CRP CONVERSATIONS INNOVATIVE TRANSPORT DECARBONISATION







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Great British Railways TRANSITION TEAM



## Agenda

- 4pm Rachael Aldridge, Communications Project Manager, Introduction to **Cross River Partnership**
- 4:10pm Dr Gary Fuller, Senior Lecturer in Air Quality Measurement, Imperial College
- 4:20pm Eleanor Marshall, Transport Infrastructure Lead, Innovate UK KTN 4:30pm – Daniel Fredriksson, Development Lead, Express Freight, GBRTT
- 4:40pm Roundtable discussion/Q&A

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Delivering London's Future Together



# Annual Report and Business Plan

2022 - 2024

A LANGTHAN MILE

www.crossriverpartnership.org

#### Introduction, CRP Partners and Team

2 CRP's Mission and Vision

3 Project Highlights 2022 - 2023

Goals and Future Opportunities 2023 - 2024

Communications

**Financial Statement** 







EV switch dongles

15 **Online events** 





Case studies, toolkits & guidance documents

**River freight trial** 

Last mile

consolidation

centre rail



**River monitoring** study

**Cargo bike trials** 



External events

 Mini freight hubs installed Kerbside management schemes implemented Installation of Click & Collect Parcel Lockers Shared EV & cargo bike delivery schemes implemented







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#### Smarter Greener Logistics



#### **Clean Air Freight**

- · Complete and submit final evaluation report to Impact on Urban Health
- Disseminate lessons learnt across Southwark and Lambeth, as well as learnings across the whole of London

#### **Clean Air Logistics for London**

 Retrofit an inland vessel to reduce noxious emissions Implement shared electric vans & charge points in Lambeth, and share knowledge across other CRP partners Implement Clean Air Logistics online river tool Deliver logistics hub micro space



#### South Bank BID Street Use Monitoring

- Provide detailed transport mode analysis to shape place making, policies & practices through creative reports
- Promote CRP's data analysis services nationally with social media campaigns, meetings & in-person events

#### **EC BID Collaboration**

 Collaborate with EC BID on strategic communications Deliver social media campaign across 3 months Complete walking map of EC BID area



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## **Dr Gary Fuller** Senior Lecturer in Air Quality Measurement, Imperial College

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## Health impacts of air pollution in the UK (annual)

Estimates of annual deaths attributable to air pollution in the UK

- 40,000 (RcP 2016) (PM2.5 and NO2)
- 55,000 (EEA, 2017) (PM2.5, NO2 and O3)
- 29,000 43,000 [Mitsakou et al 2022 UKHASA] [PM2.5 and NO2]
- 64,000 Lelievel et al 2019 using new global air pollution impact analysis
- 99,000 from global estimates Vohri et al 2021

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3,600 to 4,100 deaths estimated to be attributable to human-made PM2.5 & NO2 in London, annually

## Ella Kissi-Debrah – 1<sup>st</sup> person in UK to have air pollution listed as a cause of death.



Photo Ella Roberta Family Foundation

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#### **Imperial College** London Projects

#### London Health Burden of Current Air **Pollution and Future Health Benefits** of Mayoral Air Quality Policies

Review produced independently by: David Dajnak, Dimitris Evangelopoulos Nutthida Kitwiroon, Sean Beevers and Heather Walton Environmental Research Group - Imperial College London



**Great British** 

## What would a smog-free city look like?

**Ideal citie** 

#### Turning roads into parks



https://www.theguardian.com/cities/2018/nov/13/what-would-a-smog-free-city-look-like-air-pollution

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The right transport



#### parks Heating our homes



## The way that we travel at work & home: Car journeys in England & Wales (DfT2016)

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# 60 % are less than 5 miles 23 % are less than 2 miles

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## 260,000 UK workers studied for five years

Cyclists commuters were living longer.... Walking commuters had less heart disease... Compared to car commuters

Celis-Morales et al 2017



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# **Benefit to risk ratio = 70:1!**

#### **Rojas-Rueda et al 2011 BCN photo labn Martinez, Santander bikes,**



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# Let's think about deliveries



One solution is to consolidate your orders for supplies

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## 15 minute neighbourhoods



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## In 1661 the john Evelyn observed - air pollution is an issue of urban design

We need to solve the problem at source -

## not like this....!







21.30 GMT < **F** 23 15

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#### **Pollutionwatcl** Air pollution

#### **Pollutionwatch: why cleaning the air** is like taking milk out of tea





▲ A 100-metre tower in Xi'an, China, is trying to filter the city's air. Photograph: Imaginechina/Rex/Shutterstock

## **Urban myth or real evidence?**

Patients that view greenery from their hospital window recover faster from surgery and use fewer pain killers?

