July 2023

# Pier Usage Analysis

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

Department for Environment Food & Rural Affairs

CROSS RIVER PARTNERSHIP
CLEAN AIR LOGISTICS FOR LONDON

VIVA CITY

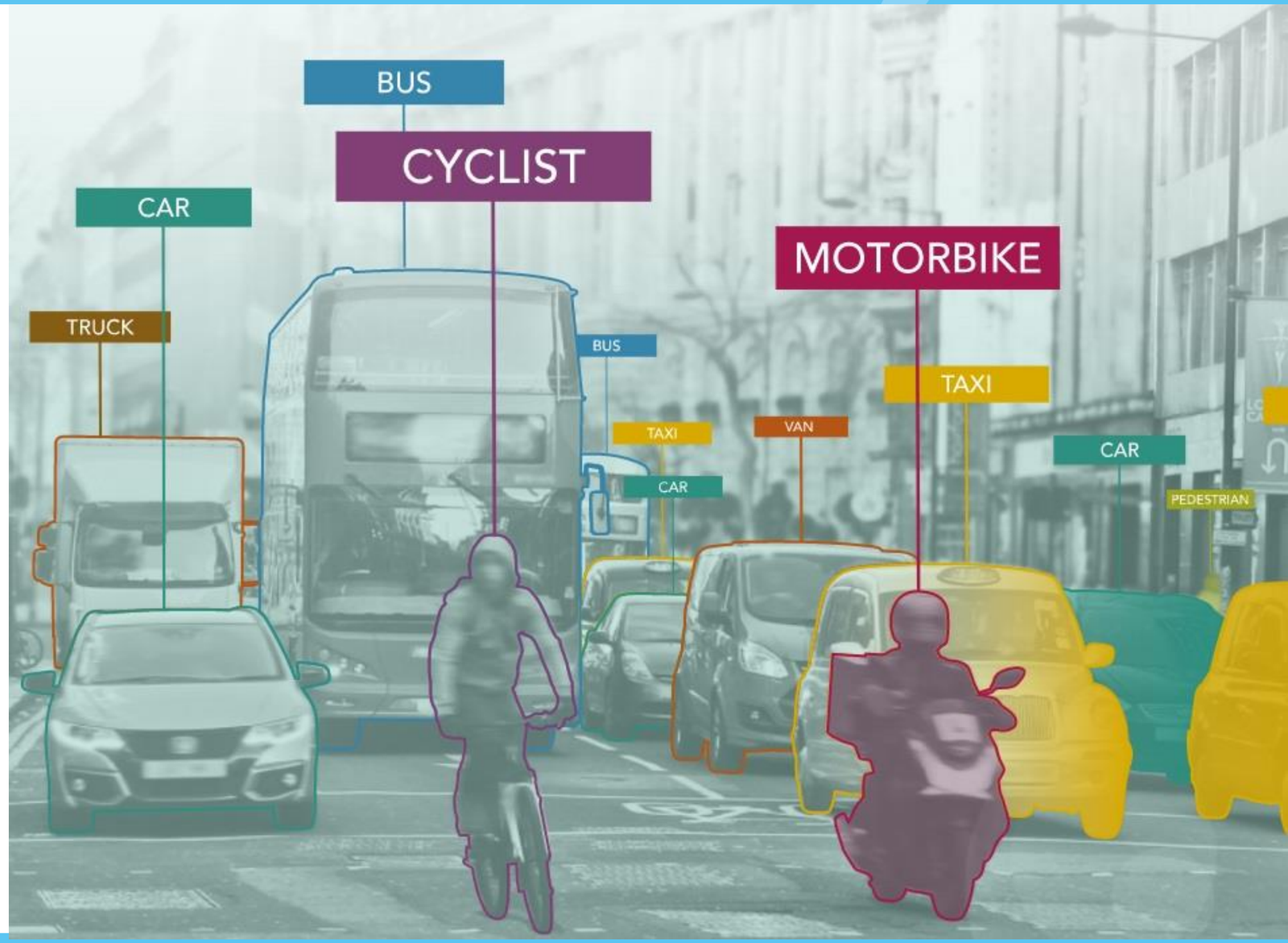
Southwark Council
southwark.gov.uk

# Greenland (Surrey Quays) Pier
## VivaCity Sensors




## Contents





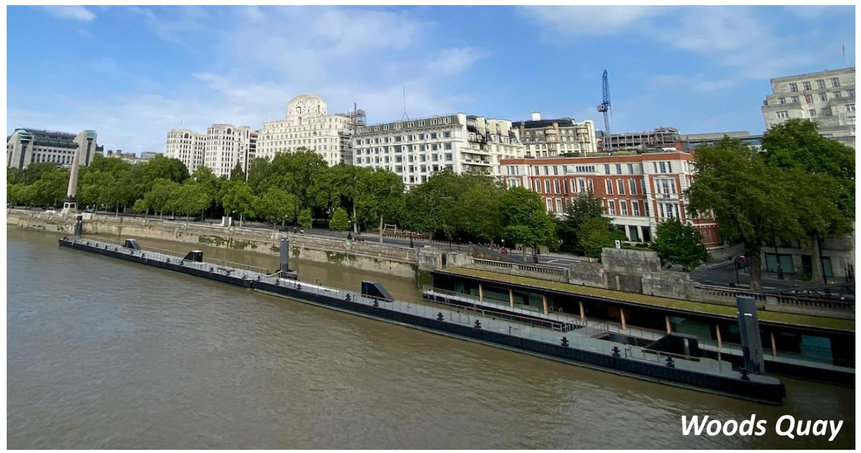
# Pier Comparisons
# Opportunities for Freight

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

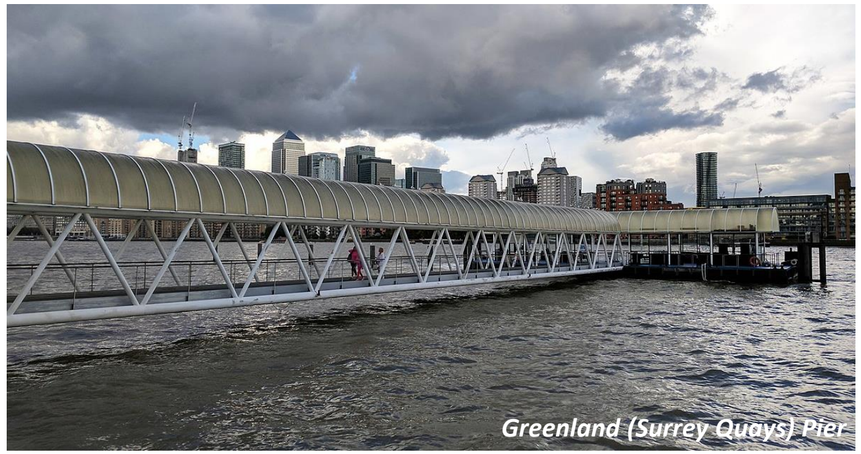
- Woods Quay, located in the City of Westminster, is a privately owned space and pontoon. It is mostly used as an event space and mooring for Woods' Silver Fleet river vessels. Woods Quay is accessible to pedestrians via two steep ramps from Victoria Embankment that lead to the Cormorant Deck and pontoon. Woods Quay links to the A3211 (Victoria Embankment) as well as the Cycleway 3.

