



# A DEEP DIVE: THE LONDON LIGHT FREIGHT RIVER TRIAL

## Process, Performance and Prospects



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This Deep Dive was developed by Cross River Partnership (CRP) as part of its Defra-funded Clean Air Logistics for London Programme. CRP would like to recognise and thank Defra as the funder of this document.

Read more about **London's first daily, multi-supplier, river freight trial that incorporated return deliveries** along the Thames.



# 01 Overview

In February and March 2023, [Cross River Partnership](#) (CRP) worked in collaboration with eight project partners to deliver the London Light Freight River Trial; **London's first daily, multi-supplier, river freight trial that incorporated return deliveries.**

The trial aimed to serve the next day delivery market and provide a proof-of-concept for the viability of the Thames for fast, efficient and consistent deliveries. The trial also aimed to showcase river freight as a sustainable logistics solution, emitting less than half of the carbon of road transport, improving local air quality & congestion.

The trial built on learnings from CRP's [previous river freight trial](#) which found that using the river for freight resulted in a 78% saving in NOx and an 88% saving in CO2 in comparison to traditional road-based delivery methods.

The four week trial was a collaboration with [Grid Smarter Cities](#), [Lyreco UK & Ireland](#), [Pedal Me](#), [Port of London Authority](#) (PLA), [Speedy Services](#) and [Thames Clippers Logistics](#) and formed part of the [Defra-funded Clean Air Logistics for London](#) project.

Delivered in two phases, goods were loaded at Dartford International Ferry Terminal (DIFT) and transported along the Thames to Bankside Pier for Phase One, and Trinity Buoy Wharf and Bankside Pier for Phase Two.

Cargo bikes and electric vehicles were used to deliver goods from the piers to their final destinations, which were located in several London Boroughs including:

- [London Borough of Barking & Dagenham](#)
- [London Borough of Barnet](#)
- [London Borough of Bexley](#)
- [London Borough of Bromley](#)
- [London Borough of Camden](#)
- [London Borough of Enfield](#)
- [Royal Borough of Greenwich](#)
- [London Borough of Hackney](#)
- [London Borough of Havering](#)
- [London Borough of Islington](#)
- [London Borough of Lambeth](#)
- [London Borough of Lewisham](#)
- [London Borough of Redbridge](#)
- [London Borough of Southwark](#)
- [London Borough of Tower Hamlets](#)
- [London Borough of Waltham Forest](#)
- [Westminster City Council](#)



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## 01 Overview

The trial was also the first river freight trial to incorporate **return deliveries** from delivery piers to DIFT, helping to improve efficiency and sustainability. The trial also incorporated Grid Smarter Cities dynamic loading bays at Bankside Pier to understand the viabilities of unloading/loading activities near pier locations.

This CALL Deep Dive will outline the process for setting up the trial, key performance measures and emissions savings data, lessons learned, and future prospects for river freight trials and operations as a viable sustainable logistics solution.

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**“Thames Clippers Logistics has long believed in the untapped potential for the Thames to offer a fast and reliable route into the heart of the city, with the added benefit of removing commercial vehicles from the highly congested London roads. Thanks to the funding provided by Cross River Partnership, we have been able to demonstrate this during the multi-client, multi-stop river freight trial.”**

**Sean Collins, CEO, Thames Clippers Logistics**

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# 02 Process

## Trial Engagement & Stakeholders

The trial involved eight project partners and five key stakeholders and began in November 2022 as part of CRP's Defra-funded Clean Air Logistics for London programme.

Following an initial conversation with CRP, a proposal for the trial was presented by Thames Clippers Logistics in December 2022. The proposal included the PLA as a key facilitator and Speedy Services and Lyreco UK & Ireland as suppliers to test moving goods via the Thames. Customers receiving goods were managed internally by the suppliers. Pedal Me were selected by Lyreco UK & Ireland as the cargo bike operator for last-mile deliveries and Grid Smarter Cities were approached by CRP to test dynamic loading bays located at Bankside Pier.

The trial also involved Transport for London River Services and Urban Space Management as the owners of Bankside Pier and Trinity Buoy Wharf, as well as the London Borough of Southwark, Westminster City Council and Better Bankside BID.

Internal teams involved included: fleet logistics, planning & development, estates and marine services, project management, communications and marketing, sustainability, health & safety and compliance, and business development.

