

Cycle Freight Study

An independent study commissioned by Transport for London

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About this study

This report has been developed for use by TfL and borough officers involved in transport planning, as well as those involved in procurement and commercial services. It will also be of use to Business Improvement Districts (BIDs) and other organisations involved in managing and improving local freight activity.

This report aims to raise awareness of the capabilities and services that can be provided by cycle freight, and measures for promoting uptake. It sets out challenges currently faced in shifting from motorised delivery and servicing vehicles to cycle freight. Advice for assessing cycle freight suitability is included, so that appropriate, targeted and effective measures can be put in place.

Cycle freight is an emerging and rapidly developing sector that requires continued review as the sector grows to capture data, be aware of evolving technology and best practices and apply lessons learned to support its increased use.

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While the authors consider that the data and opinions contained in this report are sound, all parties must rely upon their own skill and judgement when using it. The authors do not make any representation or warranty, expressed or implied, as to the accuracy or completeness of the report.

1 Introduction

Background

The Mayor's Transport Strategy (MTS) - published in March 2018 - puts Londoners' health and quality of life at the centre of transport planning. Through the Healthy Streets Approach, the Mayor aims to promote 'good growth' by encouraging sustainable transport choices, improving air quality, using road space more efficiently and creating safe and attractive environments for active travel.

Freight and servicing activities are essential for London's economy, adding an estimated £7.5bn to London's Gross Value Added. However, 90 per cent of freight and servicing is done by road in London. Most delivery and servicing trips are made by vans and heavy goods vehicles (HGVs), which are major contributors to poor air quality. For example, in 2013, light goods vehicles (LGVs) and HGVs accounted for 33 per cent of road transport NO_x emissions in Greater London¹.

Freight also contributes to congestion, with freight vehicles currently making up a third of traffic in the central London morning peak². The Mayor aims to reduce this by 10 per cent on current levels by 2026. Additionally, as the economy grows, demand for freight will also grow and van traffic is expected to increase by 26 per cent by 2041³. To mitigate the adverse impacts of this growth, we must ensure that necessary freight activity is carried out in a clean, safe, sustainable and efficient way on the road network.

In this report, the term 'cycle freight' refers to the transportation of goods using pedal cycles and electrically-assisted pedal cycles (EAPCs). Cycle freight is a quiet, low cost, zero emission option for transporting goods. Shifting deliveries from motorised vehicles to cycles can reduce the impact of interactions with vulnerable road users, improve air quality and lower carbon emissions, reduce congestion, while saving money and increasing journey time reliability for operators. In many cities in Europe and the UK mail and parcel carriers have begun replacing significant portions of van journeys with cycles, with up to 100 per cent of journeys replaced in some cases (see Case Study 1, page 24).

Cycle freight is an emerging sector with significant potential in London. Research carried out in 2017 found that, with support from all partners, up to 14 per cent of vans could be replaced by cycle freight by 2025⁴.

2 The benefits of cycle freight

Active travel

Delivering by cycle offers health benefits to employees through increased activity. Employees that have switched from driving a van to riding a cycle report high satisfaction with the increased daily activity⁴. Increasing the uptake of cycle freight – and the subsequent reduction in the dominance of motor traffic – also creates a more attractive environment to unlock active travel by other users by reducing the impact of conflict between road users.

Reduced emissions and improved air quality

Replacing motorised goods vehicles with cycle freight can significantly reduce CO₂ emissions and improve air quality. Each light goods vehicle (LGV) replaced in central London saves over one tonne of CO₂ and almost three kilograms of NO_x per year⁴. This is equivalent to a damage cost saving of £270 per year per vehicle. For HGVs, the potential saving is higher, with savings of more than seven kilograms of NO_x and over £700 per year per vehicle.

Reduced noise

Cycle freight deliveries are quieter than deliveries by motorised goods vehicles, since there is no engine noise or opening and closing of heavy doors. Additionally, unloading does not require noisy equipment such as tail-lifts or roll-cages. Cycle freight is therefore an attractive option for use in areas where retiming of motorised vehicle deliveries is not possible or is undesirable, such as at hotels or in residential areas.

Reduced congestion and the overall dominance of motor traffic

Replacing vans with cycles reduces the number of vans and HGVs on London’s streets and can help to address congestion; particularly where cycles can use alternative routes such as cycle lanes and restricted access roads. The use of cycles also reduces the space required at the kerbside for loading and unloading; reducing obstructions, associated traffic build-up and the overall dominance of motor traffic in the street environment. Shifting deliveries to cycles can also reduce traffic by saving vans repeatedly having to search for parking spaces.

Improved journey time reliability

The use of cycle lanes and restricted access routes allows cycle freight vehicles to take shorter routes and bypass congested traffic conditions and roadworks. As such, journeys made by cycle can be 25



Cargo bikes can bypass traffic using cycle lanes

to 50 per cent faster than those made by van⁵. Cycles also have more freedom to park close to their destination. Shorter and more reliable journey times can give businesses more flexibility in when deliveries can be made and in the range of services they can offer. For example, businesses can introduce timed and express delivery services.

Reduced costs for businesses

Cycles have lower running costs compared to motorised delivery and servicing vehicles. This saves businesses money over time, but also allows businesses to expand their vehicle fleets more economically than they could if using vans. Businesses can also sub-contract to a cycle logistics company or hire cargo cycles for ad-hoc deliveries.

Public Relations

Cycle freight can contribute to company carbon emission reduction targets and sustainable delivery policies. Delivery companies report positive feedback from customers receiving goods by cycle and from members of the public.

3 Challenges and opportunities for cycle freight

3.1 Current perceived challenges for wider adoption of cycle freight

Although cycle freight offers many benefits, fleet operators face several challenges when trying to shift to cycles, or in expanding their existing cargo cycle fleet. The key barriers to uptake, with suggested solutions, are summarised in Table 1.