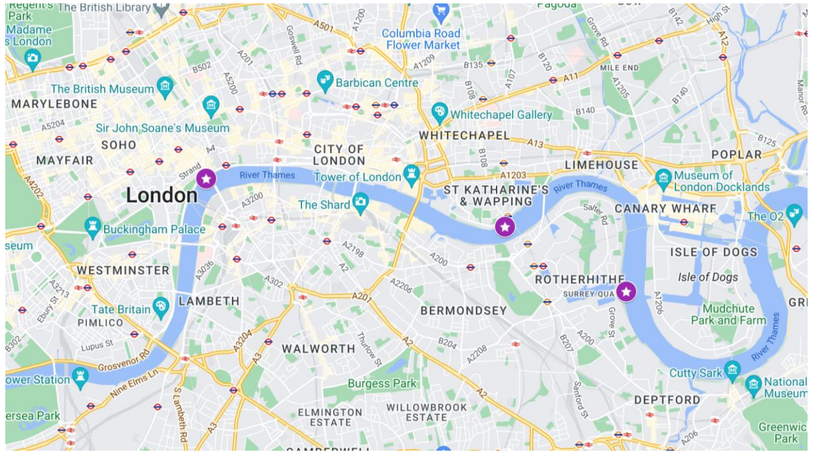
- Wapping Pier, located in the London Borough of Tower Hamlets, is a privately owned pier with no passenger services or events spaces. It is accessible to pedestrians via a walkway (called King Henry's Stairs) leading to the pier. The pier links to Wapping High Street but to no listed London Cycleways.

- 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.