<u>Project Partners</u>	<u>Role</u>
<u>Cross River Partnership (CRP)</u>	Facilitator & Project Manager
<u>Defra</u>	Funder
<u>Grid Smarter Cities</u>	Dynamic loading bay operator
<u>Lyreco UK &amp; Ireland</u>	Supplier
<u>Pedal Me</u>	Cargo bike operator
<u>Port of London Authority (PLA)</u>	Facilitator and owner of DIFT
<u>Speedy Services</u>	Supplier
<u>Thames Clippers Logistics</u>	Vessel operator
<u>Key Stakeholders</u>	<u>Role</u>
<u>Better Bankside</u>	BID associated with Bankside Pier and the Dynamic Loading Bays
<u>London Borough of Southwark</u>	Local Authority associated with Bankside Pier and the Dynamic Loading Bays
<u>Transport for London River Services</u>	Owner of Bankside Pier
<u>Urban Space Management</u>	Owner of Trinity Buoy Wharf
<u>Westminster City Council</u>	Clean Air Logistics for London lead Partner

## 02 Process

### Partner Communications

From December 2022 to the start of the trial on 27th February 2023, regular partner meetings took place. Discussions focused on different aspects of the trial including: trial operations, compliance requirements and trial promotion /communications. Trial feedback and data for the calculation of emissions savings were shared by partners following the end of the trial on 24th March 2023.

### Compliance Process

An important aspect of the trial set-up process was ensuring the relevant compliance documents and permissions were completed and approved by the necessary partners.

It was the responsibility of Thames Clippers Logistics and the suppliers to ensure that the correct information and permissions were received to enable the trial.

Permissions Required
Use of DIFT by Thames Clippers Logistics and suppliers from PLA
Use (including license) of Bankside Pier from TfL London River Services
Use Trinity Buoy Wharf from Urban Space Management
Passage Plan approval from PLA
RAMS approval from PLA, LRS and USM
Liability & insurance agreements between Thames Clippers Logistics / Pedal Me and Suppliers
Installation of dynamic loading bays (Experimental Traffic Order) from LB Southwark

Information Required
Risk Assessment Method Statement (RAMS) from Thames Clippers Logistics and suppliers (Lyreco UK & Ireland and Speedy Services)
Third party insurance
Passage Plan
Thames Clippers Logistics Operational Plan for managing deliveries from multiple suppliers
Operational timetable

### Vessel Operations

The Thames Clippers Logistics vessel used for the trial was the FBM Hydrocat Catamaran running on hydrotreated vegetable oil (HVO). The vessel had been retrofitted to accommodate up to 12 euro-pallets by removing passenger seating and installing fixings to secure the cargo. The cabin was accessed via an aluminium boarding ramp built to accommodate the euro-pallet dimension of 1200mmx800mm.

**HVO is a sustainable alternative to diesel, as it is made from completely renewable materials and also reduces greenhouse gas emissions. In fact, HVO fuels can reduce CO2 emissions by up to 90%, NOX emissions by up to 27% and PM emissions by up to 84%.**