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## **Urban myth or real evidence?**

# Patients that view greenery from their hospital window recover faster from surgery and use fewer pain killers.



#### View Through a Window May Influence Recovery from Surgery

Abstract. Records on recovery after cholecystectomy of patients in a suburban Pennsylvania hospital between 1972 and 1981 were examined to determine whether assignment to a room with a window view of a natural setting might have restorative influences. Twenty-three surgical patients assigned to rooms with windows looking out on a natural scene had shorter postoperative hospital stays, received fewer negative evaluative comments in nurses' notes, and took fewer potent analgesics than 23 matched patients in similar rooms with windows facing a brick building wall.

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## **Greening our cities – greenery is good for us**



Recent studies have found that people live longer and have fewer heart problems if they have green spaces in their neighbourhoods. The World Health Organization (WHO) therefore recommends that we have access to 0.5 hectares of public green space – about two-thirds of a football pitch – within 300 metres of our homes.

Meeting the WHO recommendations could prevent 43,000 early deaths a year across 31 European countries studied - Barboza et al 2021

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# 2003 CONGESTION CHARGING SCHEME 2008 LONDON LOW EMISSION ZONE 2019 LONDON ULTRA LOW EMISSION ZONE 2022 INNER LONDON ULEZ 2023 ?



Figure 16: Trends in monthly average NO<sub>2</sub> concentrations with and without ULEZ policies

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MAYOR OF LONDON

INNER LONDON ULTRA LOW EMISSION ZONE – ONE YEAR REPORT



## **School streets**



<u>A study</u> of 16 school streets in London showed that nitrogen dioxide, one of the pollutants from traffic, was reduced by 23% and the number of children walking or cycling to school increased by 18%. With <u>careful design</u>, this can lead to <u>traffic reductions over a wider area</u>.

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#### **Un-building roads - Cheonggyecheon River project & Utrecht's restored canal**





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## Reducing sources (looking beyond traffic and industry)



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Shutterstock, Saffron Autos, Guardian and SIA

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## Tackling air quality and climate change together



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## Tackling air quality and climate change together



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## Tackling air quality and climate change together



With thanks to Alice Pengelly, University of Southampton

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# Low carbon, smog free, socially inclusive, bio-diverse, healthy cities....



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Ingredients for a smog-free city

**CRP Conversations - 30th March 2023** 



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**Dr Gary Fuller** 

gary.fuller@imperial.ac.uk @drgaryFuller www.londonair.org.uk







## **Eleanor Marshall**

## Transport Infrastructure Lead, Innovate UK KTN

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#### **About Us**

Innovate UK KTN exists to connect innovators with new partners and new opportunities beyond their existing thinking – accelerating ambitious ideas into real-world solutions.

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#### **Cross-Sector Expertise**

Agrifood Biotechnology Chemistry Creative Industries Design Digital Electronics Energy Geospatial Health Industrial Maths Infrastructure

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Manufacturing Materials Photonics Quantum Robotics & Al Security & Defence Sensors Space Transport Water



### Innovate UK KTN Team



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## Hydrogen Supply Chain Directory



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## **Vehicle to Everything: V2X**

#### The electric vehicle revolution will increase electricity demand, but also useful energy flexibility



- Smart charging shifting EV charging to off-٠ peak periods or periods of abundant renewables
- Vehicle-to-X technology (V2X) bidirectional ٠ smart charging, enabling export of energy from an EV battery to X = home, building or the grid



Reduce network and generation costs, lowering prices for all consumers



Maximise use of variable renewables



Reduce cost of charging for EV drivers (ca. £500 saving for average driver by smart charging)



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### **Clean Maritime Demonstration Competition**



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#### Jet Zero Council and Sustainable Aviation Test Environment (SATE 2) - Future Flight Challenge



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### **Rail - HydroFLEX Mainline Testing**



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### **Connected Autonomous Vehicles - CAVForth2**



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### CROSS RIVER PARTNERSHIP Delivering London's Future Together

# **Daniel Fredriksson**

## Development Lead, Express Freight, Great British Railways Transition Team (GBRTT)

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### On track for sustainable logistics: Integrating Rail Freight into London's deliveries

Cross River Partnership (CRP) is unlocking potential and transforming space across the logistics sector in London, to deliver solutions that make London fairer, greener and safer.