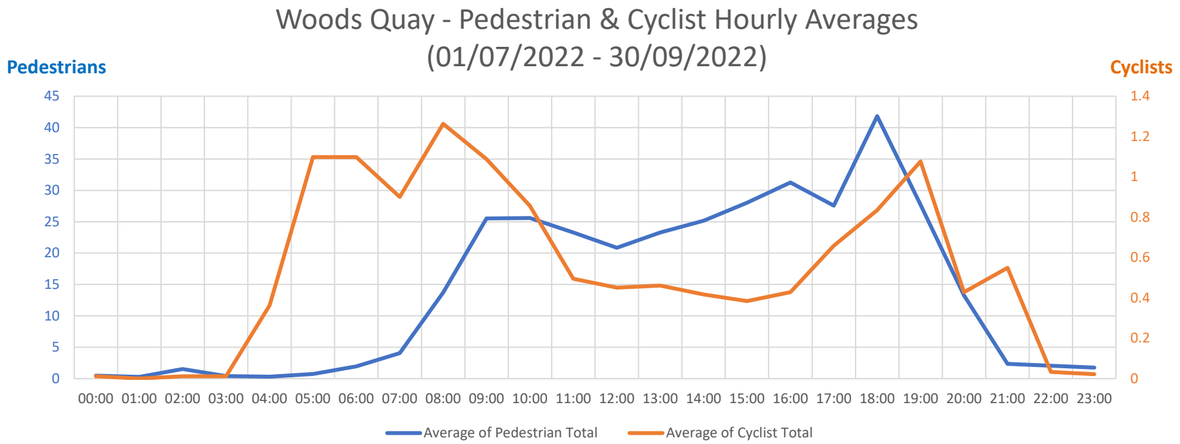

*Woods Quay*

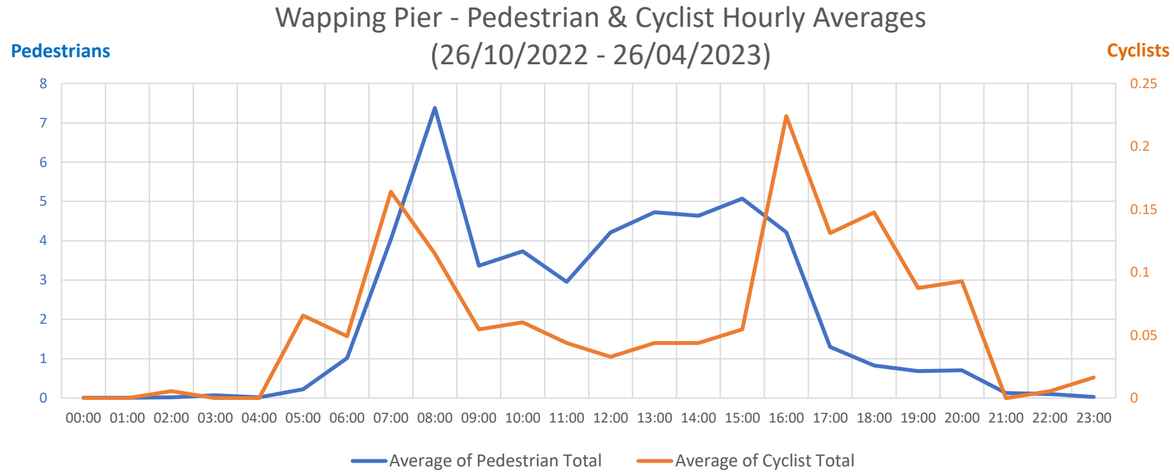

*Wapping Pier*

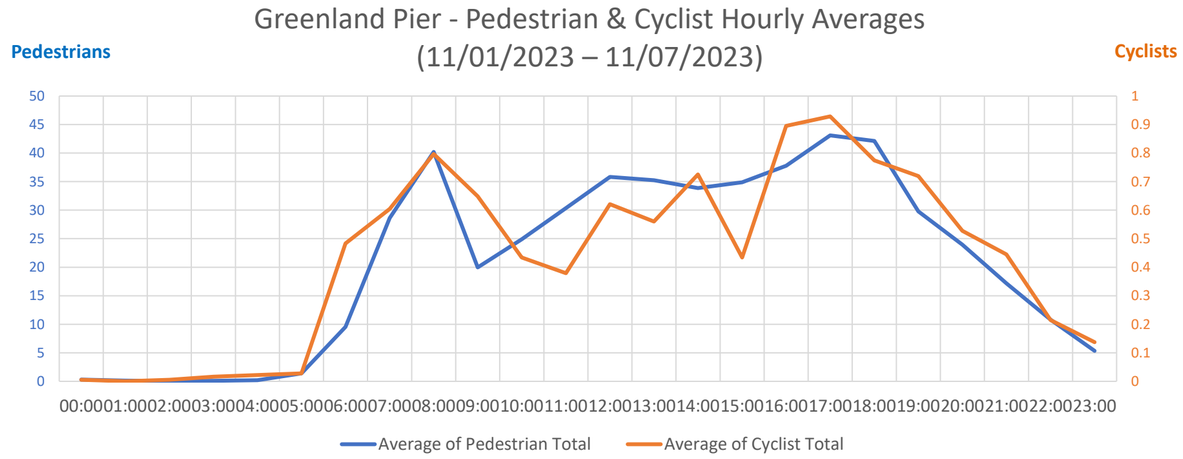

*Greenland (Surrey Quays) Pier*



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




- 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:**

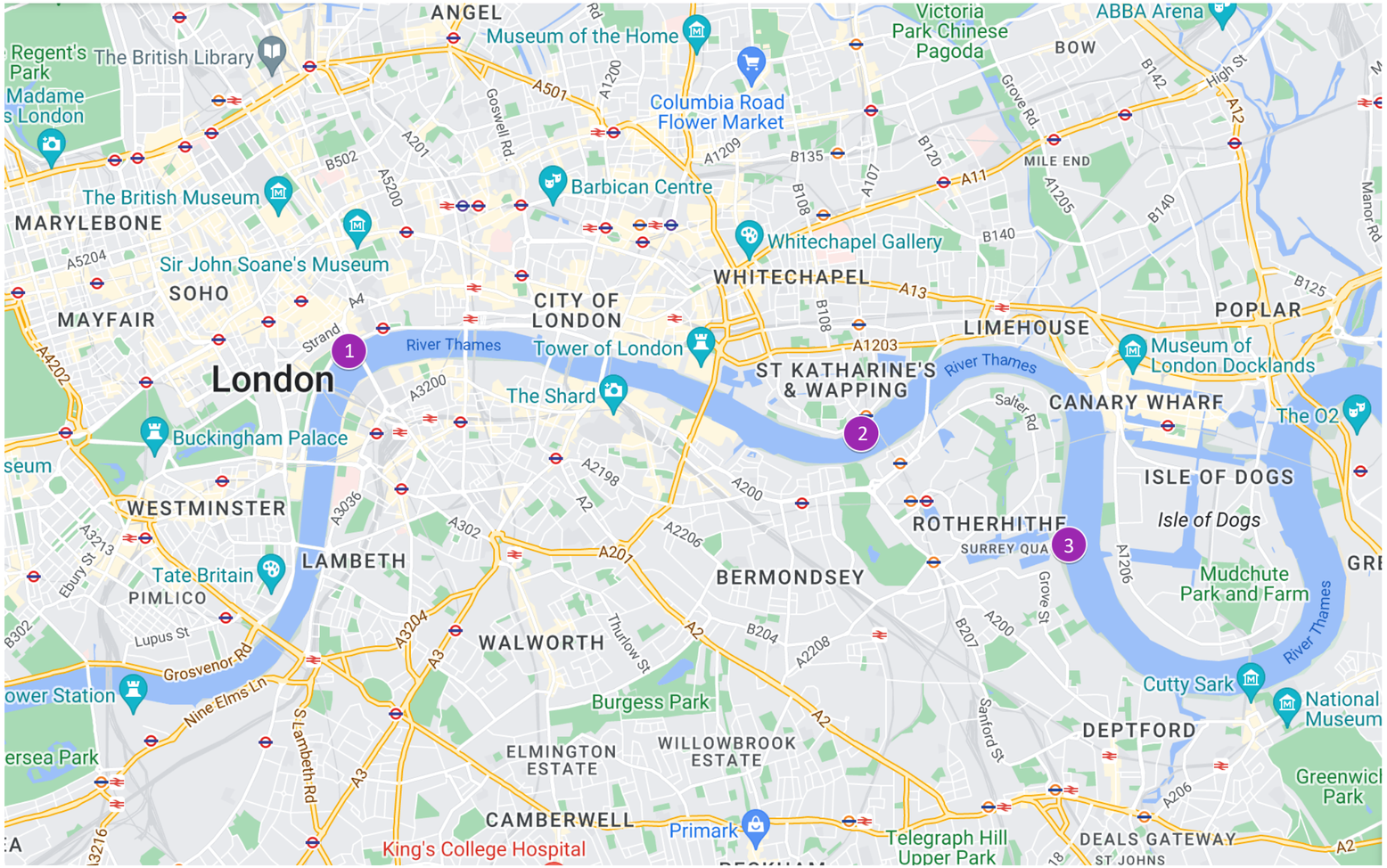
- *Wapping High Street (near pier):*
  Active Travel
  - Mondays to Thursdays: 21:00 – 06:00

  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



# Greenland (Surrey Quays) Pier
# Introduction

# Greenland (Surrey Quays) Pier
## VivaCity Sensors



## 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 6-month monitoring period are detailed in the table below (note this is a daily average across all count lines):

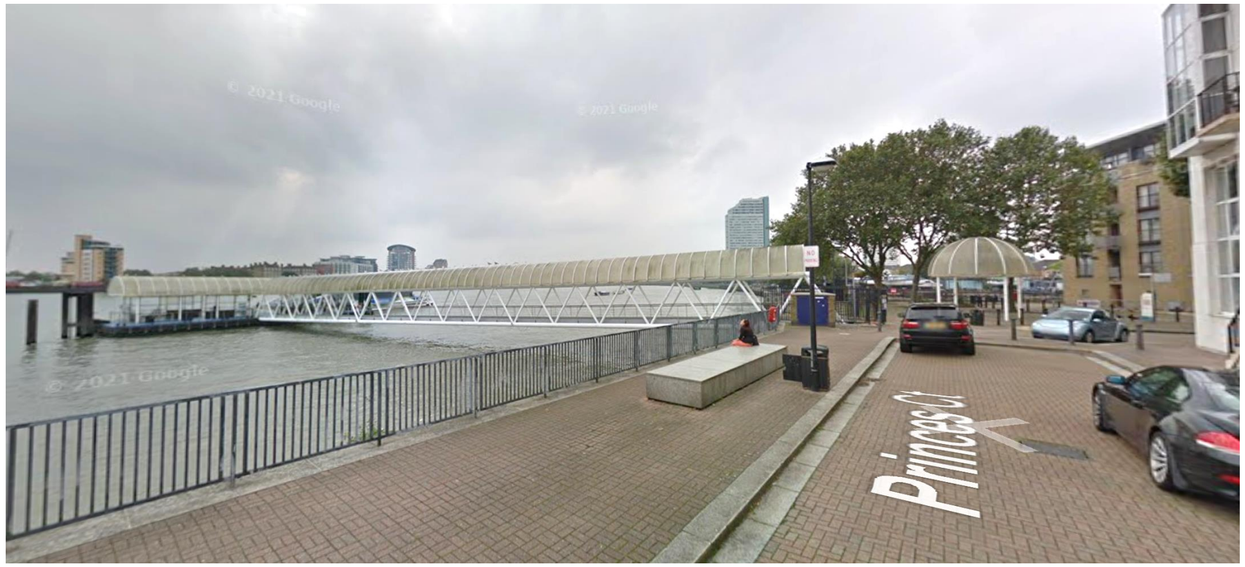
| | | Greenland Pier | Princes Court |
|---|---|---|---|
| | Mode Type | Average Daily Count | Average Daily Count |
| Motor Vehicles | Articulate (OGV2) | N/A | 0.19 |
| | Bus | N/A | 0.08 |
| | Car | N/A | 29 |
| | Motorcycle | N/A | 13 |
| | Truck (OGV1) | N/A | 1 |
| | Van (LGV) | N/A | 14 |
| Active Travel | Pedestrian | 506 | 1,517 |
| | Cyclist | 10 | 318 |

## Monitoring Assumptions and Limitations

<u>Classified Counts:</u>
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.

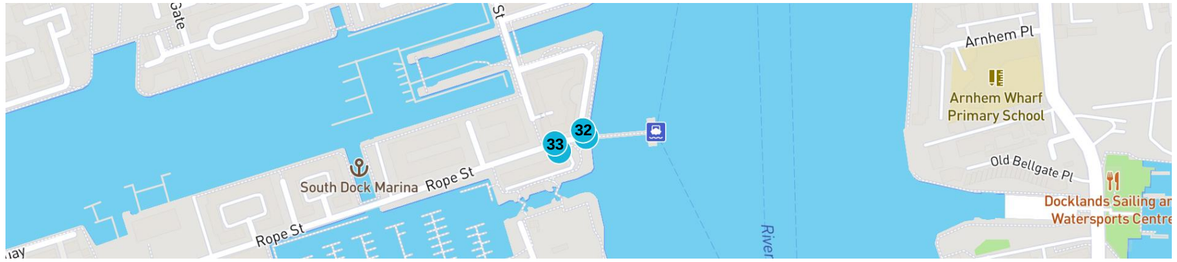


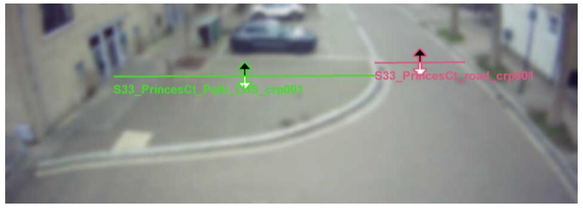
# Greenland (Surrey Quays) Pier
## VivaCity Sensors



## Sensor Location and Context

The VivaCity sensors (32 and 33) are located on Princes Court, near the entrance to Greenland (Surrey Quays) Pier. There are four count lines, as indicated below: one by the pier's entrance, one at the end of Princes Court facing the River Thames, and two sensors monitoring Princes Court facing Rope Street. Thames Clippers passenger services, RB1 and RB6, call at this pier, which also links to Cycleway 14.





## Key Findings

Key findings from the 6-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 and www.timeanddate.com.

