

Cross River Partnership River Freight Guide



Clean Air Villages 4 Guide - April 2022

Getting Started with River Freight: A Guide for Businesses

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Department
for Environment
Food & Rural Affairs



Although freight has been delivered up the Thames since Roman times, it's only recently that people have seen how it can tie in perfectly with the renewed emphasis on sustainability and the need for just-in-time deliveries in today's society.



James Trimmer, Director of Planning and Development,
Port of London Authority
(PLA).

This guide is for businesses considering using the tidal Thames for freight. This forms part of Cross River Partnership (CRP)'s Defra-funded Clean Air Villages 4 programme. In this document, you will be guided through the processes, challenges and opportunities involved in using the river for your operations including useful contacts and information about the first and last-mile landside deliveries.

For this document, CRP spoke to various groups below who use the tidal Thames in a range of different capacities, to get their perspective on the opportunities the river presents, as well as advice for people wanting to use the Thames for freight.



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CROSS RIVER PARTNERSHIP

Get in contact to discuss river freight today.

Benefits and Challenges of River Freight



Sustainability

According to the PLA's [Air Quality Strategy for the Tidal Thames](#), across Europe, energy consumption per km/tonne of goods moved by waterways has been calculated to be about 17% of that of road and 50% of rail transport.

In the context of London and the Thames, the PLA compared the actual emissions of freight by boat against the same weight by road. They found that vessels produce less or equal particulates per tonne-km carried than road transport, as well as significantly less CO2 grams per tonne-km. However, due to the large difference in legal requirements on engine standards, the total NOx emissions are higher from the vessel. There are [trials](#) underway to reduce NOx emissions from river freight (see [The Future of River Freight](#) section). It is also important to note that the respiratory problems caused by NOx are reduced, due to less emissions in densely-populated areas in comparison to road traffic.



Reliability

As there is little congestion on the Thames, goods can get to the centre of London on time. There are also far fewer delays caused by external factors, such as traffic or road closures. [DHL's river freight pilot](#) had a 98.5% reliability rate when using the river for their parcel services from Wandsworth Riverside Quarter Pier, [London Borough of Wandsworth](#), to Bankside Pier, [London Borough of Southwark](#). Overall, goods delivered by river arrive on time more often than by plane, car, van, truck or bike and can often be faster.

According to the PLA, there are only two things that limit river freight in London - fog and closure of Thames Barrier.



The Thames Barrier has been closed 201 times since it became operational in 1982 (correct as of November 2021). For regular updates on the Thames Barrier, including scheduled test closures or forecasted closures, please see:



[Thames Barrier Website](#)



[@AlanBarrierEA](#)



Access

There is great access to a range of piers on the Thames. It's a traffic-free way to get to the centre of London for last-mile delivery. Once in London, the river can provide easy access to a range of infrastructure including cycleways and consolidation hubs which can make deliveries faster and more convenient.



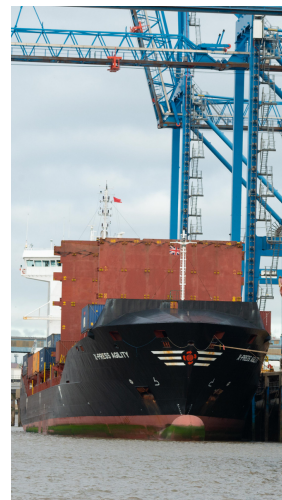
Cost

Fixed costs can be relatively high, so an operation needs to be big enough to be able to benefit from economies of scale. In future, there may be grants, as well as additional carbon taxes for road vehicles to reduce disparity. However, it currently still costs more per parcel to deliver on the river than via road. Partnering with other likeminded businesses to consolidate deliveries can reduce these costs - see [Next Steps](#) for more information.



Complexity

The river provides a huge opportunity for many businesses to reduce delivery times, carbon footprint, increase reliability and hopefully reduce costs in the future. However, there are many different groups using the river. Along with new terminology and logistical concerns, river freight can be an intimidating prospect. This document aims to simplify and explain many of these processes and make it as accessible as possible.