Table 1 Key issues and barriers for industry

Barrier
<p>Lack of space for distribution – Mail and parcel carriers operate at a high drop rate, typically requiring at least 10 deliveries per hour per driver/rider. To maintain this drop-rate with cycle freight, a local depot for efficient reloading of cargo cycles is required. The cost of suitable space in London can be prohibitive in making cycle freight viable. Help operators to find cost-effective space by assessing all opportunities for land use identified in section 4.2.</p>
<p>Awareness and capability – Awareness of the capabilities and benefits of cycle freight is generally low outside the mail and parcel sector. Knowledge of cycle freight among potential users and the public is often limited to services such as Deliveroo, rather than wider applications. In many cases, when purchasing a cargo cycle, the available options are often not well understood compared to choosing a van, for example. Use the information provided in this chapter to improve this understanding locally.</p>
<p>Change in operation and capital cost – Separating last mile deliveries and/or transferring them to cycle freight can be a disruptive change in operations, which can be costly to implement.</p> <p>The average vehicle cost (excluding VAT) is £1,900 for a cargo bike and £4,250 for a cargo trike. For EAPCs, this rises to £4,100 for a cargo bike and £7,500 for a cargo trike, which can exceed £11,000 in some cases. Although these costs are lower than for a van (particularly an electric van), it can amount to considerable outlay for a small business or self-employed courier.</p> <p>Consider supporting local businesses by offering cargo cycle hire or vehicle purchase grants (see section 4.3) and by encouraging third-party carriers into the area (see below).</p>
<p>Lack of secure parking and/or storage – Space is often limited for storing cycles on premises, and suitable, secure on-street parking is not always available. Address this by making sure that all options identified in section 4.2 have been assessed.</p>
<p>Lack of suitable third-party carriers –The number of cycle logistics companies in London is currently small, limiting the ability of both local and national businesses to benefit from sub-contracting their delivery services. Encourage operators into an area by working with them to accommodate their needs or by running borough-led cycle delivery schemes.</p>

3.2 Opportunities and solutions

3.2.1 Cycle freight vehicle capabilities

A variety of different vehicle types are used for cycle-based delivery as set out Figure 1. These range from standard pushbikes, where the load is carried by the rider, to load-carrying messenger bikes, cargo bikes and cargo trikes. Carrying capacity can be increased by using trailers. Pedal quadricycles qualify as cycle freight but are not widely used in the UK. Electrically assisted pedal cycles (EAPCs) are often used by cycle freight riders as they are easier to ride on hilly terrain and can carry heavier loads. They also help to widen the pool of employees, by lowering the required fitness level. Regulation states that EAPCs have a maximum power rating of 250 W, and a maximum assisted speed of 15.5mph; above this power rating they are deemed L-category vehicles. Deliveries and servicing by mopeds, motorcycles and L-category vehicles do not qualify as cycle freight.

Loads up to 300kg and two cubic metres can be carried by the largest capacity cargo trikes and trailers. By comparison, a standard panel van such as a Ford Transit typically has a payload capacity of 900kg and six cubic metres.

More than half of all available load-carrying cycles are offered with electric-assistance, helping riders to carry heavier loads further and for longer without fatigue.

	Payload	Width		Payload	Width
Messenger 	20–40kg 0.03–0.05m ³	50cm	Front-load cargo trike 	100–200kg 0.2–0.6m ³	80–90cm
Front-load cargo bike 	100–125kg 0.1–0.7m ³	50–90cm	Rear-load cargo trike 	200–300kg 0.5–1.5m ³	80–120cm
Rear-load cargo bike 	100kg 0.4–0.8m ³	50cm	Trailer 	60–150kg 0.2–2.1m ³	80–110cm

Figure 1 Available vehicle types and capabilities

Cargo bikes are a similar width to a standard bike, so they can use most cycle lanes and can move easily around congestion. Cargo trikes can carry greater loads than a

cargo bike but are less manoeuvrable, typically requiring wider cycle lanes and access routes to not obstruct other cycles.

The carrying capacity of cycle freight vehicles makes them ideal for transporting lighter items such as boxes, packages, parcels, magazines, books, food and some tools. They are unsuitable for deliveries of bulky or heavy items such as furniture, pallets of stationary supplies or construction materials.

Cycle freight works well for operations in dense urban areas but becomes less feasible over longer distances. In the mail and parcel sector, cycle freight riders can cover total distances of up to 80-100 kilometres per day. However, to match the number of deliveries per day that a van can make (10-15 per hour), cycle couriers typically need to reload, which limits the service radius to between two and eight kilometres. For small businesses delivering fewer parcels per day (less than 10 per day), longer distances can be covered. For example, individual trips up to 15 kilometres may be possible, depending on the rider.

Therefore, although versatile, cycle freight is not a complete replacement for vans. As such, partnerships between cycle logistics companies and traditional carriers may be required to provide a complete solution for customers.

3.2.2 Operational opportunities

Cycle freight use has increased rapidly over the past ten years. In the UK, it operates in at least 25 towns and cities, and delivery services are offered by at least 19 third party cycle logistics companies. The main services that cycle freight covers are: Last mile, First mile, Point-to-point and Local services.

Last mile and first mile services handle the local distribution or collection of goods as part of a larger distribution chain (see Figure 2). Last mile services are typically carried out by, or on behalf of, national mail carriers (such as UPS) and retailers (e.g. veg box distribution). These services require a facility within or on the edge of a delivery area to act as a distribution hub or micro-consolidation centre (see information box). Examples of

Distribution hubs are facilities operated by a national parcel carrier, such as UPS or DHL, for distributing their own parcels.

Micro-consolidation hubs are facilities operated by a third-party cycle logistics company, handling parcels for multiple companies.

These facilities can range from (semi)permanent facilities such as a depot or shipping container, to temporary locations such as a trailer (see Case Study 1).



UPS operate a distribution centre in Dublin for last mile and first mile services

distribution hubs include company depots, shipping containers and pick-up/drop-off lockers.

Point-to-point (P2P)

services do not typically require a local hub since trips begin and end within the delivery area (Figure 2). The UK cycle freight sector is currently dominated by P2P services. Well-known examples include mail and parcel couriers (such as CitySprint), and express food delivery (such as Deliveroo). Other examples include express grocery delivery, and small business logistics. Several public sector organisations in the UK and Europe use cycle freight for delivering internal mail and for public services (such as library book delivery).



CitySprint have incorporated 25 EAPC cargo bikes into their Green Fleet in London to reduce emissions, expanding to 50 cycles by the end of 2018.



