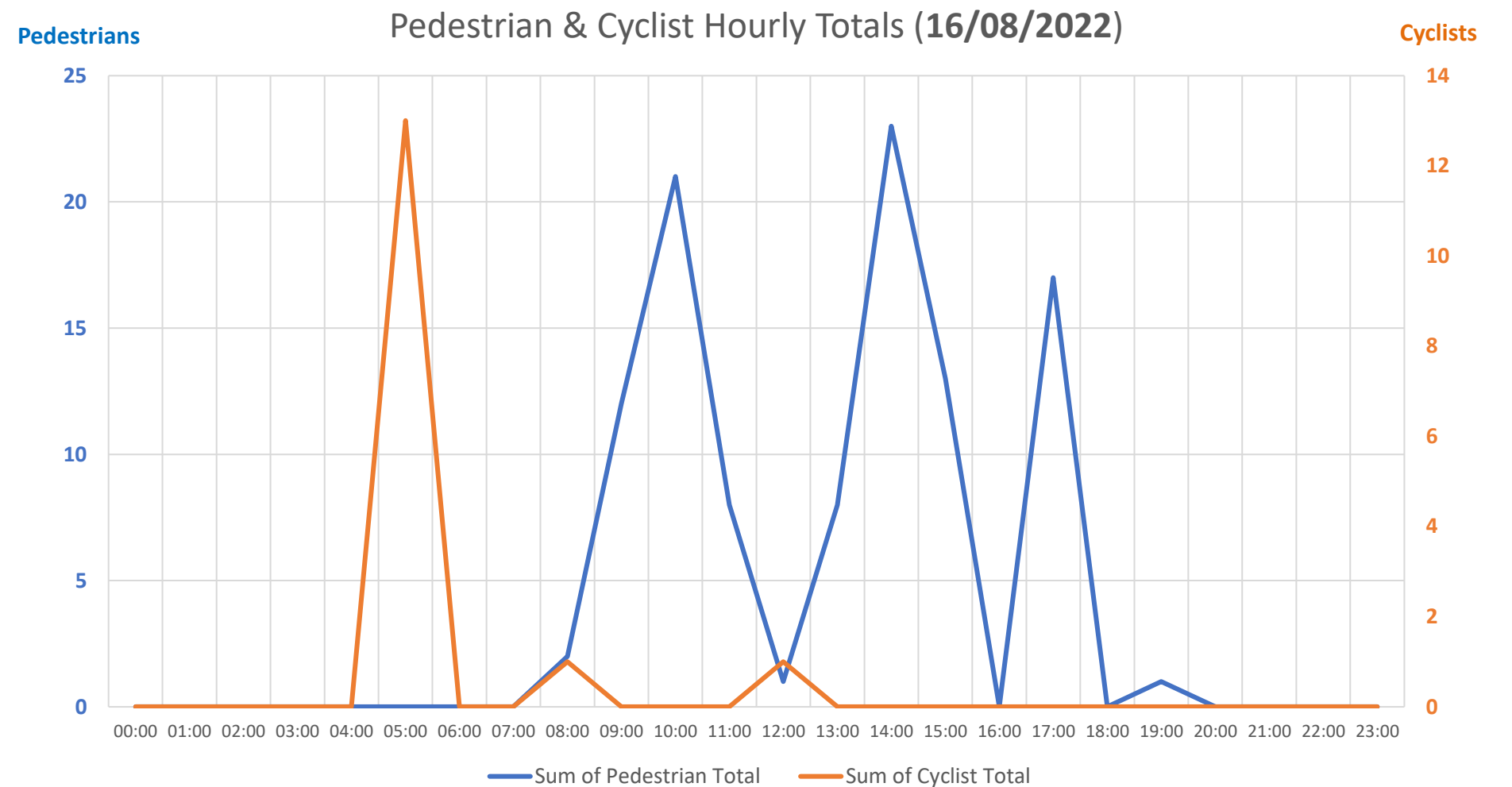
- The vessel on Tuesday, 2<sup>nd</sup> August 2022, arrived at Woods Quay at around 17:00.
- Pedestrian (29) and cyclist (1) counts are also slightly elevated at 17:00.