Terminology and Groups



Dolphin

Pier

Quay

Wharf

- Berth – the space needed for one vessel of any size.
- Dolphin – a man-made, marine, independent structure that extends above the water level.
- LoLo – (Lift on/Lift off) – an way to load and unload a boat which may require a crane or people to carry freight off the vessel. Most Thames freight would be LoLo.
- Pier – a man-made construction which comes out from the shore above the water level, allowing ships to load and unload in the deeper water further out.
- Quay – a part of the river bank or coastline which has been modified so ships can dock at it parallel to the shore.
- RoRo (Roll on/Roll off) – the way that the boat is unloaded, where vehicles already carrying the cargo are driven on and off a vessel.
- Wharf – a man-made structure on a river or by the sea, which provides an area for ships to safely dock. A Wharf can contain quays and piers and is for the commercial unloading and loading of boats. Contains one or more berths

Port of London Authority (PLA) – The PLA are the custodians of the tidal Thames. As a trust port, the Port of London Authority has no shareholders and operates for the benefit of customers and stakeholders now and in the future. They cover 95 miles of the River Thames, from Teddington to the North Sea. Their role is to keep commercial and leisure users safe, protect and enhance the environment, and promote the use of the river for trade and travel.

The PLA are the best group to speak with first when starting out. They have connections with all of the other groups and will be able to show the first steps to begin to use the river for freight. They also own many of London's piers.



Transport for London (TfL) – TfL own eight key piers, managed by London River Services. Freight initiatives are supported in the Mayor's Transport Strategy and London River Service's Passenger Piers Strategy. As a key pier owner TfL can facilitate and promote freight initiatives to key central London destinations



Livett's – Boat operators and pier owners. Provided vessels and expertise for the Guys & St Thomas' NHS Foundation Trust river freight trials.

Thames Clippers Logistics – The specialist light freight division of TfL's River Bus Operator Thames Clippers. They operate a fleet of 20 boats and own 8 piers in London/Kent. They operate DHL's river freight service and manage logistics and tender services for the PLA's Central London Cruise moorings.

Maritime and Coastguard Agency – Government agency under the Department of Transport who produce legislation and guidance on maritime matters and provide certification. Boat operators recommended by the PLA will all be certified.

GPS Marine Contractors Ltd – Specialists in inland waterway freight providing extensive marine logistics. Owners of one of the largest fleets of vessels in London.

Cross River Partnership (CRP) – CRP is a partnership delivering environmental, economic and community focused projects. We support public, private and voluntary organisations to address creatively challenges around Air Quality, Transport, Placemaking and Wellbeing. For river freight, CRP act as facilitators of 'on-land' logistics, such as connecting organisations to cargo bike providers and giving advice on last-mile delivery.



Setting Up River Freight

Who do I speak to?

The first port of call should be Port of London Authority (PLA) (email top right). The PLA act as a gatekeeper of the Thames and are happy to help businesses to start moving goods via river freight. Following that, the PLA can make introductions to several knowledgeable boat operators. These operators provide briefs including costs, distances, boat type and number of journeys. The PLA can advise on these operators, as all have different specialities.

In addition to operators, the only other agreement necessary for river freight is one with a pier operator. Piers on the Thames are operated by various organisations, who the PLA can put you in contact with.

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What do I need to know?

Cost

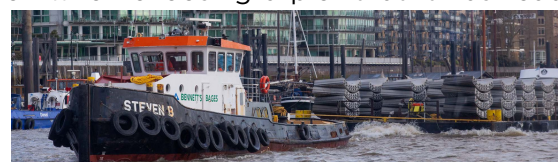
There is no average price for a river freight trial, and some operators may provide their services for free. For those that charge, the day rate is usually the vessel price, plus fuel and crew for a day. As a result, the more you use it, the better the cost, and consolidating deliveries and working with other companies can reduce costs considerably. During the brief, the operator will be able to provide a cost.

Connecting with other businesses can help to save the cost of river freight. Contact Cross River Partnership to connect to like-minded organisations.