Cycle freight is suitable for small business logistics, including retailers

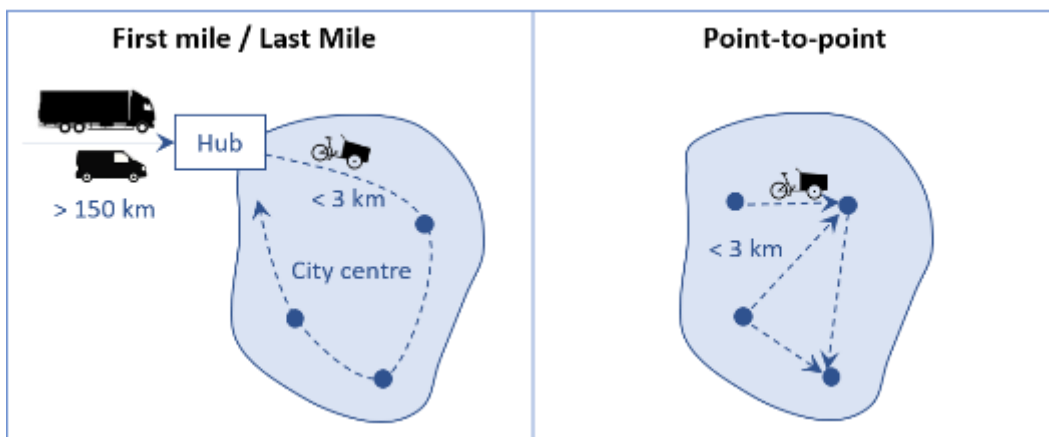


Figure 2 Cycle freight logistics models operating within an urban area

Local services include a range of operations that involve the carrying tools to perform a service, rather than making a delivery. Examples include local gardeners, cycle maintenance (such as Dr Bike) and street cleaning.

3.2.3 Sectors with potential for increased uptake of cycle freight

Cycle freight is already used by several mail and parcel carriers, and a number of small-to-medium enterprises (SMEs) for deliveries. For SMEs, cycle logistics is particularly effective for wholesale and retail businesses, such as bakeries and florists, but it is not exclusive to these sectors. Targeted promotional activities should be targeted where the highest potential for increased uptake is identified (Figure 3).

In contrast, sectors that do not routinely separate last mile services, or typically transport heavy or bulky payloads, have low potential for uptake in the short term. These sectors include large wholesale and retail, and utilities and services. These sectors also typically travel longer distances not feasible by cycle into their service area. For instance, utility engineers may commute from outside London using their service van.



A delivery rider delivers to the Guildhall in Cambridge



Street cleaning in Graz, Austria.

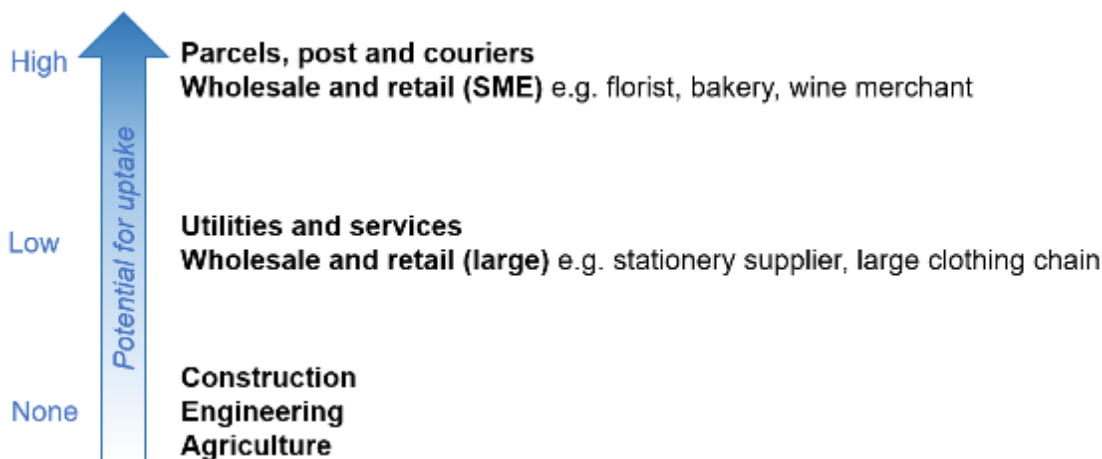


Figure 3 Relative cycle freight uptake potential for different van sectors

4 Promoting and increasing cycle freight

There are a number of measures that can be implemented to increase the uptake of cycle freight. These include:

- **Creating cycle-friendly environments**
- **Providing space for storage and hubs**
- **Initiating cycle freight services**
- **Promoting cycle freight to businesses**
- **Leading by example**

4.1 Creating cycle-friendly environments

Good cycle infrastructure is important for cycle freight as delivery riders require direct, safe and attractive conditions for cycling. The London Cycling Design Standards (LCDS) provides guidelines for creating high quality cycling infrastructure to meet the following design outcomes⁶:

- Safety
- Directness
- Comfort
- Coherence
- Attractiveness
- Adaptability

In London, policies set out in the Mayor’s Transport Strategy will significantly change the operating environment for freight vehicles:

- Reallocating roadspace to walking cycling and public transport
- Delivering the Ultra Low Emission Zone (ULEZ) and
- Introducing the Direct Vision Standard (DVS)

London’s continued economic success relies on safe, clean and efficient freight and servicing, so it should be integrated into Healthy Streets schemes, new developments and existing town centres. Infrastructure and policy measures that support cycle freight include:

- High quality, safe cycle routes. These might be part of the London-wide network of Cycleways, or local routes that connect to the London-wide network and/or key local destinations



Cycle freight vehicles can take advantage of motor vehicle restrictions

- Filtered permeability and other types of full or part-time access restrictions to motorised vehicles
- Low Emission Neighbourhoods, local ultra low emissions zones (ULEZs) and zero emissions zones (ZEEs)
- 20mph speed limits and other traffic calming measures that reduce the dominance of motor vehicles on London's streets
- Provision of secure cycle parking that accommodates cargo cycles

Infrastructure planners should consider the particular needs of cycle freight vehicles. Cargo cycles carrying heavy loads are particularly vulnerable to damage when moving on and off kerbs. Cycle routes and cycle access points should therefore include dropped kerbs in convenient locations to assist these vehicles. Cargo trikes and trailers can be wider than a typical cycle (see Section 3, Figure 1) and therefore narrow access points, such as closely-spaced bollards, should be avoided. Cycle lanes should also be designed to the maximum recommended width where possible.

Cycle freight also benefits from policies that restrict daytime deliveries by motor vehicles. This can include restricting motor vehicle access during certain hours or along certain routes. For example, the London Borough of Hackney has put forward plans for an ultra-low emission vehicle (ULEV) street, which only allows deliveries by cycle or ULEV vehicles during restricted hours.