CRP has recently commissioned Steer transport consultants to look at the potential for increased rail freight in London, with support from Impact on Urban Health.

The results of the rail freight research show the opportunities for moving more freight into London by rail, as well as opportunities for efficient inter-changes with other clean transport modes for middle and last mile deliveries.

These modes could include e-cargo bikes, walking freight and zero emission vehicles. Interchange points also provide opportunities for consolidation, sorting and / or storage of goods.









### Why?

Freight vehicles make up 15% of London's total vehicle miles but emit one quarter of London's overall transport carbon emissions

### What?

The results of CRP's commissioned research show a huge opportunity for removing freight traffic from the roads and onto rail.



# WHAT ARE THE DIFFERENT EXPRESS FREIGHT MODES?





Space on passenger trains

Dedicated Freight Multiple Unit (FMU) into station

### **Parcels as passengers**

- Regular, in service passenger trains providing space on trains for parcels at times where passenger numbers allow
- Creates up to 25m3

### Inter urban express freight moves

- Using modified former passenger trains
- Delivering parcels and logistics into the heart of cities using passenger stations as transfer point for final mile
- Unique selling point is speed of delivery to city centre
- Low / No Emission





Dedicated FMU into distro centre

### Trunk logistics moves

- Depot to depot logistics moves competing with road haulage moves
- Road vehicle for the final mile
- Speed and environmental considerations

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### **MARKET ENGAGEMENT**

Steer engaged with stakeholders in the Freight & Railway Industry to capture a range of different views from potential service providers and end users on the feasibility of stations in London for freight activities







### South Western **⊼** Railway





Absolutely

THE LONDON COURIER **SINCE 1865** 



Impact

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# **EUSTON PARCEL DECK**

### The Euston Parcel Deck has been modified and used for multiple activities in recent years

- HS2 enabling works and Station Development have removed a previously accessible exit ramp, which allowed one-way traffic to operate on the Parcel Deck
- Relocation of Maintenance Delivery Unit onto the parcel deck have taken up large area of the remaining space
- Relocation of services from basement area is affecting available space on the Parcel Deck

Stations such as Kings Cross have been redesigned, with reduced service areas







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St<sub>2</sub>



# WATERLOO STATION OPPORTUNITY

CRP is also very keen to support Great British Railways Transition Team (GBRTT) and partners in unlocking the huge potential of the space underneath the existing railway lines at Waterloo Station.





The space is estimated to be between 100,000 – 200,000 square feet (size to be confirmed).

It could be used for storage of goods (including refrigerated goods); sorting of goods; receiving rail and river goods; outward distribution of goods via Zero Emission E-Cargo Bikes at scale, across e.g. London Boroughs of Lambeth, Southwark, Westminster.

The space also has excellent inter-change possibilities and possibilities for reverse logistics that use the nearby river and pier access points for vessel trips e.g. removal of packaging materials





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# WATERLOO STATION SPACE

CRP is also very keen to support Great British Railways Transition Team (GBRTT) and partners in unlocking the huge potential of the space underneath the existing railway lines at Waterloo Station.



Directly accessible step-free access via a gentle slope between Platforms 11 & 12, as well as via a number of existing roads surrounding the site space.



Could be sub-let to a single freight operator, or the space could be divided into a number of separate units to maximise community benefit from the space e.g. users could include retailers, sustainable freight / cargo bike operators, bike / vehicle maintenance / repair centre, rider / driver welfare and training facilities, childcare facilities (commercial) etc





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### ZERO EMISSIONS FREIGHT HUB





### **Freight Train**

### **London Rail Station**



### **Micro Logistics Hub**

Department for Environment Food & Rural Affairs Impact on **Urban** Health





# WATERLOO STATION AS A FREIGHT HUB

Southwestern Rail

Southeastern Rail

London Cycle Networkl

### Incoming Freight

London Waterloo to	Rail Travel Time (mins)	Road Travel Time (mins)
Southampton	80	120
Reading	90	90
Portsmouth	110	120
Exeter	205	225

### Ongoing Freight by Cargo Bike

- Access to nearby Cargo bike courier firms
- Access to 900km cycle network
- Up to 9 mile delivery radius with electrically assisted bikes
- Electrically assisted bikes deliver up to 60% quicker than vans in inner cities
- Access to 3.5 million people in inner London
- Access to 200,000 businesses in inner London







Cargo Bike Hub



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Great British Railways

# WATERLOO STATION OPPORTUNITY

The opportunity at Waterloo Station presents a unique chance to create an exciting new vision of freight in London.