Logistical Considerations

Getting freight to and from piers is a key logistical consideration. Pedal Me's cargo bikes and trailer can carry up to 300kg, and for smaller local deliveries, walking freight could provide a cheaper alternative. However, for cargo over 300kg, a larger electric van may be suitable. Consideration must be taken when choosing a pier that it has road links, which central London ones may not.

CRP can help with arranging a zero-emission cargo bike for either side of the trip. Please email CRP (see contact on right) to be put in touch with a suitable cargo bike operator. According to CRP's Last Mile Cycle Logistics Study, cargo bikes are 25 - 50% faster than vans in urban areas and have a reliable range of up to 8km from the pier. Additionally, they will not have any problem accessing the pier on either side.



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In terms of light freight, unloading is possible at any pier onto cargo bikes. Heavier cargo may require a crane to unload. This infrastructure does not currently exist in central London.

How many trips can I run in a day?

The number of trips on the river per day depends on distance and the amount of weight carried. Smaller boats tend to be faster, as they are carrying less weight. In June 2021, Guys and St Thomas' Trust ran a trial transporting essential hospital equipment from Dartford, Kent County Council, to Butlers Wharf, London Borough of Southwark. This journey was around an hour and downstream of Tower Bridge, boats can go up to 30 mph. In central London, there is a speed limit of around 15 mph.

River freight on the Thames can operate 24 hours a day, with access at all tides. Pier availability is relatively good, especially in the mornings and evenings. However, the piers are shared with the general public. It's important to bear in mind that during busy periods, the peak of which is on summer afternoons, access may be more difficult.



DHL's Project: Deliver by River

DHL ran a successful river freight trial in 2018 and began operating a full river freight project in 2020. They currently run one journey a day between three piers:



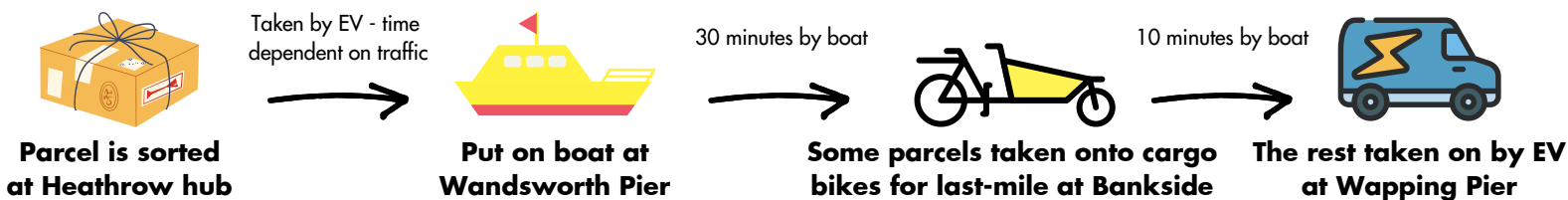
Setting up the project

Initially, in a meeting with TfL, an idea for a boat trial was floated. After that, following a CSR review about exciting things happening around piers, they restocked the conversation and started to consider how a boat service could operate. Then began the challenge of going from not knowing anything about rivers or boats, to get a river freight pilot off the ground.

DHL began by talking to TfL, the PLA, and Livett's to put everything in place for the initial trial. Thames Clippers later came on board as the boat operator for the project. At first the project consisted of taking the parcels on an unbranded boat from Wandsworth to Bankside, where they were met by bikes. This did work but wasn't scalable. To facilitate greater volume, TfL and DHL came to an agreement where a fine sort could happen using half the Bankside waiting room before parcels were taken off on bikes.



The project



The project does the above journey once a day in the morning, and takes up to 25 bags of parcels, well within the capacity of the pictured vessel. The vessel uses diesel, but the overall solution is a greener option than road options into London, with the first-mile/last-mile of the project delivered via electric vehicles. They hope to make the boat more sustainable in future when zero tailpipe emission technology for boats allows. In terms of sorting, parcels are sorted at the Heathrow hub and then sorted by postcode at Bankside. All the loading and unloading is done manually using trolleys. At the moment, 50,000 shipments are delivered by river per year with plans to expand.