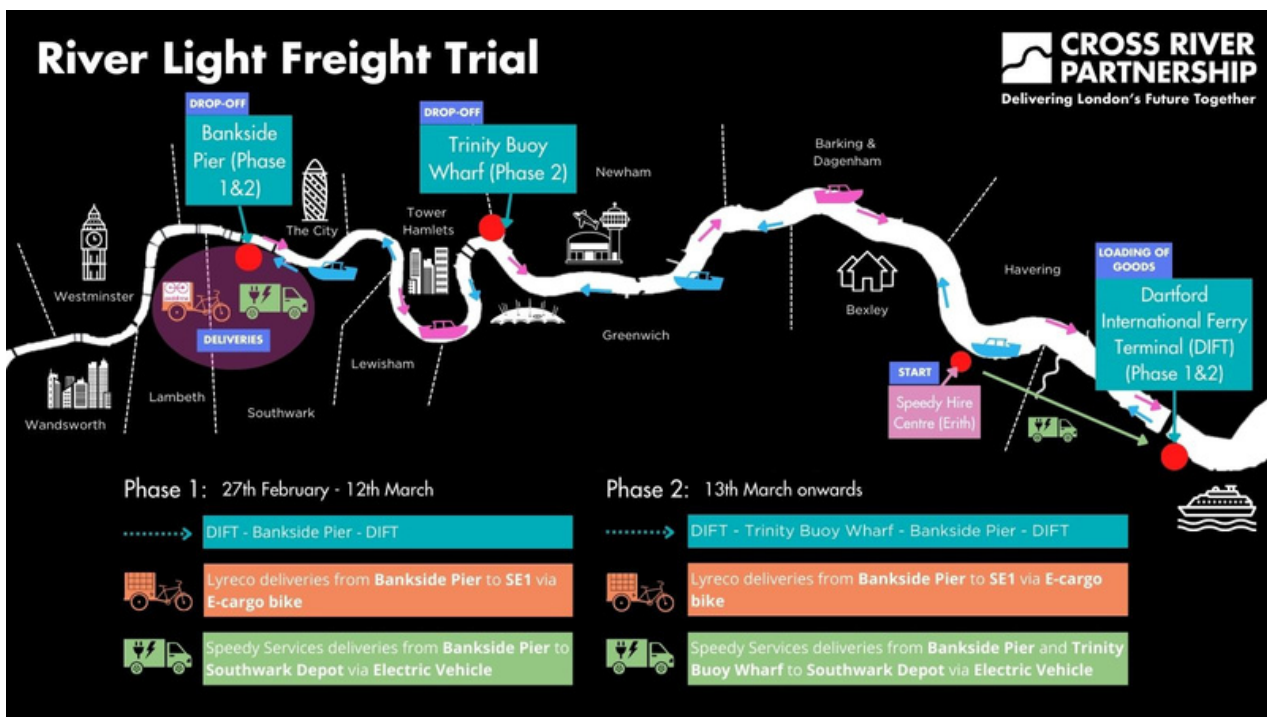


## 02 Process

### Trial Route

For both phases of the trial goods were loaded at Dartford International Ferry terminal (DIFT) and transported along the Thames to Bankside Pier for Phase One, and both Trinity Buoy Wharf and Bankside Pier for Phase Two. A recce of the proposed freight route took place approx. one month prior on the Thames Clippers Logistics vessel. This helped everyone to envisage how the trial would operate and to help understand the information & requirements that would be needed to make the trial work.

A dry run then run took place on 27th February to iron out minor issues with the delivery process, including dimensions of parcels, and to capture photos and communications assets for trial promotion. The aim was to emulate what would happen on a normal delivery day but without the goods so as to avoid any issues if the delivery didn't run quite to plan. The dry run was a success and the trial started in earnest on the following day (28th of February).



## 02 Process

### Pier Information

Pier	Location	Owner	Trial Phase	Procedure
Dartford International Freight Terminal (DIFT)	Kent (Origin pier)	PLA	1 & 2	Small pontoon and gangway installed for ease of loading freight with step free access for trial.  Vehicles would park metres away from the pontoon and crew would assist with unloading the freight and moving it with a pallet truck to the awaiting vessel.
Trinity Buoy Wharf	East London	Urban Space Management	2	Crane and lift utilised.  Only used by Speedy Services.
Bankside Pier	Central London (Final Destination)	TfL London River Services	1 & 2	Goods moved by crew from vessel to pier via roll cages.  Goods loaded on to cargo bikes and pallet trucks on pier.

### Last-mile Deliveries: Reducing Emissions across London

One condition of the trial that was requested by CRP was that the suppliers would use sustainable last mile delivery methods to transport goods from the piers to their final destinations. This helped to further the emissions savings from the trial and reduce congestion.

Lyreco UK & Ireland used the cargo bike operator Pedal Me to transport goods from Bankside Pier to customers within the SE1 post code initially and included SE11, SE16 & SE17 after 2 weeks.

Speedy Services used electric vans to deliver goods from Trinity Buoy Wharf and Bankside Pier to final destinations in 17 London Boroughs (the full list of boroughs that were delivered to can be seen on [page two](#)). Dynamic loading

bays at Bankside Pier, from Grid Smarter Cities, were used by operators for loading activities during the trial. This ensured that unloading activities were carried out safely and with minimal impact to other users of the pier and surrounding space.