- **Passenger Services**
  - Greenland (Surrey Quays) Pier is a passenger pier, with Thames Clippers river bus services, RB1 and RB6, calling here.
  - River Bus services usually run with an approximate 30-minute frequency from this pier, is accessible, and can accommodate up to 14 bicycles

- **Summary & Opportunities:**
  - On Greenland Pier, pedestrian and cyclist counts show that people don't tend to use the river bus service for their commute to work during the work week. Instead, counts rise on weekends, when people use the river bus service for leisure purposes. Counts drop late at night until the early morning, when the Thames Clippers river bus service is not in operation.
  - On Princes Court near the pier, active travel, as well as car and motorbike counts remain low during most of the work week, indicating that more people pass through the area on weekends for leisure, rather than on their commute to work. This could also be due to the number of narrow roads, bridges, and dead ends in this area. van, truck, articulate, and (private) bus counts are lowest on weekends, as these type of motor vehicles are usually used for works and deliveries in the local area.

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

  - *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

# Greenland (Surrey Quays) Pier
# Passenger Services

# Greenland (Surrey Quays) Pier
## VivaCity Sensors



## Passenger Services

### Thames Clippers River Bus Service Patterns

**Westbound RB1 and RB6 departures towards Westminster and Battersea Power Station:**

| | First boat | Last boat |
|---|---|---|
| **Weekdays** | 05:46 | 21:57* |
| **Weekends** | 08:58 | 21:48** |

** Goes to Westminster and turns around to continue Eastbound.*
*** Ends at Battersea Power Station*

**Eastbound RB1 and RB6 departures towards Greenwich, North Greenwich and Barking Riverside:**

| | First boat | Last boat |
|---|---|---|
| **Weekdays** | 08:12 | 23:17 |
| **Weekends** | 10:15 | 23:29 |

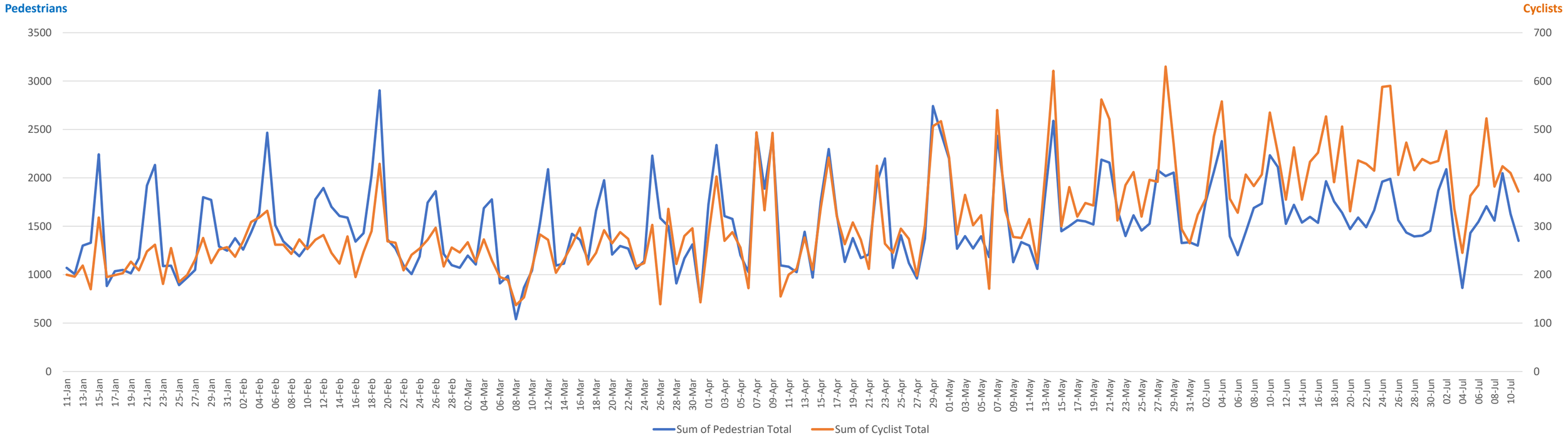
**Other relevant information:**

- River Bus services usually run with an approximate 30-minute frequency from this pier.
- This pier is accessible.
- Thames Clippers vessels can accommodate up to 14 bicycles on a first-come, first-served basis. There's no extra charge for bringing a bicycle on board but passengers are not able to reserve a space.
- Greenland Pier is on Cycleway 14 (C14).
- Surrey Quays on the London Overground is the nearest rail station to Greenland Pier and is a 20-minute walk beside Greenland Dock.
- Ongoing bus and taxi travel are both available from Downtown Road & towards the Surrey Quays.

# Pier Usage Analysis
# Movement around the Pier

## Analysis: Movement Around the Pier (Princes Court)

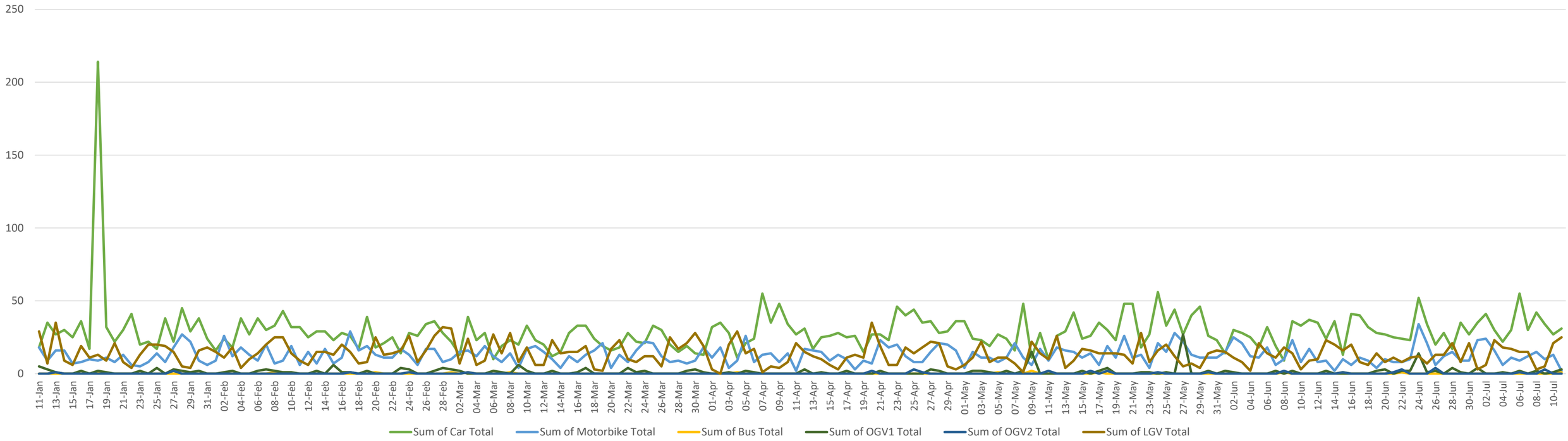
### Active Travel Counts – Totals




- Overall, pedestrian levels are higher than cyclist counts on Princes Court throughout the 6-month monitoring period.
- The highest pedestrian count occurred on Sunday, 19th February 2023 (2,904), likely due to the sunny weather and this being the last day of spring half term.
- Cyclist levels tend to increase throughout the monitoring period as temperatures start rising in the spring and summer. The highest cyclist count can be seen on Sunday, 28th May 2023 (630), which can be attributed to the next day being a bank holiday and more people cycling through the area for leisure.