The benefits of the project are that it achieves a level of consistency unattainable by road, which is vital for a logistics company. Additionally, the innovative aspect has had a lot of interest from the public and customers, as well as politicians who have been on the boat, adding additional value to the project overall.

Advice and guidance

1

Use the expertise of the groups already on the river (see Terminology & Groups (p6)). DHL used Marico, a consultant as well as maintained constant dialogue with PLA and TfL throughout.

2

1. Think about how to access the pier. In many cases vehicles can't drive directly through them, so other options are needed, such as the DHL cargo bikes at Bankside Pier.

3

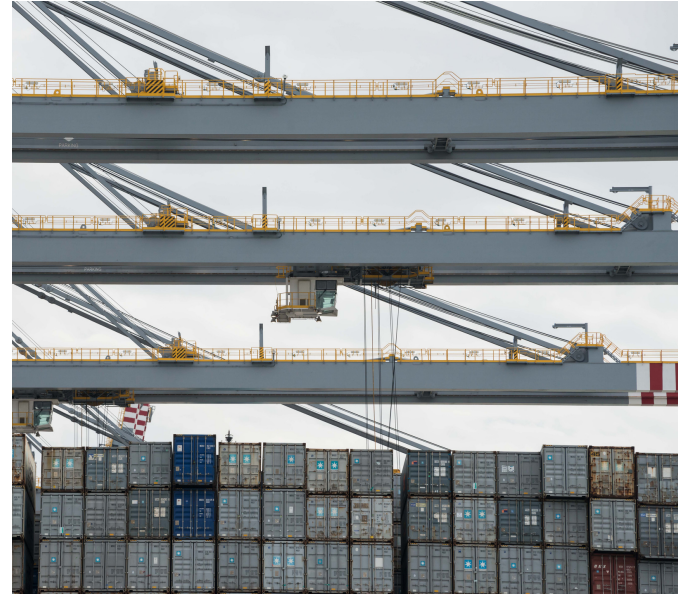
Try to get a sense from experts on who owns the piers and who is responsible for each function of the river, so you're engaging with all the right organisations. For more info see Terminology & Groups (p6).

The Future of River Freight

How many organisations will use the river in future?

For the PLA, the most difficult part in increasing river usage is linking modern logistics operations with movement of the river. In the short term to medium term, it is unlikely that it will beat road on cost, and as a result it is important to dispel doubts and myths about river freight for businesses whilst emphasising the other benefits such as sustainability and reliability.

With the success of ongoing and future pilots, combined with future government initiatives, more businesses can run pilots, therefore reducing costs through economies of scale and increasing river freight exponentially. This will run alongside improved infrastructure such as consolidation hubs in places like Tilbury and Dartford, as well as east of Teddington Lock, alongside pier improvements in Central London.



How will logistics in London change in future?

Despite lockdown easing, internet retail continues to increase as people are still shopping online. However, the recent ULEZ expansion and subsequent mayoral announcement that it is to encompass the whole of Greater London by the end of 2023, alongside other policy shifts away from road traffic and fuel price increases signal a change. All of this will contribute to make road freight less cost-effective. As a result, there will be many businesses looking at alternatives, and it is hoped that the government will invest in the river as a reliable and sustainable alternative as part of their Net Zero Strategy.

Are there alternative fuels for boats?

Currently, most operators are using biodiesel (HVO) and the PLA's vessels are currently in transition. Before this change, the PLA carried out a survey on alternative fuels. The data found that HVOs reduce NOx and particulates substantially compared to low-sulphur diesel, which was the main fuel on the river beforehand.

Thames Clippers are currently working on alternative fuels through their Green Marine Future project, looking at hydrogen and electric options to decarbonise travel. As part of the TrAM project, they are part of a European consortium undertaking R&D on an zero-emission electric high speed boat. Additionally, Thames Clippers have announced that their first hybrid passenger ferries will launch in Autumn 2022.