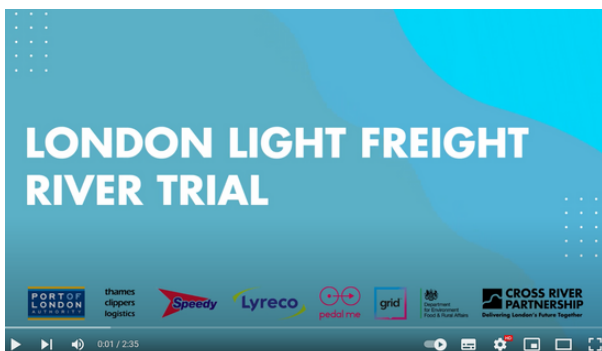


## 02 Process

### Trial Costs

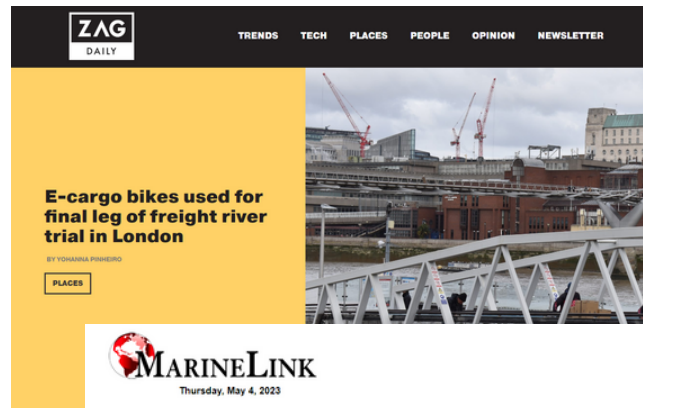
Total trial costs are detailed below. However, please note this does not include any costs of using the infrastructure at DIFT (which were waived by the PLA for the trial) or any internal costs that were incurred by Lyreco UK & Ireland or Speedy Services in terms of changing their delivery methods and / or resources that were allocated to enable the delivery of the trial.

Costs Incurred	Further Information
£3,000	London River Services Legal fees
£666	Bankside Pier fee & Trinity Buoy Wharf Fee
£1,500 (estimation)	Pedal Me Cargo Bike Deliveries
£46,676	Vessel costs (including fuel)
Total: £51,842*	

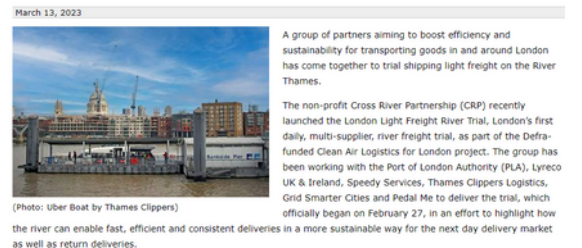


### External Communications

CRP hosted an official press event at Bankside Pier to promote the trial and showcase the potential of river freight and the Thames as a vital transport artery into London. Following the press event, CRP and partners promoted the trial via social media networks and the trial was picked up by multiple media platforms (see below), as well as in CRP and partner newsletters. A video of the trial was produced and video testimonials from the press event were captured and shared. The London Light Freight River Trial has also been presented at several external events including the National Cargo Bike Summit and CRP Conversations – Clean Air Freight: Prioritising Sustainable Logistics.



### London to Trial Shipping Light Freight on the River Thames



Click on the images to view the trial press coverage and trial videos

# 03 Performance

The four week London Light Freight River Trial operated a daily service from 27th February 2023 to 24th March 2023. Deliveries took place in the morning between 07:20 and 09:25, before goods were transported for the last mile to their final destinations.

Information related to emissions and time savings were captured throughout the trial to allow for a comprehensive evaluation to be conducted.

## Average vessel journey times

**45 minutes to Trinity Buoy Wharf, East London**

**65 minutes to Bankside Pier, central London**

## Operational Achievements

- Average **15 minute** loading time across the trial period from arrival of the last truck at DIFT to the vessel departing.
- Offloading goods for last-mile operators at both Trinity Buoy Wharf and Bankside Pier averaged **7 minutes**.
- No loss or damage to goods during the trial.
- Speedy Services saved over **80 minutes** of driving time each way by using the river.
- Digital loading bays at Bankside Pier were used by multiple operators.
- First river freight trial to **incorporate return deliveries**, improving cost efficiency.

## Trial Impacts



**3 vans were removed from London's roads**



**561 deliveries were carried out by cargo bike covering 393 km**



**40 deliveries were carried out by electric van covering 193 km**



**\*Trial resulted in emissions savings of:**

- **92% for NOx**
- **96% for CO2**
- **79% for PM10**
- **78% for PM2.5**

\*Compared to the original delivery methods

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## 03 Performance

### Learnings

As well as capturing emissions and time savings the trial provided an opportunity to capture and share key learnings and challenges. The trial clearly evidenced proof-of-concept and the viability of the Thames and river freight as a sustainable logistics solution.

A key learning emphasised by all project partners was the desire for longer length of trial. Increasing trial duration would enable suppliers to add in additional locations and to scale up volumes to further test the financial and operational viability of using the river for deliveries. Thames Clippers Logistics also highlighted the value of a longer trial for understanding and testing the vessel's full cargo capacity.

### **Operational learnings:**

- Alterations were required to the pallets transporting supplier goods to fit euro-pallet size due to pontoon bridge size restrictions.
- Lyreco UK & Ireland deliveries had to be adapted to comply with weight limitations of cargo bike deliveries which can take a maximum load of 150kg.
- Speedy Services changed from using pallets to wheeled, plastic tubs which proved easier to move and were able to be loaded at the same time as a pallet.
- The loading time for goods at DIFT decreased as the trial progressed due to operational familiarity.