## Analysis: Movement Around the Pier (Princes Court)

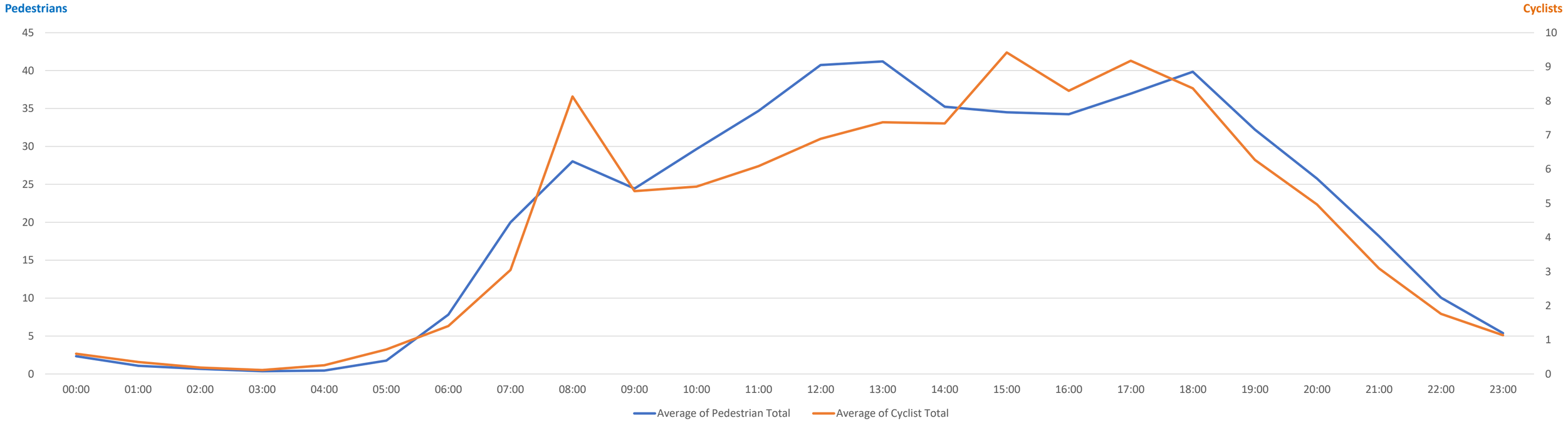
### Motor Vehicle User Counts – Totals




- Car counts are the highest of all vehicular modes throughout the 6-month monitoring period on Princes Court, followed by vans, and motorbikes. Truck and articulate levels as well as bus counts remain low. There is no TfL public bus route which passes along this road, which means that most of the recorded buses are likely to be private bus / coach services.
- All motor vehicle counts don't usually surpass more than 56 counts per day.
- The highest car numbers can be observed on Wednesday, 18th January 2023 (214). However, the data shows that the sharp increase occurred at 21:00 and could be due to cars stopping or parking on the sensor count line, resulting in multiple counts being created for a single vehicle.

# Analysis: Movement Around the Pier (Princes Court)

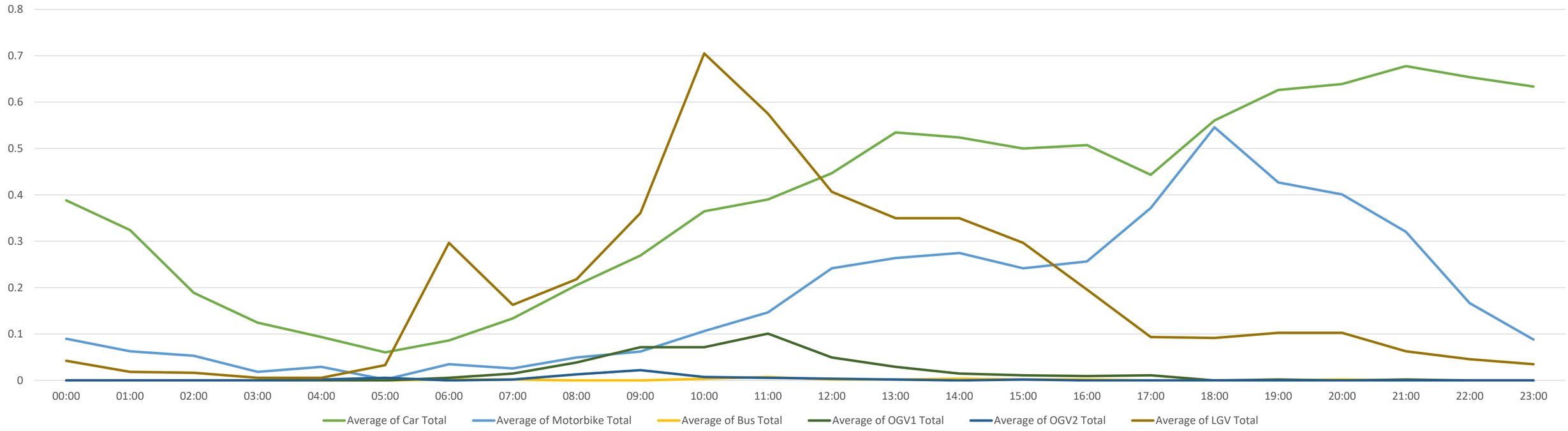
## Active Travel Counts – Hourly Averages




- Hourly average pedestrian and cyclist counts on Princes Court over the 6-month monitoring period follow a similar pattern.
- Counts start rising from 04:00 onwards until rising at 08:00 (28 pedestrians and 5 cyclists), after which values slightly drop and start increasing again. Hourly average cyclist levels peak at 15:00 (9) and 18:00 (9), likely caused by school pick-up and evening commuting times. Pedestrian counts peak at 13:00 (41) and 18:00 (40), during lunchtime and evening commuting times. Values start falling after the evening peaks and remain low until 03:00.

## Analysis: Movement Around the Pier (Princes Court)

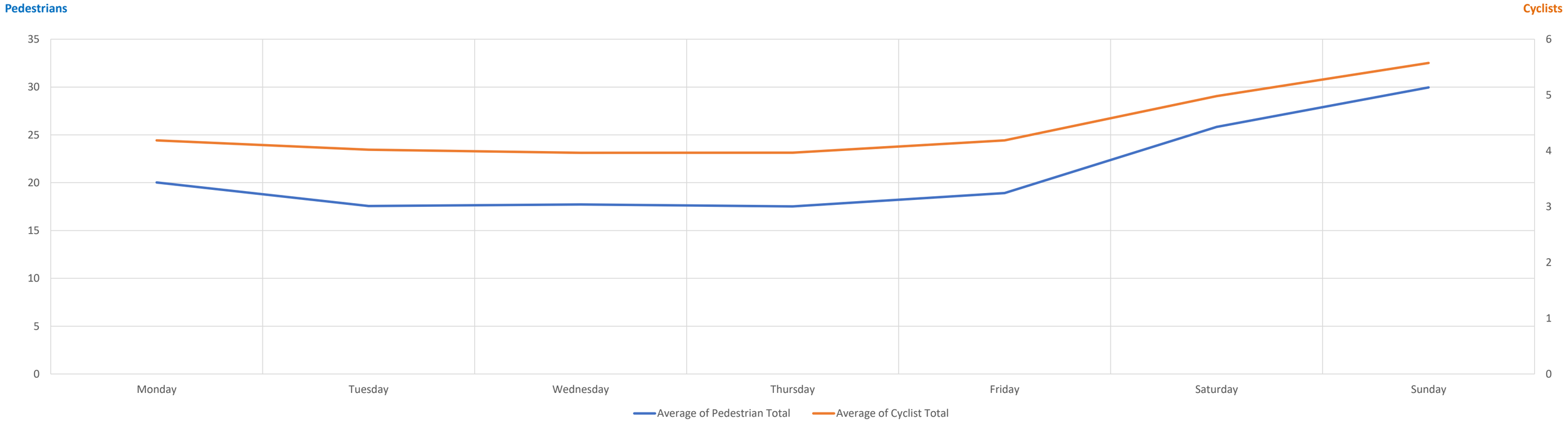
### Motor Vehicle Counts – Hourly Averages




- Overall, there is limited motor vehicle movement and mostly counts under 1 vehicle per hour on average throughout the day.
- All hourly average motor vehicle counts start rising from 04:00 and 05:00 onwards.
- Hourly average car and motorcycle counts rise in the evening, likely due to evening commuting, as well as hot food deliveries and ride hailing / taxi pick-ups in the evening.
- Van levels rise around 10:00, possibly due to an increase in deliveries to this residential area in the morning.