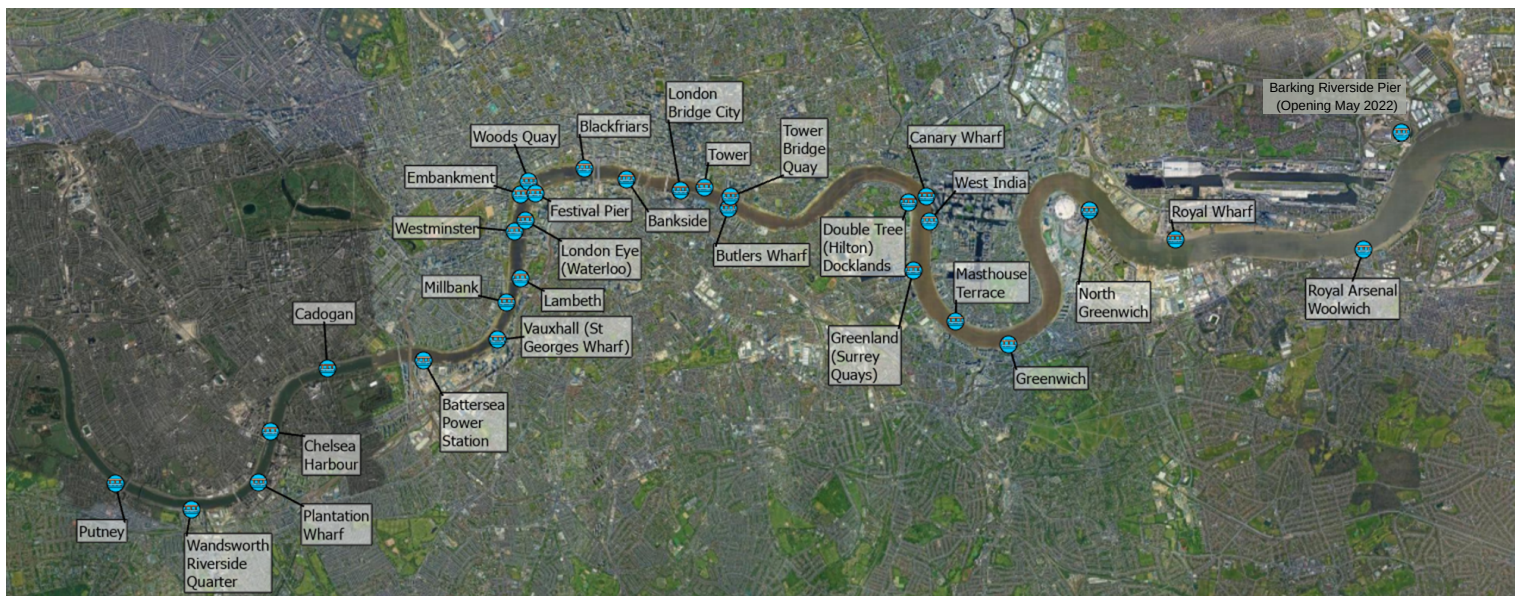
What other future developments may happen in river freight?

It is expected that cost will drop significantly as more parcels are moved via river. Through their Light Freight on the Thames Feasibility Study, the Thames Estuary Growth Board estimate that each parcel travelling from the Midlands to London via the Thames costs £4.99 when one million parcels are sent per year. If this goes up to 20 million parcels per year, they estimate that the cost of each parcel will drop to £1.71.

As well as the current model of piers and last mile delivery, businesses are looking at larger sites of around 5,000m² - a size between micro consolidation hubs and a regional distribution centre, which would incorporate the urban logistics model.

Next Steps

- 1 Once you have decided that river freight could be an option, think about which areas and piers could be viable options for your river freight pilot. See below for all central piers. There are multiple potential origin piers in the East for freight loading.



[For an interactive map click here](#)

- 2 Get in touch with [James Trimmer](#), [Port of London Authority](#), to discuss next steps with regards to the river. This will go through which piers can be used, a boat operator to get in touch with, licence requirements and general advice. You can also find out more about different types of boats available by contacting [Edward Livett](#) of [Livett's](#) or [Craig Brown](#) of [Thames Clippers Logistics](#) who will be able to give more information.