## River Freight Trial Impact Analysis: Pier Usage

### Active Travel Counts – Impact on Trial Days



- The vessel on Tuesday, 9<sup>th</sup> August 2022, arrived at Woods Quay at around 11:30.
- Pedestrian counts reach 31 at 11:00 and rise to 40 at 12:00.
- No cyclist movement was captured at this time.

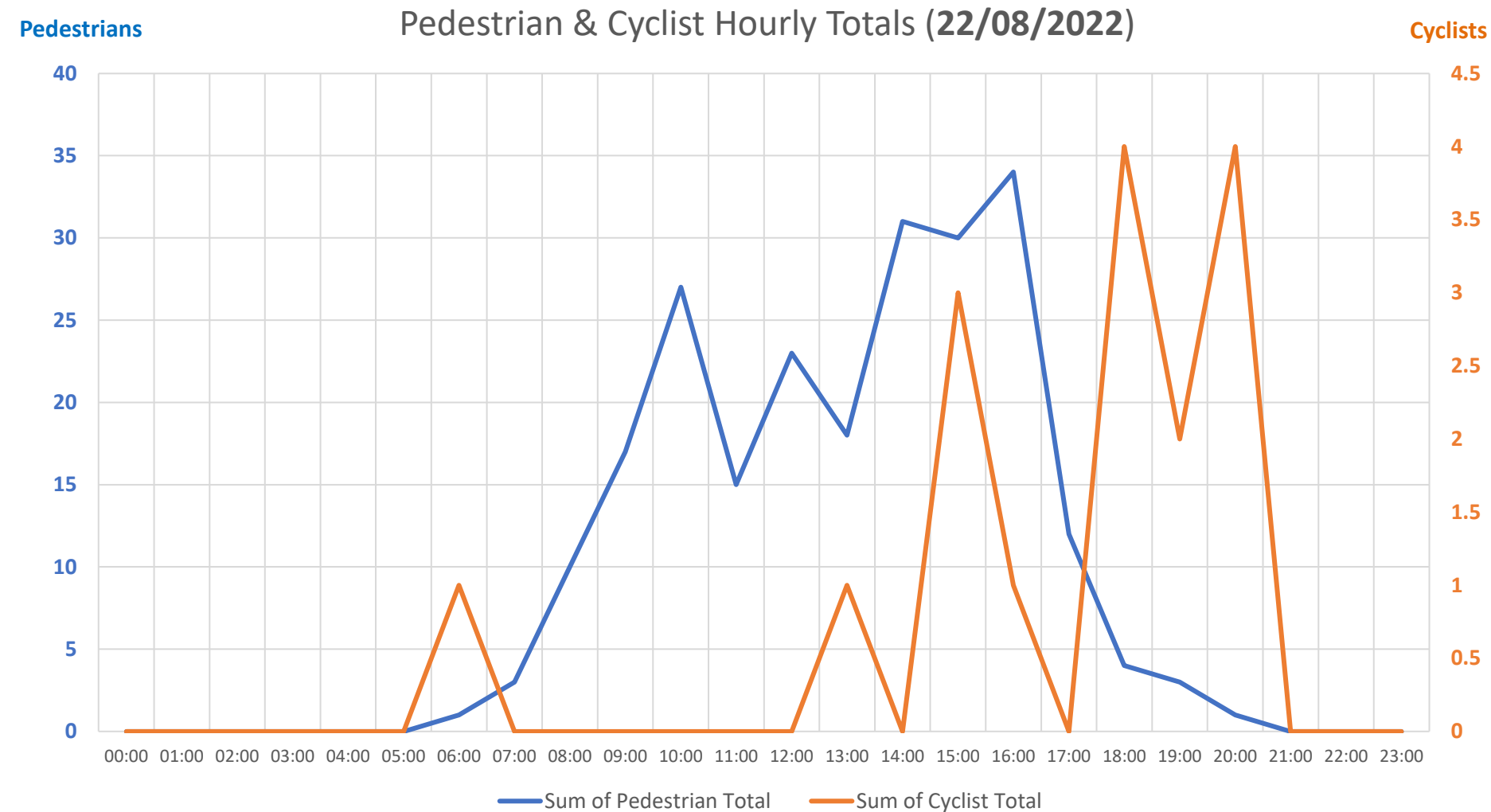


- The vessel on Tuesday, 16<sup>th</sup> August 2022, arrived at Woods Quay at around 17:30.
- Pedestrian counts rose to 17 at 17:00.
- No cyclist movement was captured at this time.