# Analysis: Movement Around the Pier (Princes Court)

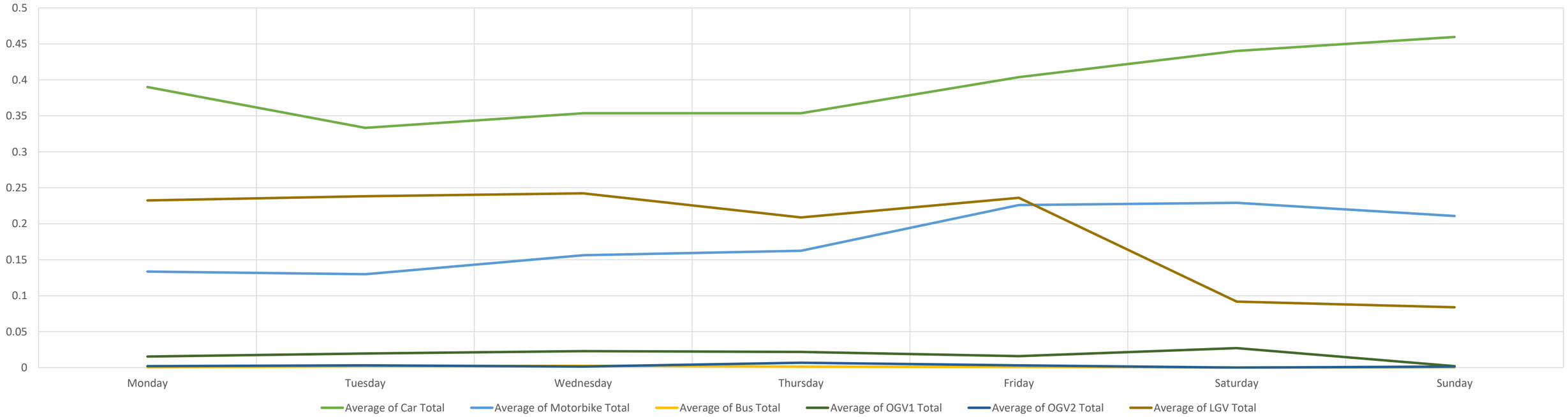
## Active Travel Counts – Weekday Averages




- The graph summarises the average pedestrian and cyclist counts per weekday, based on the 6-month monitoring data.
- Average pedestrian and cyclist counts tend to start increasing on Tuesdays, and rise on weekends, peaking on Sundays and then decreasing on Mondays.
- This pattern could be attributed to more people walking or cycling in the area in their free time on weekends, especially on Sundays, rather than on weekdays between Mondays to Fridays.

## Analysis: Movement Around the Pier (Princes Court)

### Motor Vehicle Counts – Weekday Averages

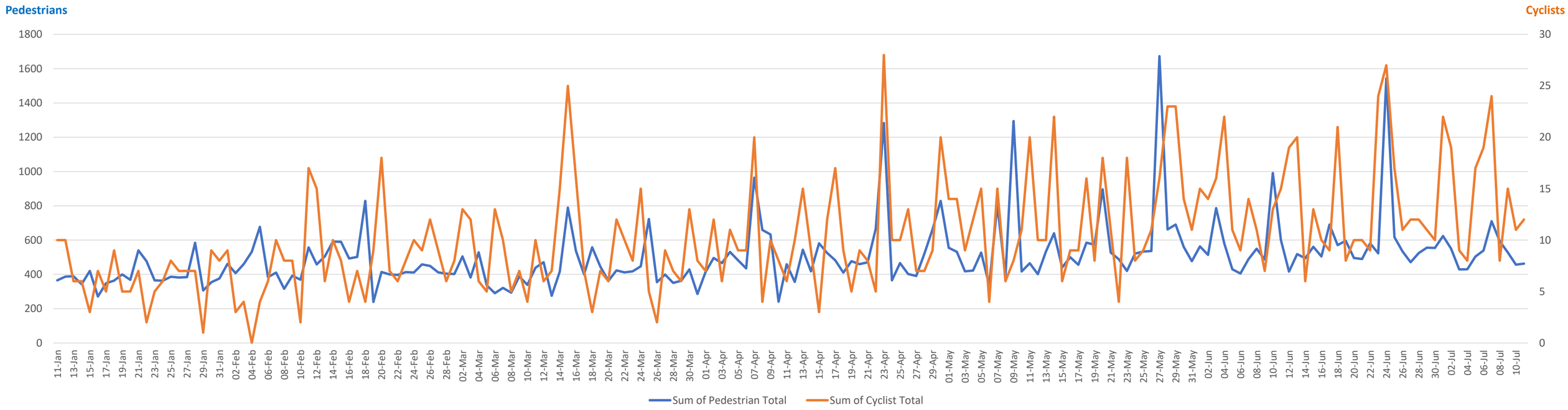



- The graph summarises the average motor vehicle counts per weekday, based on the 6-month monitoring data.
- Average car counts start increasing on Tuesdays, before rising on weekends, peaking on Sundays and decreasing on Mondays again. This could be due to increased traffic and activities in the local area on weekends. Motorbike counts follow a similar pattern but peak on Saturdays.
- Van counts are relatively steady from Monday to Friday but drop on weekends, as some couriers, such as Royal Mail, often reduce their delivery operations on weekends.
- All other motor vehicle counts remain low throughout the week.

# Pier Usage Analysis
# Movement onto & from the Pier

# Analysis: Movement Onto & From the Pier

## Active Travel Counts – Totals



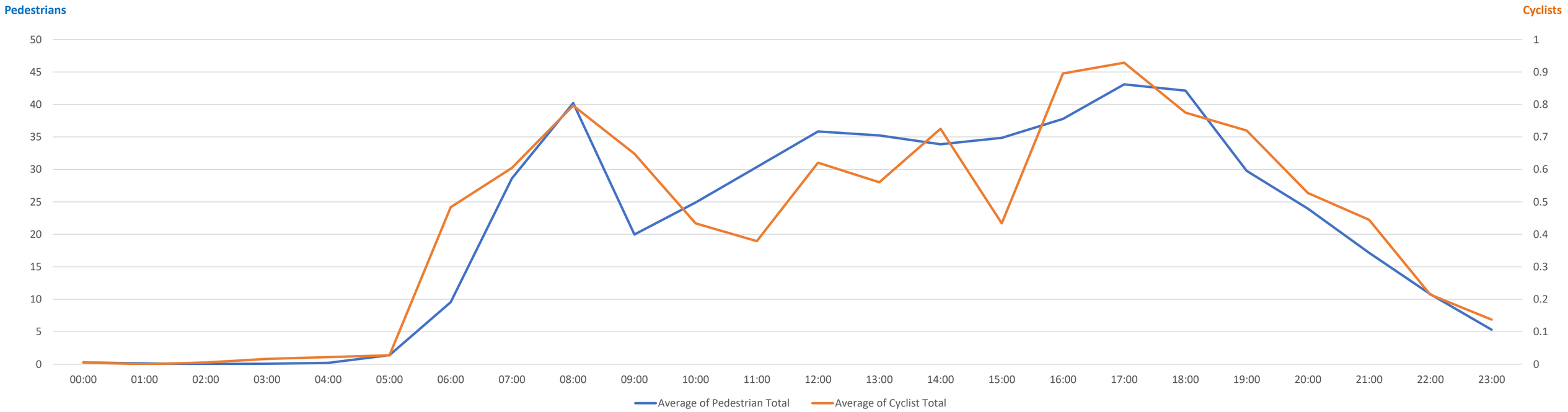

- On Greenland Pier, pedestrian levels are much higher than cyclist counts throughout the 6-month monitoring period.
- As a general trend, daily pedestrian counts remain above 200 and below 1,700. Daily cyclist levels remain below 30, as only a limited number of bicycles usually fit onto river vessels.
- The highest number of pedestrians on Greenland Pier can be seen on Saturday, 27th May 2023 (1,673), which can be attributed to this being a bank holiday weekend and more people using the Thames Clippers river bus service for leisure.
- The highest cyclist counts occurred on Sunday, 23rd April (28) 2023 in the morning, possibly as cyclists bring their bicycles on board the river vessels to cross the river to complete their personal journeys or trips to watch the London Marathon in the local area.