4.2 Providing space for storage and hubs

Cycle freight requires space, either to store vehicles or to act as central hubs for parcel sorting and distribution (discussed in more detail in Section 3). The space needed can range from temporary hubs the size of two five metre parking bays to permanent locations with one to two shipping containers. Providing space in areas where there is already high demand for space can be challenging; however, several options are available:

1. Car parks

Car parking bays in borough-owned car parks can be used for distribution, which may be easier where they are under-utilised (see Case Study 5). HGV access is required for companies to drop off or pick up parcels and cycle access must be appropriate and convenient. Ground-floor access is best for delivery riders. Workspace levies or schemes to reduce staff commuting by car may increase the number of available car parking spaces

2. On-street spaces

On-street spaces can be rented to one or more operators, using a similar model to car clubs. On-street spaces can also be converted to cycle storage hangars to provide secure parking space for local businesses or operators

3. Private land

Empty lots or similar privately-owned space may be accessible to BIDs, either as permanent solutions or as a temporary distribution centre

4. Cycle hubs

Co-location of distribution space with existing or planned cycle hubs can improve the business case of the facility compared with either type alone. The city of San Sebastián successfully implemented modular cycle hubs, so that the space could be adapted according to demand for either service⁷

In all cases, pricing levels for the use of public space need to be set appropriately to allow a cycle logistics business to become competitive.

Ideal locations for distribution space are within one to two kilometres of the intended delivery area. Where logistics companies want to trial cycle freight in an area, boroughs and BIDs should work with these operators to best accommodate their needs.

New developments

New developments present a good opportunity to incorporate specific cycle freight plans from the beginning and to design areas that favour sustainable and efficient delivery and servicing. Where suitable, the planning authority should ensure that consideration is given to the inclusion of space for storage or distribution, creating cycle-friendly environments and restricting motor vehicle access. Industry representatives such as the European Cycle Logistics Federation (see page 21) can provide further advice on planning for cycle freight measures.

4.3 Initiating cycle freight services in your area

Where suitable areas for cycle freight exist within a borough or BID, simple measures to support uptake among local businesses can include:

- **Cargo cycle hire schemes:** providing vehicles for local businesses to use, either as a regular delivery solution or as a trial before buying their own vehicles
- **Grants for cargo cycle purchases:** to encourage local businesses to buy their own vehicles

Examples of both types of scheme already exist in London. Free, short-term **cargo cycle hire schemes** have been offered by the London Borough of Waltham Forest (see Case Study 3) and the Zero Emissions Network (ZEN). The ZEN has also offered grants of up to £2,000 towards the purchase of a cargo cycle through the Sustainable Travel Grants Scheme. Both schemes enable businesses to use cycle freight where they may not have been able to before.

A more advanced solution is to establish a **local cycle freight delivery service**. For example, zero emission delivery schemes were launched in Waltham Forest,

Greenwich and the City of London in 2017 (see Case Studies 3, 4 and 5). Similarly, cycle freight delivery services have been advertised to businesses in the Better Bankside BID⁸.

To initiate successful cycle freight delivery services the following should be considered:

- Engaging with local businesses to gauge interest, identify local delivery needs and build contacts for prospective operators
- Running a short trial to assess the potential for larger-scale success
- Tendering for a cycle logistics provider to establish a local cycle freight operation, where trials are successful

Initiating a cycle freight operation may require continued engagement with businesses and residents to ensure success (see Case Study 3). Once established, they can kick-start cycle freight operations in an area and require less funding and operational resourcing to manage.

4.4 Promoting cycle freight among local businesses

Raising awareness of cycle freight as a viable delivery option is a key aspect of increasing uptake. Promotional activities should target both those businesses that carry out their own deliveries and those that outsource deliveries to third party carriers. In both cases, a switch to cycle freight where possible should be encouraged.

BIDs can take a leading role in promoting sustainable delivery choices among their members. Channels that can be used include TfL, borough or BID webpages and distribution of promotional material through leaflets or via social media. When advertising a specific initiative, such as a zero-emission delivery scheme, local newspapers and borough events can also be used. Information distributed should include a summary of the benefits of cycle freight and details of any initiatives that can provide assistance.

4.5 Leading by example

Local authorities, BIDs and other partners should lead by example and help to increase cycle freight uptake by using it for their own operations. This will allow such organisations to benefit from all the advantages of cycle freight while raising its profile.

To initiate the use of cycle freight, an organisation should map out their supply chain, procurement practices and own fleet to identify opportunities to use cycle freight. This desk-based exercise should collect the following data to identify trips that are suitable for cycle freight:

- Length of trips
- Weight and volume of goods carried

- Frequency of trips
- Current mode of transport
- Delivery costs, both monetary and emissions-based (CO₂, NO_x and PM₁₀)

A simple cost-benefit assessment of a switch to cycle freight can be made by comparing capacities and typical costs of vans and cargo cycles (

Table 2).

Where possible, cycles should be introduced for use in fleets, which can be used for many different duties, including:

- Street cleaning and maintenance
- Collection of recyclable materials, such as cardboard from office supplies
- Parks maintenance
- Internal post and document transfer
- Deliveries to public sector buildings

When outsourcing delivery services, procurement practices for choosing cycle freight should be promoted where possible. This should include a requirement for suppliers to specify the type of vehicle used for delivery when tendering. This could be extended to require approved suppliers to demonstrate their sustainability credentials by including cycle freight in their fleets. Since cycle freight cannot provide a solution for all delivery needs, tenders should allow for part-fulfilment or partnerships between organisations where necessary and beneficial. Where procurement tenders cannot be altered immediately, a timeline for shifting to cycle freight can be developed based on which procedures can be changed and when.

Table 2 Representative costs and capacities of cargo cycles compared to diesel vans

	Cargo bike		Cargo trike	Van
	non-EAPC ^a	EAPC	EAPC	Small van
Vehicle load capacity	100 kg		300 kg	600 kg
Vehicle cost	£1,900	£4,100	£7,500	£2,600 p.a.^b
Annual running costs	£295	£305	£328	£5,930
Fuel cost ^c	£0	£11	£33	£680
Vehicle excise duty	£0	£0	£0	£150
Insurance	£135	£135	£135	£800
Servicing	£160	£160	£160	£270
Congestion charge	£0	£0	£0	£2,530
Parking penalty charges	£0	£0	£0	£1,500 ^d

^a EAPC refers to Electrically Assisted Pedal Cycle

^b Leasing price per year based on contract hire for 3 years at 10,000 miles per year

^c Calculated based on cycles and vans covering the same distance per day (30 miles); diesel fuel for vans (53 miles per gallon), electricity cost for EAPC cargo cycles, based on one charge per day

^d Average figure per van, calculated using the median annual cost of penalty charges reported in the *FTA PCN Survey 2012* divided by the average fleet size of fleets registered under the Fleet Operator Recognition Scheme (FORS), reported in *Van travel trends in Great Britain*, RAC Foundation, 2014.