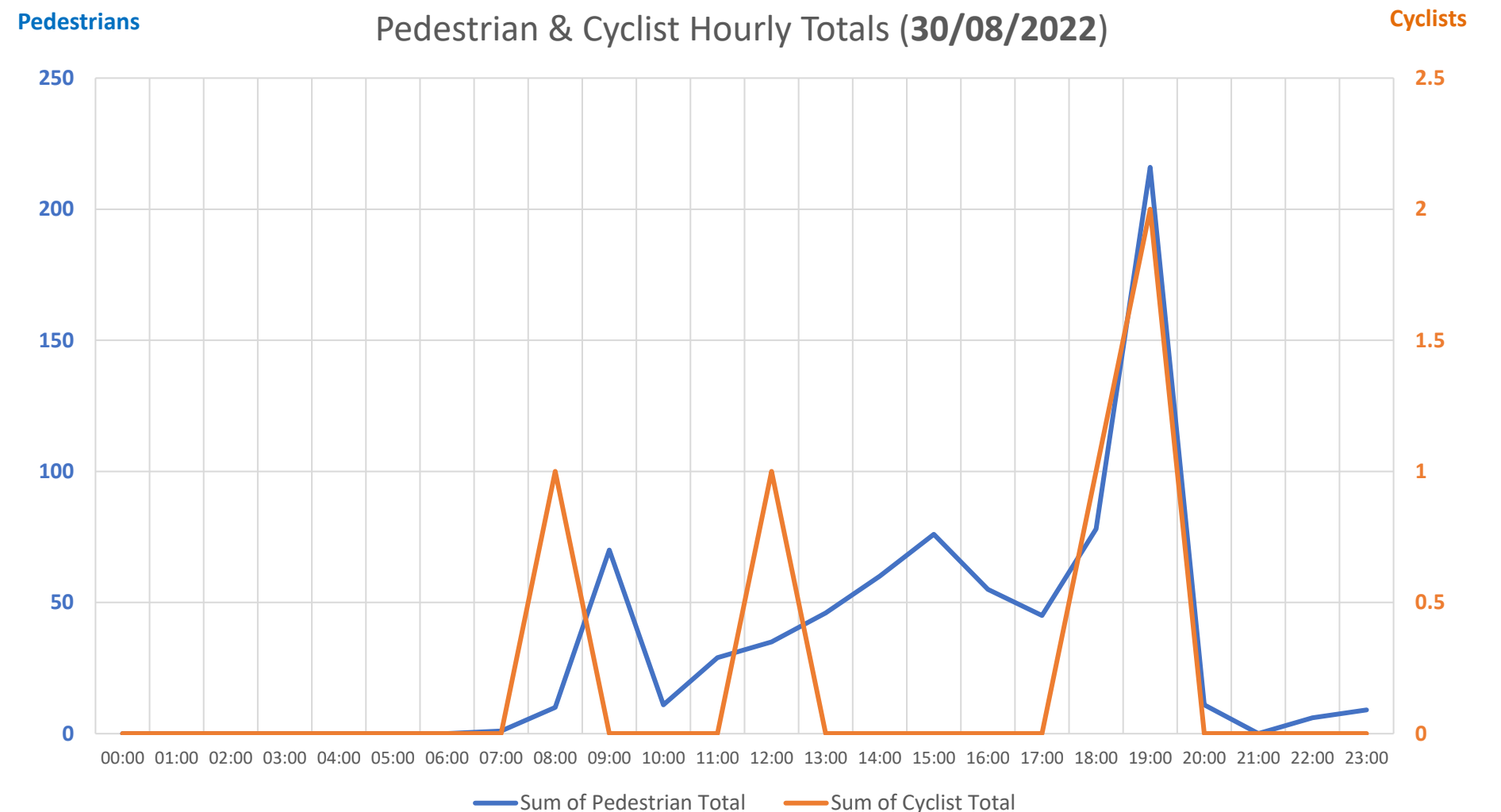


## River Freight Trial Impact Analysis: Pier Usage

### Active Travel Counts – Impact on Trial Days



- The vessel on Tuesday, 22<sup>nd</sup> August 2022, arrived at Woods Quay at around 10:30.
- Pedestrian levels rose to 27 at 10:00.
- No cyclist movement was captured at this time.



- The vessel on Tuesday, 30<sup>th</sup> August 2022, arrived at Woods Quay at around 16:30.
- Pedestrian counts rose slightly drop to 55 at 16:00, ahead of the vessel arriving.
- No cyclist movement was captured at this time.

## River Freight Trial Impact Analysis: Key Findings

The impact analysis shows that there has been a minimum impact of the river freight trial on the pier's usage, as seen in the table below. It is worth noting that after unloading the goods from the water vessel, these items were then usually wheeled from the pier up to the street level and loaded onto e-cargo bikes there.

	14:00 on 26 <sup>th</sup> July 2022	17:00 on 2 <sup>nd</sup> August 2022	11:30 on 9 <sup>th</sup> August 2022	17:30 on 16 <sup>th</sup> August 2022	10:30 on 22 <sup>nd</sup> August 2022	16:30 on 30 <sup>th</sup> August 2022
<b>Pedestrians</b>						
<b>Counts</b>	33	29	~ 31	~ 17	~ 27	~ 55
<b>Pattern</b>	Large Drop from 76	Small Rise from 28	Small Drop from 39	Small Rise from 0	Small Rise from 17	Large Drop from 76
<b>Cyclists</b>						
<b>Counts</b>	1	1	0	0	0	0
<b>Pattern</b>	Small Rise from 0	Small Rise from 0	N/A	N/A	N/A	N/A

## Benefits of the CRP River Freight Trial

In terms of other impacts, the River Freight Trial was also found to result in a number of positive environmental and operational benefits:

- 59 cargo bike miles travelled and thereby reduced congestion
- 78% savings in NOx
- 88% savings in CO2
- Improved time efficiency (the boat often arrived early)
- Positive feedback from stakeholders and clients

Read more about the trial here: [River Freight Pilot Case Study: Summer 2022](#)