This sustainable freight hub is unique as:



First one ever to be sustainable at a rail station in London post-rail privatisation



Unique role for LB Lambeth



Strategic impact



Remove polluting vehicles daily from London's roads



Contribute to Levelling Up agenda - goods into London from Birmingham major warehouses via rail



Create local jobs





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# WATERLOO STATION MASTER PLAN

A passenger-first Waterloo Station Master Plan has been commissioned. There is the opportunity to incorporate future freight requirements alongside passenger requirements.



The Waterloo Station Master Plan has been commissioned jointly by LB Lambeth and Network Rail.



A project Steering Group has been set up, which also includes TfL, South Bank BID, local businesses and other interested parties.



Grimshaws have been appointed, with WSP providing engineering input.



Work is underway and the Master Plan Vision and supporting Delivery Framework is due for completion in June 2023.



The Freight Hub concept has been raised with the Master Plan team so that the schemes can be considered together.



Waterloo Station Masterplan: Architects Grimshaw set for commission

29 September 2022 Written by: Lambeth Council News and announcements

Lambeth Council has commissioned international architecture practice, Grimshaw to develop the Waterloo Station Masterplan – to develop plans to transform the station and its surrounding environment.



With 100 million passenger journeys throughout the year with 30 million visiting the many attractions and the cultural institutions in the area, there is a clear need to raise the bar for what the station can be in the future, elevating its role in London and for the local economy and community.

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# WATERLOO AND SOUTH BANK FUTURE NEIGHBOURHOODS 2030 STRATEGY

### **Partners**



### A Zero Emission Freight Hub at Waterloo Station would make a huge contribution to 3 of the 5 themes of the Strategy





### Timescale



Completed by November 2022



Aim: Net Zero by 2030

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# **SPACE REQUIREMENTS**

CRP is starting to estimate the minimum and maximum amounts of space required for parcels as passenger services and dedicated freight trains. This will include:



1 cargo bike takes up 110x280cm space

1 Large Electric Light Commercial Vehicle and infrastructure takes up 2.4 x 5.5 metre space

25 x Large Light Rigid Truck polluting journeys or 75 x Large Light Commercial Vehicle polluting journeys across London

### Parcels as Passengers scenario



1 parcels as passengers and 13 zero emission journeys by large cargo bike

**3 Large Vans off the road!** 



1 Dedicated Freight Train and 400 large cargo bike journeys or 75 x Large Light Commercial Vehicle zero emission journeys across London







### **Dedicated freight train scenario**

### Space requirement: 13 large cargo bikes (4,004 m<sup>2</sup>)

# **CRP AND SUSTAINABLE FREIGHT IN LONDON**



As a <u>partnership</u> bringing together central London Local Authorities, Business Improvement Districts, Landowners and Freight Operators, CRP is well-placed to support GBRTT in taking forward the results of the Rail Freight Study.



CRP also has some financial resources that it can add into any further survey work etc., but expenditure must occur before the end of June 2023.

- CRP was a partner in the <u>Last Mile Logistics</u> (LaMiLo) project that sought to clean up freight deliveries in central London in terms of carbon emissions and impacts on air quality.
- CRP has also delivered the first multi-drop <u>River Freight Trial</u> in London, moving office supplies to Woods Quay pier in central London via vessel and transferring onto cargo bikes for the last miles of delivery across central London.
- CRP has also set up a <u>Cargo Bike Website</u> to support businesses to consider more sustainable delivery methods, as well as supported the electrification of vehicles by installing new charging points.
- CRP recognises the potential contributions to be made by <u>Micro Hubs</u> in particular in central London, and has already led the legal, financial, procurement, property and planning processes to set up a Zero Emission-operated micro hub within an existing underground Q Park in the City of Westminster – opening end of March 2023.



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# Contact Us

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www.crossriverpartnership.org/newsletter



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<u>@CrossRiverPartnership</u>

**CRP** YouTube Channel

<u>ko</u>s for Environment Food & Rural Affairs





# **Roundtable Discussion**

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Great British Railways TRANSITION TEAM CROSS RIVER PARTNERSHIP Delivering London's Future Together

# Join us for CRP Conversations Session 4: Thursday 27th April 2023, 4pm - 5pm

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# **Contact Information**

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