5 Planning and monitoring cycle freight

To support safe, clean and efficient freight, Area Freight Management Plans can be developed including targets for taking action to increase the uptake of cycling freight. Area Freight Management Plans are described in TfL's Freight and Servicing Action Plan¹. This section outlines the key stages in developing an effective cycle freight strategy, including:

1. **Identifying areas of greatest potential**
2. **Choosing appropriate promotional measures**
3. **Monitoring success**

5.1 Identifying local areas with greatest potential

The potential for cycle freight uptake is greatest in areas where:

- A high proportion of deliveries are from the parcels, post and courier sector
- There is a high density of offices or retail businesses within a radius of two to eight kilometres
- Local conditions favour cycle freight, including general traffic congestion, motor vehicle access restrictions, narrow streets and low motor vehicle parking availability
- One or more national parcel carrier depots are located

Finding suitable areas to target for cycle freight measures involves the identification of potential hotspots followed by an assessment of their suitability. Based on their suitability, the potential for van displacement can be estimated.

Potential hotspots can be identified using a combination of available data and local knowledge. Key available data that highlight suitable target areas include:

- Land use information
- Cycle routes and infrastructure (such as segregated routes, quieter back street route availability and good cycle permeability)
- Motor vehicle traffic restrictions
- Loading restrictions and penalty charge notices, which indicate problematic areas for delivery vehicles
- Traffic flows, speeds and delays

¹ <http://content.tfl.gov.uk/freight-servicing-action-plan.pdf>

- Air quality data, to identify areas that will benefit from a switch to emissions-free transport
- Local delivery activity data – assessed by carrying out a traffic audit or a kerbside activity survey. Kerbside activity surveys are fully described in TfL’s Kerbside Loading Guidance⁹

These datasets can then be used to compare and prioritise potential hotspots, by scoring an area against the following factors:

- **Employment/retail density:** assessing the presence of a fundamental customer base to support cycle delivery operations
- **Micro-consolidation potential:** assessing the potential for accommodating facilities for last mile cycle logistics operations
- **Cycle vs. vehicle permeability:** assessing an area for the relative delivery speed and reliability of cycle freight compared to delivery by vans
- **Congestion:** where high congestion indicates travel time advantages for cycles
- **Presence of BIDs and suitable businesses:** assessing the local business structure and make-up, for receptive policies and suitable delivery requirements
- **Cycle-friendly environment and mode share:** assessing the local demand for cycling and quality of environment for cycling
- **Presence of supportive borough policies and complementary measures:** where cycle freight strategies already align with policy objectives

By scoring areas, effective measures can be targeted in specific areas, with the aim of achieving the greatest potential for uptake. An example scoring methodology is set out in Appendix 2.

5.2 Choosing appropriate options

Section 3 outlined the range of options that are available for promoting and increasing the uptake of cycle freight in a local area. The measures that will be most effective will depend on the suitability and characteristics of the area being considered. For example, in an area where cycle infrastructure is poor, initial measures might focus on improving the environment for cycling before more involved measures can be implemented. In contrast, where cycling infrastructure is already well-developed, more ambitious schemes might be more easily achieved.

Engagement with local stakeholders, including logistics companies and local businesses, is essential in choosing appropriate measures. Through engagement, the local delivery needs and challenges can be assessed, helping to inform the design of any future cycle freight scheme.

5.3 Monitoring success

As cycle freight in London is early in its development, it is important that any schemes are supported by effective monitoring to:

- Learn from early attempts to promote cycle freight
- Quantify the wider benefits and impacts of cycle freight
- Share best practice among boroughs, BIDs and other partners

The key indicators of success will vary depending on the type of scheme (see Table 3). However, common measures of success among schemes include the amount of uptake among businesses and the number of motorised vehicle kilometres avoided. For larger-scale schemes, emissions reductions can also be monitored where changes may be attributed to cycle freight operations. Cycle freight schemes should ideally be monitored on at least an annual basis and Table 4 summarises the measurable data that can be used for monitoring.

Table 3 Example indicators of success for cycle freight measures

	Cargo cycle hire scheme	Zero emissions delivery service
Key indicators:	<ul style="list-style-type: none"> • Number of businesses using the cycles and how often • Motorised vehicle trips avoided • Number of businesses going on to buy their own cycles 	<ul style="list-style-type: none"> • Number of businesses using the service • Number of parcels delivered, and kilometres travelled • Number of motorised vehicle kilometres avoided • Impact on traffic – change in kerbside activity, congestion and traffic flows compared to before the scheme

Table 4 Data that can be used to monitor cycle freight schemes

Cycle Freight Monitoring Criteria		Source
1	Changes in local area vehicle mode share	Primary data collection at fixed or regular traffic count sites
2	Changes in local congestion levels	Vehicle tracking data
3	Changes in kerbside activity	Primary data collection
4	Number of cargo cycle loans/ or co-funding schemes awarded – by month/year	Borough records and surveys of participating businesses
5	Number of businesses and customers using cycle freight deliveries	Surveys of businesses and cycle freight operators
6	Number of locally active cycle freight operators	Cycle Logistics Federation records or local surveys
7	Motorised vehicle trips avoided	Surveys of businesses and cycle freight operators

6 Available support

Funding

- **TfL's Liveable Neighbourhoods** programme provides between £1m and £10m funding to boroughs for long-term, area-wide schemes that deliver MTS and Healthy Streets objectives. Boroughs can submit bids at any time, but submissions for each financial year close in October. Boroughs are encouraged to give due consideration to sustainable and efficient freight when bidding for this funding
- **The Mayor's Air Quality Fund (MAQF)** is a £20m fund, awarded over ten years to support new London borough projects to improve air quality
- **TfL's Healthy Streets Fund for Business** is aimed at Business Improvement Districts (BIDs) and business partnerships for projects that will either reduce freight and van traffic while supporting essential deliveries and servicing, or promote sustainable travel habits while reducing car dependency
- **TfL's Local Implementation Plan funding** can be used for projects that encourage safe, clean and efficient freight. The latest guidance published in 2018 includes examples where promotion and delivery of cycle freight supports the aims of the Mayor's Transport Strategy
- **Developer contributions (S106)** should be sought for infrastructure to support cycle freight schemes, where it can mitigate the impact of freight and servicing activity on the local area

Further information

1. European Cycle Logistics Federation

The European Cycle Logistics Federation (ECLF) was established as the European representative body of cycle logistics in 2012 following the EU-funded Cycle Logistics Project. Local arms of the ECLF, including the UK Cycle Logistics Federation (UKCLF) are in the process of being established.