# **Woods Quay**

## **Opportunities for Increased River Freight**

## Opportunities for Increased River Freight

### Analysis: Movement Onto & From the Pier

#### Days with lowest pedestrian and cyclist levels:

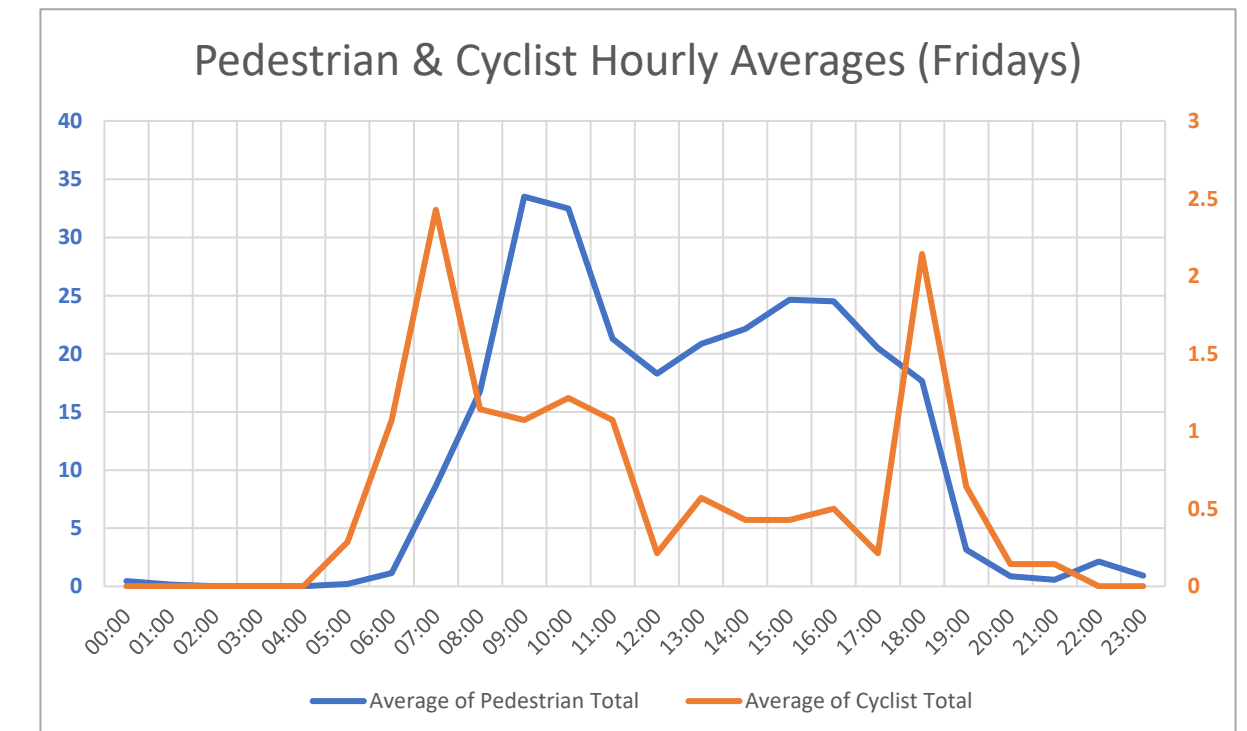
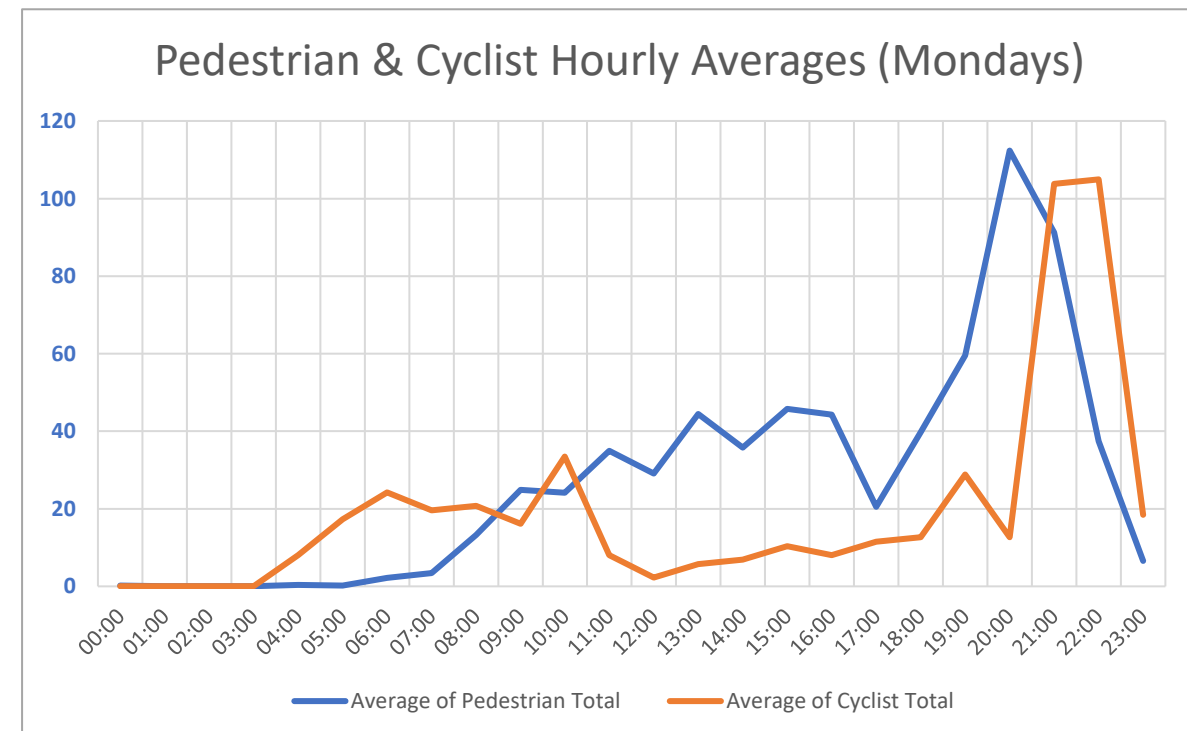
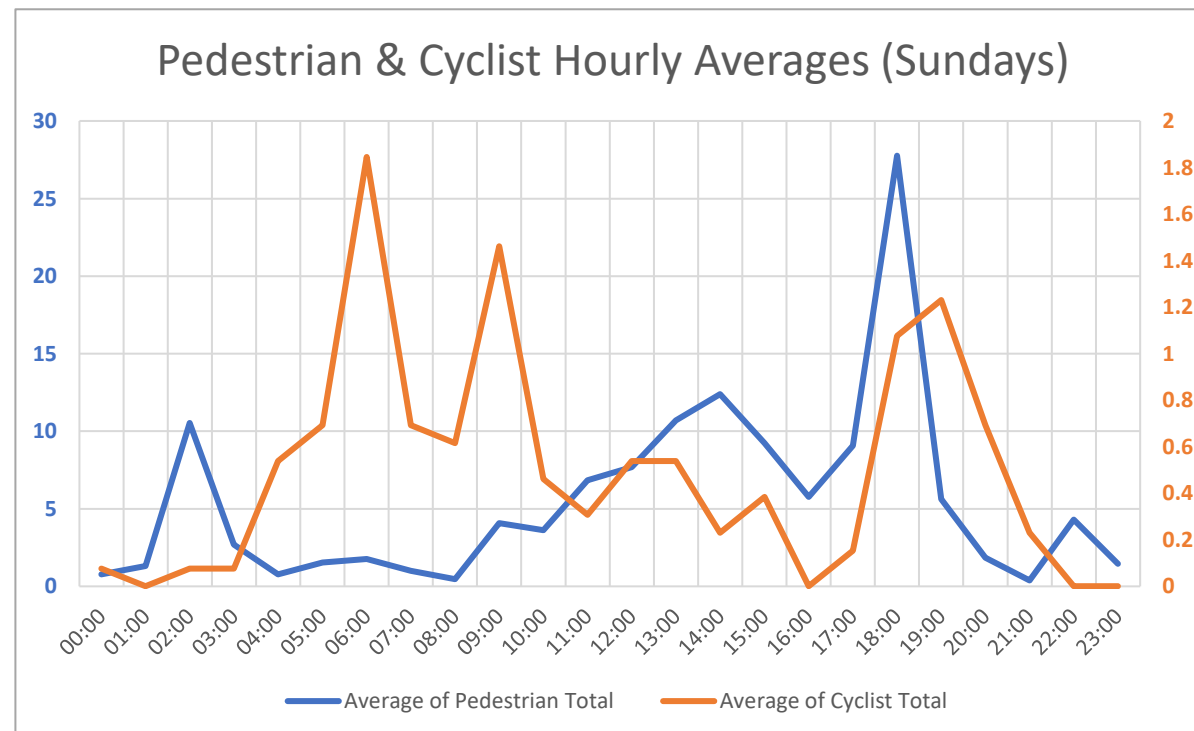
- Sundays (!)
- Mondays and Fridays during the work week