It might also be worth contacting a marine consultant at this point. [DHL](#) used [Marico Marine](#) for their pilot. However, other potential options could be [Thames Freedom](#) or [Maritime London](#).

- 3 At the same time as the piers and boat operators being decided, thinking about first-mile delivery and last-mile delivery is also vital for the project. As the idea is that river freight takes traffic off the roads, using cargo bike for last-mile delivery provides a sustainable, reliable and up to 25 - 50% faster way to deliver.

Please see CRP's [Clean Air Directory](#) for a list of cargo bike providers which you could use.

CRP can help with any on-land delivery questions you may have.

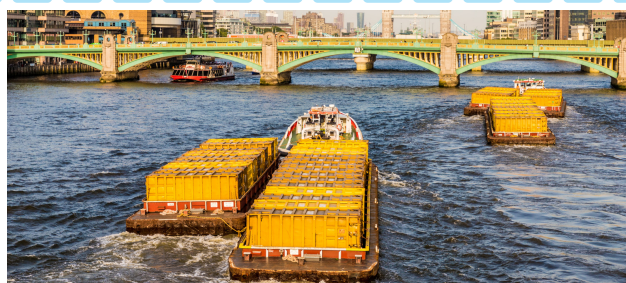
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If cost is prohibitive, it might be worth partnering with other businesses delivering in similar areas to you. Get in touch with [Cross River Partnership](#) to be put in touch with other potentially interested businesses.



Studies and Relevant Information

Feasibility studies

Light Freight on the Thames Feasibility Study. Thames Estuary Growth Board/ WSP/ PLA.
(A comprehensive guide including current and predicted costs for businesses delivering on the tidal Thames, as well as future developments on the river)

Enabling Last Mile Cycling Logistics. CRP.
(A study into the feasibility of using cargo bikes for last mile delivery)

Light Freight Design Solutions for Thames Infrastructure. CRP/ Beckett Rankine/ PLA. (A guide to pier infrastructure, providing recommendations on the best piers to use for freight including recommendations)

Environmental studies related to river freight

Lunchtime Launch 8 : The Future of Sustainable Shipping and Trade in London. CRP.
(Webinar looking at the environmental developments for London river freight)

Clean Air Villages 4 Project: Butler's Wharf and Dartford Pier. CRP/ EMSOL
(A project assessing the real-world pollution impact of various freight vessels using the Thames)

Air Quality Strategy for the Tidal Thames. PLA.
(Includes PLA's Thames Vision 2035, examining the environmental future of the River Thames)
NB: Thames Vision 2050 is currently in consultation - information here.

Green Marine Future - funding for sustainability projects secured. Uber Boats by Thames Clippers. (The pioneering work on alternative fuel sources being done by Thames Clippers)

More information about river freight pilots

Guy's and St Thomas' to stop 36,000 truck deliveries to cut pollution. Guy's & St Thomas' NHS Trust. (More information about their river freight project with CEVA logistics and Livett's)


DHL Express Demonstrates Next Step of Urban Logistics in London. DHL.
(More information about DHL's river freight trial with Thames Clippers Logistics)



Cross River Partnership and Clean Air Villages 4



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

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-  CRP YouTube Channel

Clean Air Villages 4 (CAV4) is a Defra-funded project which aims to deliver ambitious freight solutions for a clean air business recovery from COVID-19.

Cross River Partnership is a public-private partnership and is delivering CAV4 with 26 project partners to improve the air quality across different London 'villages', where both air pollution and population density levels are high.

CAV4 builds on the successes of the award winning CAV1 programme, as well as CAV2 and CAV3, which all focused on interventions to support businesses, communities and hospitals.

The CAV4 project is implementing Freight Solutions through five different elements - Consolidation, Distribution, Mode, Technology and Policy, trialled across different 'Villages'. The CAV4 team is supporting organisations to discover the potential of low emission freight by trialling alternatives such as cargo bikes, electric vehicles, river freight and walking freight.

For more information, please contact CRP Project Manager Kate Fenton: katefenton@crossriverpartnership.org.