In addition to its services for cycle logistics operators, the ECLF is a valuable source of information for organisations looking to use cycle freight. They can provide guidance on including facilities in an area or running cycle freight schemes. As part of their services, they offer a workshop designed for city officials and local authorities who are looking to adopt cycle freight. More information is available at the ECLF website: <http://federation.cyclelogistics.eu/content/home>.

2. Reports and guidance

A wealth of information about cycle freight in Europe can be found in material prepared by the ECLF and the CycleLogistics Project (<http://cyclelogistics.eu/>). The following reports include detailed case studies and further recommendations for city officials:

Recommendations on Cyclelogistics for Cities, European Cycling Federation (2015)
<https://ecf.com/groups/recommendations-cyclelogistics-cities>

CycleLogistics Final Public Report, CycleLogistics Project (2014)
http://cyclelogistics.eu/docs/111/D6_9_FPR_Cyclelogistics_print_single_pages_final.pdf

Set of recommendations for follower cities related to infrastructural and regulative measures enabling a step-wise introduction of near zero emissions urban logistics, CycleLogistics Project (2017)
http://cyclelogistics.eu/docs/119/D3_4_Set_of_Recommendations_for_follower_cities_related_to_infrastructural_and_regulative_measures_FINAL.pdf

Resource Pack for Cities and Regions, CycleLogistics Project (2014)
http://one.cyclelogistics.eu/docs/119/D3_3_Resource_Pack_for_Cities_Regions_final.pdf



A series of reports are available from the CycleLogistics project and the ECLF

References

1. London Atmospheric Emissions Inventory (LAEI) 2013 update
<https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory-2013>
2. *Mayor's Transport Strategy* (2018)
<https://www.london.gov.uk/moderngov/documents/b16916/Draft%20Transport%20Strategy%20Thursday%2008-Mar-2018%2010.00%20London%20Assembly%20Plenary.pdf?T=9>
3. *Mayor's Transport Strategy: Supporting Evidence Outcomes Summary Report* (2017) https://consultations.tfl.gov.uk/policy/9b28c200/user_uploads/mts-outcomes-summary-report---full-report-final.pdf
4. *Strategies to increase uptake of cycling freight in London*, Element Energy and WSP (2017)
5. For an example of journey time reduction, see <http://www.av2hire.com/about.html>
6. *London Cycling Design Standards* <https://tfl.gov.uk/corporate/publications-and-reports/streets-toolkit#on-this-page-2>
7. *Set of recommendations for follower cities related to infrastructural and regulative measures enabling a step-wise introduction of near zero emissions urban logistics*, CycleLogistics Project (2017)
http://cyclelogistics.eu/docs/119/D3_4_Set_of_Recommendations_for_follower_cities_related_to_infrastructural_and_regulative_measures_FINAL.pdf
8. <http://www.betterbankside.co.uk/services/cycle-delivery-service>
9. *Kerbside Loading Guidance* <http://content.tfl.gov.uk/kerbside-loading-guidance.pdf>

Appendix 1: Case Studies

Case Study 1 – UPS

Microdistribution

In Europe: UPS has a long-standing low emissions policy for their fleet vehicles. For inner city deliveries, congestion and lack of parking, exacerbated by narrow streets make cycling and walking efficient choices. In Hamburg and Dublin, UPS have worked with local councils to setup cycle freight delivery models.

In each city, parcels are delivered by truck to a city centre storage container for last mile delivery by electric-assist trikes and/or on foot.

In their operation areas, all delivery vehicle routes have been replaced, with drivers switching to cycle freight.

Employee’s perspective: The main benefit has been increased exercise due to cycling and walking. The ability to park the trikes more easily means that more deliveries can be carried out from one location (on foot) than when using a van. Public reception has been overwhelmingly positive, with the trikes regularly photographed by pedestrians. Other road users, such as bus drivers, are supportive.

Moving the model to London: Congestion and competition for space are considerably higher in London. This requires a more sophisticated delivery model to make the system cost-effective.

UPS has partnered with Fernhay, Skotkonung, Outspoken! Delivery and the University of Huddersfield on a project part-funded by Innovate UK. The project aims to develop a system that fully replaces a 7.5t van at scale for last mile deliveries within a given set of postcodes.

In the final model, a vehicle trailer will be pre-loaded at the company depot using dedicated parcel optimisation software. The trailer will then be towed to a city centre by an existing scheduled truck and parked at



an under-utilised location provided by the Council. A parking area the size of two five metre parking bays is required for the trailer for a six hour period. Up to three staff will operate from this location, delivering and picking up parcels by cycle and on foot. Deliveries will be made using an innovative powered platform and ‘smart’ Pay Load Boxes designed by Fernhay and Skotkonung. The vehicle trailer will then be returned to depot at the end of the shift.

A trial commenced in London in 2017, with cycle deliveries initially operating directly out of the UPS Camden depot.

Case Study 2 – Pedal & Post (Oxford)

Third party cycle logistics

Pedal & Post offer last mile and P2P deliveries using non-EAPC cargo cycles to large logistics operators and local businesses. Additional, complementary, services include storage for businesses and residents, pick and pack, and fulfilment. Customers include national carriers (such as Yodel), small businesses, and a pharmacy. Operating out of two shipping containers on the edge of Oxford, deliveries and collections are conducted over a 5-mile radius.

In taking over deliveries for an SME, two cycle routes replaced one van route per day. The flexibility of service allowed the SME to offer different delivery timeslots and to easily expand their business – now serving six times the number of clients as with the van

Relevance for London: The presence of cycle delivery firms can help local businesses grow. In bringing cycle logistics operators to an area, the operators need to be able to build up a good mix of national and local business to become commercially sustainable.



Pedal & Post operate from two shipping containers on the outskirts of Oxford. Additional services such as goods storage are offered from the same site.

Case study 3 - Waltham Forest: Supporting local businesses

Background and motivations

- Waltham Forest have an established wider strategy to improve cycling in the borough through their Mini-Holland scheme
- Cargo cycle schemes were implemented to help improve air quality, to create sustainable delivery options for local businesses and to reduce residents' reliance on private vehicles

Zero Emissions Delivery Service (ZED)

In 2016, Waltham Forest secured £400,000 over three years from the Mayor's Air Quality fund for a Zero Emissions Delivery service. The scheme was implemented over two phases.