# Greenland (Surrey Quays) Pier
## VivaCity Sensors



## Analysis: Movement Onto & From the Pier

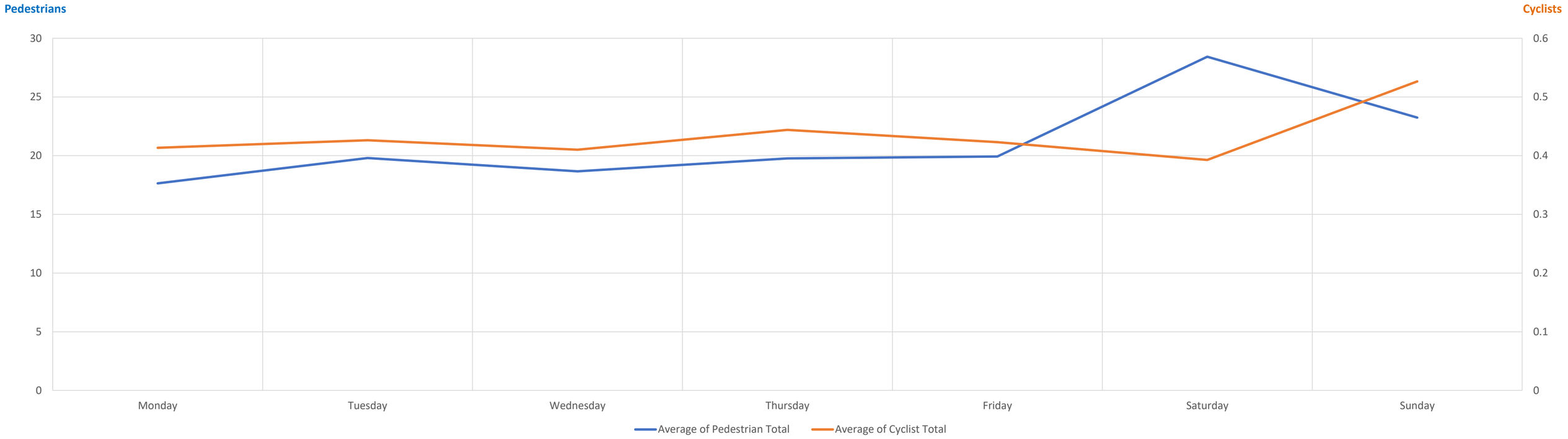
### Active Travel Counts – Hourly Averages




- Hourly average pedestrian and cyclist counts both have a morning and evening peak, which are likely caused by morning and evening commuting and journeys on Thames Clipper river bus services.
- Pedestrian levels start increasing at 04:00, rising at 08:00 (40), before slightly dropping and then peaking between 17:00 (43) and 18:00 (42). Footfall levels then decrease from 19:00 onwards and remain low between 00:00 and 03:00.
- Overall, hourly average cyclist counts are very low, never surpassing more than 1 cyclist throughout the monitoring period.
- Cyclist counts start increasing from 05:00, and peaking at 08:00 and 17:00, before slowly decreasing from 18:00 onwards and remain low between 00:00 and 03:00.

# Analysis: Movement Onto & From the Pier

## Active Travel Counts – Weekday Averages




- The graph summarises the average pedestrian and cyclist counts per weekday on Greenland Pier, based on the 6-month monitoring data.
- Pedestrian and cyclist counts over the 6-month monitoring period follow a similar pattern in terms of weekday averages from Mondays to Thursdays.
- Pedestrian counts start rising on Fridays, peaking on Saturdays (average of 28 pedestrians) and decreasing on Sundays again.
- Cyclist counts decrease on Fridays, dropping on Saturdays and peaking on Sundays (0.5).

# Greenland (Surrey Quays) Pier Opportunities for Increased River Freight

# Opportunities for Increased River Freight

## Analysis: Movement Around the Pier (Princes Court)

**Weekdays with lowest road user levels:**

- Active Travel Counts: Monday to Thursday
- Motor Vehicle Counts: Tuesday to Thursday (however, less than 1 all week)
  - *Cars & Motorbikes (highest counts): Tuesday to Thursday*
  - *Vans & all Other Vehicles (very low counts): Saturday to Sunday*

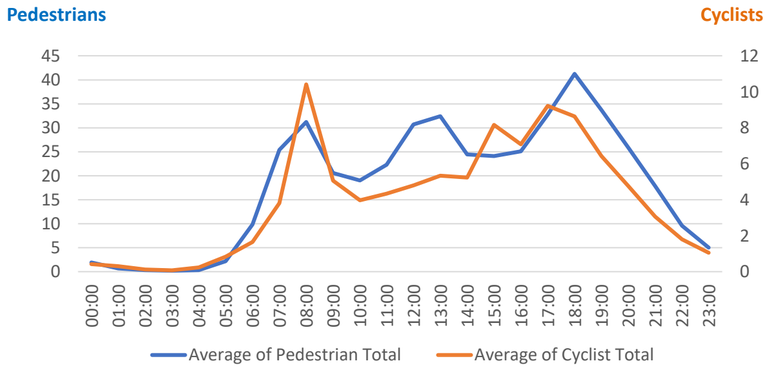
**Hours with lowest road user levels on these days (see graphs below):**

- Active Travel Counts: 22:00 – 06:00
- Motor Vehicle Counts: 00:00 – 09:00 (based on overlap below)
  - *Cars & Motorbikes: 00:00 – 09:00 (less than 1 count all day)*
  - *Vans & all Other Vehicles: 20:00 – 09:00 (less than 1 count all day)*

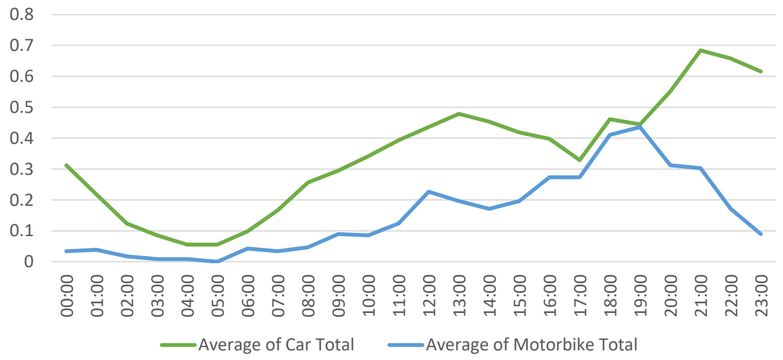
**Possible reasons for lowest user levels:**

- Active travel, as well as car and motorbike counts remain low during most of the work week, indicating that more people pass through the area on weekends for leisure, rather than on their commute to work. This could also be due to the number of narrow roads, bridges, and dead ends in this area.
- Van, truck, articulate, and (private) bus counts are lowest on weekends, as these type of motor vehicles are usually used for works and deliveries in the local area.