#### Hours with lowest pedestrian and cyclist levels on these days (see graphs below):

- Sundays: 20:00 – 05:00
- Mondays: 23:00 – 07:00
- Fridays: 19:00 – 06:00

#### Possible reasons for lowest user levels:

- Woods Quay is usually an event space, therefore most movement is concentrated during working hours and in the evening
- No Thames Clipper or public transport vessels arrive at this pier, which also explains the low counts in the early morning during morning commuting times





## Opportunities for Increased River Freight

### Pier Usage: Impact on River Freight Trial Days

- The data presented in this report's "River Freight Trial Impact Analysis" section shows that the river freight trial operations on Woods Quay had a minimal impact on the pier's usual functionality
- On days and times where the trial's vessel arrived at the pier to unload goods, there was often only a small increase in footfall
- Cyclist counts were often not affected, as the trial's electric cargo bike did usually not meet the vessel at the pier but rather at street level

#### Possible reasons for lowest user levels:

- River freight operations on Woods Quay only required a small amount of team members
- Electric cargo bike usually waited on street level and goods were manually transported from the pier to the electric cargo bike

### Testimonials from the CRP River Freight Trial

*"The river freight pilot was fantastic, no issues with deliveries and made a pleasant change to be able to interact with the delivery team. Our carbon footprint is important to Somerset House and being able to reduce this with a seamless reliable service was a win win for us."*

*- Susan Ryan, Cleaning Manager, Somerset House*

*"Good to see environmental sustainability being modelled and supported across the local community and across industries and sectors. We're keen to try to share knowledge and resources to work towards a greener London."*

*- Anneliese Davidsen, Director, Two Temple Place/Bulldog Trust*





## Opportunities for Increased River Freight

### Woods Quay

Pedestrian and cyclist counts at Woods Quay start decreasing in the evening (starting between 19:00 and 23:00) and remain low until the early morning (until between 05:00 and 07:00) when they offer an opportunity for potential river freight operations.

The proposed available days and times below could offer a good opportunity to drop off and/or pick up goods via the river in the evening and early morning to/from low-emission couriers on land. River freight operations have been proven to be more time efficient and environmentally friendlier than polluting van deliveries.

Timeslots overnight when river freight operations could take place:

- Sundays: 20:00 – 05:00
- Mondays: 23:00 – 07:00
- Fridays: 19:00 – 06:00

Currently, Woods Quay's event space is open from 09:00 to 02:00. These hours could either be extended or the pier owner could give selected couriers access onto Woods Quay by providing access codes, for example, to facilitate river freight operations from this location.

Overnight and early morning delivery time restrictions, as well as suitable loading / unloading areas for onward deliveries on land, would need to be discussed with the pier owner, landowner, local authority and other relevant parties.



*Entrance/Access onto Woods Quay (in blue)*



# **Woods Quay**

# **Data Accuracy & Precision**

**Data Accuracy and Precision**

The following table provides a summary of the sensor accuracy associated with the Woods Quay counts:

Sensor	Countline	Countline Name	Result	Vehicle accuracy (%)	Car Accuracy (%)	LGV Accuracy (%)	Bus Accuracy (%)	Bicycle Accuracy (%)	Pedestrian Accuracy (%)	Comments	Sensor Image
27	42943	s27_WoodsQuay_pierbridge_crp001	PASS						100.00		

**Data Collection & Anonymisation**

VivaCity sensors used as part of this project have been installed to analyse traffic, cyclist and pedestrian counts in addition. Each frame of video is deleted immediately after processing and only the anonymous traffic data is extracted from the video, transmitted and stored. All data received is completely anonymised.

**Data and Ownership**

All Intellectual Property associated with this data shall remain the property of Westminster City Council (Cross River Partnership) during and after the lifetime of the project.

**Further Information**

Please contact CRP Senior Programme Manager Fiona Coull ([fionacoull@crossriverpartnership.org](mailto:fionacoull@crossriverpartnership.org)) or CRP Project Manager Isidora Rivera Vollmer ([isidorariveravollmer@crossriverpartnership.org](mailto:isidorariveravollmer@crossriverpartnership.org)). Visit our Clean Air Logistics for London (CALL) project page [here](#). Additionally, you can find out more about CRP on our webpage: [www.crossriverpartnership.org](http://www.crossriverpartnership.org).