Phase 1 – Christmas Courier trial, 2016

For two weeks over the Christmas period, free delivery was offered to businesses alongside a 'Shop and drop' home delivery service for shoppers on Walthamstow High Street

Results:

- 20 businesses signed up to the trial, including florists, bakeries, wine and beer shops, and a local deli
- 1000 packages were delivered in 515 journeys, with riders covering an average of 45km each per day

Phase 2 – Full scheme, 2017

ZED was launched in September 2017 as a partnership between the Council and a cycle logistics operator. The service will be funded for two years and aims to be commercially sustainable at the end of this time.

Results:

- The service is already generating income
- Six council departments use the service for their deliveries
- Businesses to be surveyed to assess emissions savings



Setting up and running the trial

- Six cycle freight companies were consulted for advice on running the scheme
- Business engagement raised interest and ensured delivery needs could be met
- Deliveries were carried out by riders from Cycle Confident
- Promoted via social media and the local newspaper
- Eight to ten Council staff members supported the scheme

Setting up and running the scheme

- Operator appointed through formal tender
- Commercial space under railway arches is rented as a hub
- Delivery staff were employed from the local area
- One Council staff member supports the scheme full-time
- Six cycles and one electric van are used for deliveries
- Businesses receive £100 of free deliveries on sign-up
- Promoted via the website, social media and public events

Case study 3 continued

Business engagement activities

Prior to the Christmas courier trial, business engagement included:

- Letters sent to 5,000 local businesses
- Door-to-door engagement with 500 businesses
- Drop-in sessions were run

ZED – Lessons Learned

- Setting up a cargo cycle delivery service **takes a lot of planning and time**
- **A lot of business engagement is required** for it to be successful
- **It's hard to get people to use something for free** – fewer businesses than expected used the service straight away
- **Full commitment and support from Council membership and leadership** has been invaluable in the success of the programme

Cargo cycle hire scheme

- Residents and businesses can hire one of five Council-owned cargo cycles for free for up to seven days
- The **main costs** in setting up and maintaining the scheme are in the capital cost of the cycles, their maintenance and upkeep, and third-party insurance
- No full-time staff are required, therefore the scheme is not resource-heavy



A delivery rider delivers parcels during the Christmas courier trial



ZED cycles carry out deliveries for local businesses, including a coffee company

Case study 4 - Greenwich: Recharge Cycle Freight Project

Background and motivations

- As part of the Greenwich Low Emission Neighbourhood (LEN) the Royal Borough of Greenwich sought to provide a zero emission delivery option for local residents and businesses
- To support the scheme, they had a budget of £10k to procure a cycle freight operator

Setting up the scheme

(1) Procurement

- Prior to formal procurement, operators were invited to submit an “Expression of Interest” (EOI)
- As part of this process, operators were asked to identify barriers to entry, detail their operational requirements, and outline a plan to be self-sustaining within 2 years
- The procurement was then launched based on the findings from the EOI, and included a range of key performance indicators

(2) Set-up

- The successful bidder was Recharge Cargo, whose business plan included a proportion of national contracts in addition to local contracts
- Greenwich Council then set a target percentage of deliveries to occur within the LEN area
- The £10k funding was invested in two cargo cycles, along with match funding of £5-10k by the operator
- The council helped to agree the use of a container as a micro-distribution site by pairing the scheme with the Greenwich Co-Operative Development Agency (GCDA)
- The container is located on GCDA land on the edge of the LEN and is rented for £50 per month

(3) Launch

- The scheme **launched in September 2017**, with three part-time staff using three electric-assist cargo cycles
- The scheme operates within a four kilometre radius and is within operating distance of a number of national logistics operators
- The scheme was publicised in the local magazine before and during the launch



A Recharge Cargo delivery rider delivering parcels on one of the bespoke cycle freight bikes.

Case study 4 continued

Challenges:

- Initial high demand for the scheme has not been sustained so far
- Securing a contract with a national logistics operator – a key element of the operator’s business plan – has been delayed, affecting the short-term viability of the scheme
- Ad-hoc demand for deliveries from local customers is not currently sufficient to merit operating every day, impacting the availability of the service

Lessons Learned

- Setting up a cargo bike delivery service is **challenging** and results may not be seen straight away.
- It is critical that the operator can secure at least **one big contract**, to support local ad-hoc deliveries
- **It’s hard to get people to commit to the service** – fewer businesses carried on using the service than expected.

Future prospects

- Greenwich Council and Recharge Cargo are discussing using the scheme for the delivery of council goods, including regular publications, newsletters, and consultation materials
- The council are considering incorporating the scheme into workplace travel planning, and marketing the service to the 10 largest businesses in the LEN.
- The council are appointing additional borough resources to assist in the implementation of the scheme
- Both Recharge Cargo and the council are optimistic about the future of the scheme, and expect trading to improve over summer 2018



Deliveries are carried out using a range of cargo cycle types

Case study 5 – Continued

Phase 2 – Preparing Tender for Longer Term Scheme, April 2018

CoL are preparing a tender to procure the cargo bike scheme formally from April 2018. As part of the procurement process:

- CoL are considering offering a 2 year lease to operate the scheme
- Operators will be able to specify use of a maximum of 6 parking bays at Smithfield’s Market
- CoL are considering contributing some funding for local businesses to encourage them to use the service – for example, credits (i.e.£50) for deliveries via cycle freight for each business that registers for the scheme

Funding

Besides the initial pilot, CoL anticipate providing no further significant funding towards the scheme.

Leading by example

CoL are currently reviewing their own delivery, servicing and procurement practices, and would also consider specifying the use of cycle freight operators in some instances.

Challenges

- The **height limit** of all CoL-owned car parks has been an issue in converting them to freight related uses, as panel vans cannot enter to load/unload. Instead this has to be done on-street which can be particularly challenging when market deliveries arrive overnight.
- If **inbound volumes of deliveries** to the market grew significantly as part of the scheme it would pose a problem for the car park manager. Currently most delivered goods originate from the market itself, although some goods are transferred from others sites; for example, Outspoken! transfer some goods from their Waltham Forest site to Smithfield.

Future Prospects The Museum of London may include some provision for cycle freight facilities such as the ones in Smithfield’s Market.