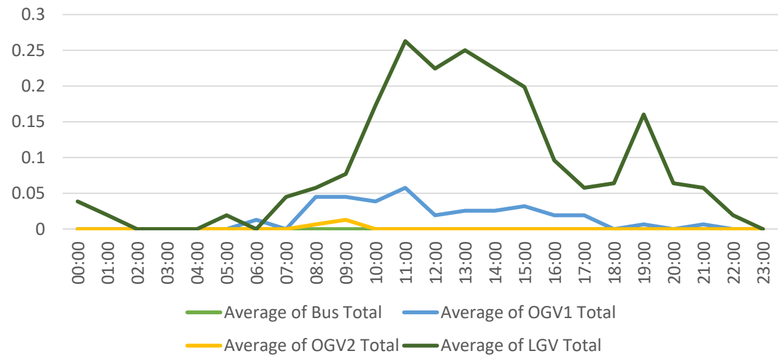
### Hourly Average – Active Travel: Monday to Thursday




### Hourly Average – Cars & Motorbikes: Tuesday to Thursday




### Hourly Average – All Other Vehicles: Saturday to Sunday



# Opportunities for Increased River Freight

## Analysis: Movement Onto & From the Pier

**Weekdays with lowest pedestrian and cyclist levels:**

- Monday to Wednesday (based on overlap below)
  - *Pedestrians: Monday to Thursday*
  - *Cyclists: Monday to Wednesday, and Saturday*

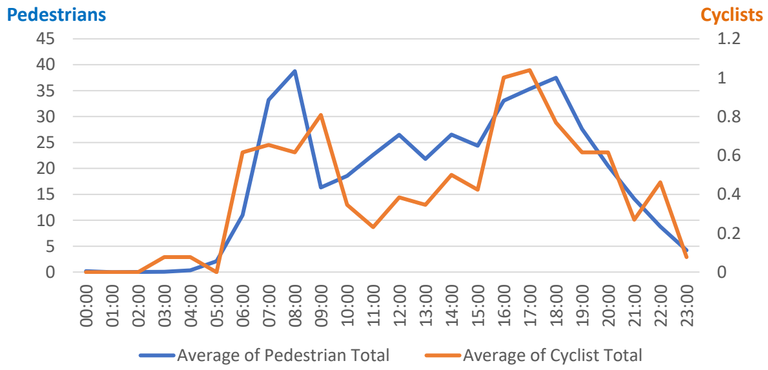
**Hours with lowest pedestrian and cyclist levels on these days (see graphs below):**

- 22:00 – 05:00 (based on overlap below)
  - *Monday: 21:00 – 06:00*
  - *Tuesday: 22:00 – 05:00*
  - *Wednesday: 22:00 – 06:00*

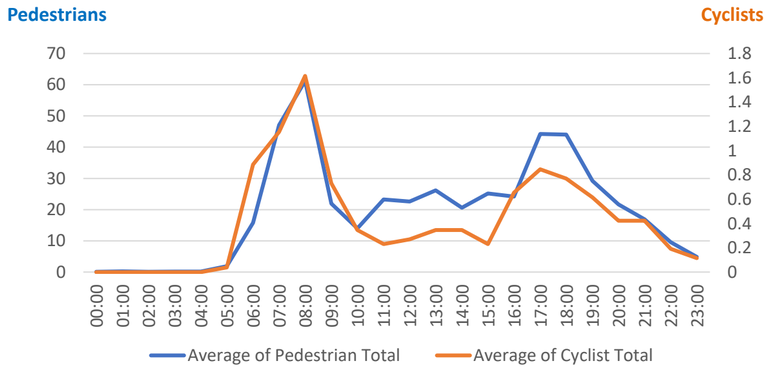
**Possible reasons for lowest user levels:**

- Greenland (Surrey Quays) Pier is a passenger pier, with Thames Clippers river bus services, RB1 and RB6, calling here.
- Pedestrian and cyclist counts show that people don't tend to use them for their commute to work during the work week.
- Instead, counts rise on weekends, when people use the river bus service for leisure purposes.
- Counts drop late at night until the early morning, when the Thames Clippers river bus service is not in operation.

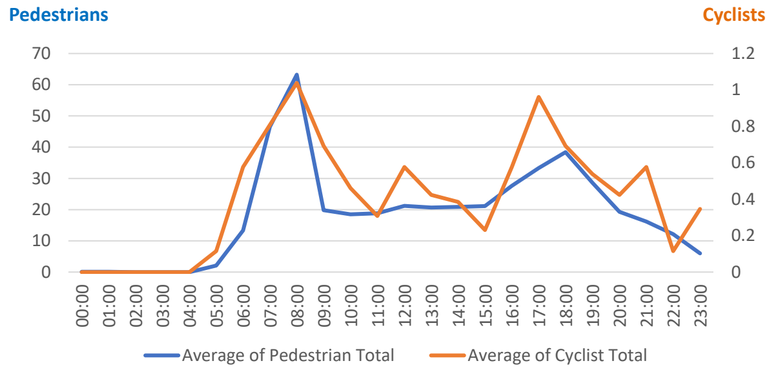
### Hourly Average - Active Travel: Monday




### Hourly Average - Active Travel: Tuesday




### Hourly Average - Active Travel: Wednesday



# Opportunities for Increased River Freight

## Greenland (Surrey Quays) Pier

Pedestrian and cyclist counts at Greenland Pier start decreasing in the evening (starting around 22:00) and remain low until the early morning (until around 05:00) 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:

- Monday to Wednesday: 22:00 – 05:00

Currently, Greenland Pier is a passenger pier, with Thames Clippers river bus services, RB1 and RB6, calling here. The pier is open during the river bus service's operational hours, as listed on page 7 of this report.

These hours could either be extended or the pier owner could give selected couriers access onto Greenland Pier by providing  access codes, for example, to facilitate river freight operations from this location.

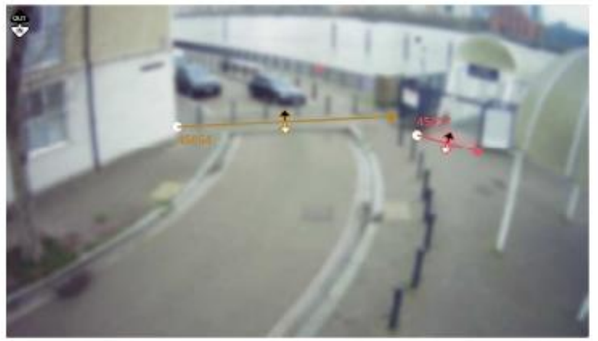
Overnight and early morning delivery time restrictions, as well as suitable loading / unloading areas for onward deliveries on land, would need to be discussed with the pier owner, landowner, local authority and other relevant parties.

*Entrance/Access onto Greenland Pier (in blue)*

# Greenland (Surrey Quays) Pier
# Data Accuracy & Precision

## Data Accuracy and Precision

The following table provides a summary of the sensor accuracy associated with Greenland (Surrey Quays) counts:

| Sensor | Countline | Countline Name | Result | Total accuracy (%) | Car Accuracy (%) | Taxi Accuracy (%) | LGV Accuracy (%) | OGV Accuracy (%) | BUS Accuracy (%) | Motorbike Accuracy (%) | Bicycle Accuracy (%) | Pedestrian Accuracy (%) | Comments | Sensor Image |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 45054 | S32_PrincesCt_Path_crp001 | PASS | 100.00 | | | | | | | | 100.00 | |  |
| 32 | 45037 | S32_GreenlandSurreyQuaysPier_crp001 | PASS | 100.00 | | | | | | | | 100.00 | | |

# Greenland (Surrey Quays) Pier
## VivaCity Sensors



| Sensor | Countline | Countline Name | Result | Total accuracy (%) | Car Accuracy (%) | Taxi Accuracy (%) | LGV Accuracy (%) | OGV Accuracy (%) | BUS Accuracy (%) | Motorbike Accuracy (%) | Bicycle Accuracy (%) | Pedestrian Accuracy (%) | Comments | Sensor Image |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 33 | 45041 | S33_PrincesCt_Path_LHS_crp001 | PASS | 100.00 | | | | | | | | 100.00 | |  |
| 33 | 45049 | S33_PrincesCt_road_crp001 | PASS | 100.00 | | | | | | | 100.00 | 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) or CRP Project Manager Isidora Rivera Vollmer (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: crossriverpartnership.org/.