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**"Incorporating return deliveries highlights the opportunity the river provides to help businesses reduce their carbon footprint and improve congestion and air quality."**

**Fiona Coull, Programme Manager,  
Cross River Partnership**

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### Challenges

Whilst the overall performance of the trial was successful, it was not without challenges which arose largely at the planning and development phase. The complexity of land and pier ownership along the Thames and leasing structure meant that several stakeholders had to be consulted to secure the necessary permissions required to carry out the trial. Nevertheless, support for the trial across the various stakeholders enabled permissions to be granted within the relatively short timeframes required.

Lyreco UK & Ireland also identified a lack of understanding around the purpose and benefits of the trial from some operational staff on the supplier side as a challenge which impacted staff buy-in to the trial.



# 04 Prospects

## Trial Legacy

The aim of the London Light Freight River trial was to demonstrate the viability of river freight as a sustainable logistics solution. The positive legacy of the trial is evidenced by both Lyreco UK & Ireland and Speedy Services considering changes to their delivery models moving forward. Lyreco UK & Ireland seek to retain their relationship with PedalMe and explore cargo bike deliveries as a permanent solution in London and beyond and Speedy Services are exploring the use of the digital loading bays. Thames Clippers Logistics are assessing options to increase fleet size and capacity to accommodate a standalone freight department. All partners expressed an interest in collaborating on future river freight trials.

## Future Trials

The below outlines key improvements identified by project partners to further test the viability of river freight using river freight trials:

- Increase trial duration to further test solution and capture additional learnings & emissions data.
- Addition of delivery locations throughout trial period.
- Increased freight volumes to test scalability and vessels full cargo capacity.
- Opportunity for variation in scheduled delivery times with the potential to operate at night.
- Explore potential/limitations of transporting perishable goods using river freight.



## 04 Prospects

### The Future of River Freight







The four week trial produced valuable emissions and congestion related data and lessons learned for using the Thames to transport goods into central London. The trial also highlighted further development and changes required to enable the expansion of river freight operations at-scale and achieve environmental behaviour change for London's deliveries.

Areas identified for further development include:

- Improved river freight-related infrastructure to aid loading and unloading of goods including access to the pier from landside and parking and improved shoreside interchange.
- Extension of existing piers to accommodate freight as well as passengers.
- Secure storage for goods on/near the pier with separate brow to prevent conflict between freight operations and passenger movement.
- Comprehensive cost breakdowns of running river freight operations from perspective of different stakeholders involved.



### CRP river and logistics related reports and guidance:

-  [Light Freight: Design Solutions for Thames Freight Infrastructure](#)
-  [River Freight Monitoring: Butler's Wharf and Dartford Pier](#)
-  [Getting Started with River Freight: A Guide for Businesses](#)
-  [River Freight Pilot Case Study: Summer 2022](#)
-  [Rail Freight in London: Feasibility Study](#)
-  [Towards Vision Zero](#)



**CRP's Thames Directory:** CRP's [interactive web tool](#) that provides information about utilising The River Thames to transport goods into London.

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# 05 Testimonials

The trial was a partnership between eight project partners and five key stakeholders. The success of the trial is owed to the hard work and collaboration between the different organisations and teams involved. The following testimonials outline the experience of the project partners.

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**"This latest trial underlines our Thames Vision 2050 commitment to ensuring that the river plays a transformational role in making the Port of London a world-leading, Net Zero trading hub."**

**James Trimmer, Planning and Development Director, Port of London Authority**

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**"Working in partnership with Thames Clipper Logistics and Cross River Partnership has been a pleasure, both have made this trial easy for us to move our goods in congestion free-way, and proved that the river will be an excellent way of moving goods."**

**Aaron Powell, Fleet Director, Speedy Services**

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**"Lyreco UK & Ireland hope this trial can highlight the importance of reducing congestion in London and making use of an important riverway running through the heart of our city. The trial and businesses involved fully aligned with Lyreco's own targets to become carbon neutral by 2030 and supported our Clean Van Commitment for 2028."**

**Andrew Bryers, Head of Sustainability, Lyreco UK & Ireland**

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**"At Grid Smarter Cities we have been delighted to be part of this trial and understand the needs of operators' last miles needs when crossdocking and having multiple operators using the same service starts to show how space will need to be managed with technology for the future."**

**Laura Jacklin, Commercial Development Manager, Grid Smarter Cities**

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**"Pedal Me hope that our work in both delivering a last-mile solution from Bankside Pier, and contributions to Pier Safe Working Practices lead to a greater utilisation of river freight."**

**Olivier Rousseau, CEO, Pedal Me**

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If you would like further information about anything that has been included in this guidance, please get in touch:

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