Sam Keam, director of Recharge Cargo, with some of the cargo cycles that are used for transporting goods.

Low Emission Neighbourhood

- The cargo bike scheme is part of the CoL plans for a Low Emission Neighbourhood (LEN), jointly funded by the Mayor of London and the City Corporation
- Jeremy Simons, chairman of the CoL Environment Committee said the scheme was a “significant milestone” in the introduction of the LEN, while Sam Keam, director of Recharge Cargo and founder of Zedify, stated that “*The service will provide local business with an eco-friendly way to move their goods around and reduce air pollution for local residents and workers*”
- Other plans for the LEN include new electric vehicle infrastructure, green taxi ranks and planting and growing projects designed to improve air quality around the Barbican and Golden Lane Estate areas

Appendix 2: Methodology for scoring the potential for cycle freight

Examples of scoring criteria for local area characteristics

Factor	Score		
	1	5	10
Employment/retail density	Primarily residential areas – few employing businesses or organisations	Mixed-use area with medium density of businesses	Primarily retail or office-dominated areas – would support a high delivery rate
Micro-consolidation potential	Limited suitable space available to accommodate the facilities	One or more borough or BID-owned spaces are available but may not be in ideal locations	Several borough or BID-owned spaces exist in good locations and have potential to be used for consolidation
Cycle vs. vehicle permeability	Few motor vehicle access restrictions and no favourable cycle access routes	Some motor vehicle access restrictions along key routes and some direct cycle access routes	High number of motor vehicle access restrictions and favourable cycle access routes
Congestion	Low congestion – traffic delays of 30 seconds per kilometre or less	Medium congestion – traffic delays of one minute per kilometre or less	High congestion – traffic delays greater than one and a half minutes per kilometre
Presence of BIDs and suitable businesses	No BID and few suitable businesses. For example, primarily industrial premises with a greater emphasis on low value, bulky or heavy items.	Active BID or a number of suitable businesses requiring delivery of high value items of suitable size/weight.	Active BID with sustainable travel goals. Mix of businesses primarily requiring delivery of high value items of suitable size/weight. One or more national carrier depots within the area.
Cycle-friendly environment and mode share	No cycle infrastructure and/or high speed limit road network (40mph and above)	Some cycle infrastructure and/or low speed limit roads (30mph and below)	Strong cycle network and high cycle mode share. For example, the area includes a Superhighway
Presence of supportive borough policies	No specific policies or related strategies in place	Some policies and strategies in place or planned	Presence of local schemes such as low or zero emissions zones, low emissions neighbourhoods or other strong sustainable transport policies

A score for each factor can be assigned on a scale from one to ten, where one is low and ten is high. Representative examples are given in the above table and **Error! eference source not found**.below. These scores are largely expected to be based on local expertise, in combination with the datasets listed above, and best done by the same team or individual for consistency.

To give a representative estimate of the overall potential of an area, the factors in this example have been given a weighting based on their relative influence on cycle freight uptake. Once the individual factor scores are assigned, an overall score out of 100 can be generated using these weightings. A worked example for the Hackney City Fringe Low Emission Neighbourhood (LEN) area is given below. The total score can then be related to suitability according to the following categories:

- 0-30: Very low
- 31-40: Low
- 41-60: Medium
- 61-70: High
- 71-100: Very high

This scoring system is based on analysis of the cycle freight sector and discussions with both London borough officers and cycle freight operators. It is intended to provide a consistent approach for assessing uptake potential in any given area. The methodology will continue to be developed and will be revised as the sector matures in London.

Example: assessment of suitability for the City Fringe LEN area in Hackney

Factor	Score out of 10	Factor weight	Weighted score out of 100
Employment/retail density	8	20%	16
Microconsolidation potential	6	20%	12
Cycle vs. vehicle permeability	8	20%	16
Congestion	6	15%	9
Presence of BIDs and suitable businesses	9	10%	9
Cycle friendly environment and mode share	7	10%	7
Presence of policies and complementary measures	8	5%	4
Total score			73

Estimated potential based on area suitability

Based on recent research⁴, a broad estimate of the proportion of vans that could be displaced by cycle freight within an area is given below:

Sector	UK LGVs	% total	Potential	Assigned modal shift		Key enablers
				High scenario	Low scenario	
Construction	930,000	26.8%	None	–	–	
Engineering	260,000	7.5%	None	–	–	
Utilities and services ^a	350,700	10.1%	Low	5%	1%	Support for trials
Retail (major chains)	30,000	0.9%	Low	5%	1%	Support for trials, distribution space
Retail (independent)	55,000	1.6%	Low	5%	1%	Awareness raising, support for purchase, space for storage
Other skilled trades ^b	70,000	2.0%	Low	5%	1%	<i>As retail (independent)</i>
Parcels, post and couriers	297,000	8.6%	High	50%	5%	Space for distribution and storage
Agriculture and environment	100,000	2.9%	None	–	–	
Gardening	165,000	4.8%	None	–	–	
Cleaning and salvage operations	149,000	4.3%	None	–	–	
Mobile catering	1,600	0.0%	None	–	–	
Security and enforcement	30,000	0.9%	None	–	–	
Health care and social transport	23,500	0.7%	None	–	–	
Vehicle repair and parts	60,000	1.7%	None	–	–	
Road transport and distribution	50,000	1.4%	None	–	–	
Other ^c	841,200	24.2%	Low	5%	1%	<i>As retail (independent)</i>
Vehicles between keepers	58,200	1.7%	None	–	–	
Total	3,471,200	100.0%		6%	1%	

^a Includes telecoms, TV audio engineers and electricians

^b Includes florists, woodworkers, glass and pottery makers

^c Includes a variety of self-employed professions

Source: *Van Excellence Review, 2015/2016* Freight Transport Association

Estimate of vehicle displacement by cycle freight based on local area score

Area suitability	Very low	Low	Medium	High	Very high
Proportion of vans (and van kilometres) that can be displaced by cycle freight					
Area with typical freight activity^a	< 0.5%	0.5-0.9%	1%	1-2%	2-6%
Areas with high levels of parcel, post and courier activity^b			1-2%	2-5%	5-14%

^a Typical freight activity assumes just under nine per cent of vans are involved in collection and delivery, in-line with UK-wide van activity as reported in the *Van Excellence Review 2015/2016* (Freight Transport Association, 2016).

^b In areas of high levels of parcel, post and courier activity, up to 64 per cent of vans can be involved in collection and delivery (*Oxford Street Kerbside Activity*, Westminster City Council and TfL, 2015).