



Loads Easier

dynamic kerbside management - the key to unlocking a greener, safer, and more equitable city future



Introduction

With the UK economy losing £6.9bn a year because of congestion, and deliveries expected to double by 2030 in London alone, cities are beginning to recognise the importance of effective kerbside management to help reduce congestion, improve air quality, and allow the safer delivery of goods and services needed to keep their cities running. With greater pressures on this limited space, cities are looking for innovative ways of enabling greater kerbside usage in a way that is flexible, safe and offers equitable access to all.

Freight, servicing and delivery vehicles in London:

- Make up 23% of all road transport CO2 emissions, 33% of NOx, and 29% of all PM2.5
- Make 400,000 freight trips in the city a day – with a 54% increase in van kilometres in the past 25 years
- Drivers spend an average of 149 hours stuck in traffic a year
- Road transport is responsible for 2 million tonnes of CO2 a year
- 9,500 premature deaths a year are attributed to poor air quality

New research by Stantec and Grid Smarter Cities shows how the impact of freight, servicing and delivery vehicles on the city's road networks can be improved by a dynamic kerbside management scheme.

The Loads Easier report builds upon research by the Centre for London and London First which outlined how London-wide solutions, such as dynamic kerbside management are needed to meet the growing demands and challenges of delivery access in London.

This report is the first research that quantifies the size of the social, economic, and environmental benefits that the fully customisable dynamic kerbside management platform - 'Kerb' - can play in better managing the range of growing freight, servicing and delivery challenges across the whole of London.

What is Kerb?

'Kerb' is a fully customisable digital kerbside management booking platform from Grid Smarter Cities that allows 'Kerb Owners' (highway authorities or landowners) to offer bookable access slots, or bays, on its kerbside, enabling freight, servicing and delivery drivers (Kerb Users) to book kerbside slots in advance to safely deliver the goods and services needed at the right place at the right time, first time.

Kerb enables more efficient use of kerb space in cities by bringing together multiple data sources to accurately map supply and demand for kerb space and enable dynamic and flexible management of the kerb space for freight, delivery and servicing vehicles in an urban area, effectively creating a digital twin 'asset' for use by local authorities, transport and infrastructure planners.

As a result of this aggregation of data and digitalisation, Kerb then facilitates use cases including, bookable permit loading bays, virtual loading bays, loading extensions, and zonal and skip permit management, where roadside permissions can flexibly adapt to need, following an agreed permissions hierarchy set by the authority.

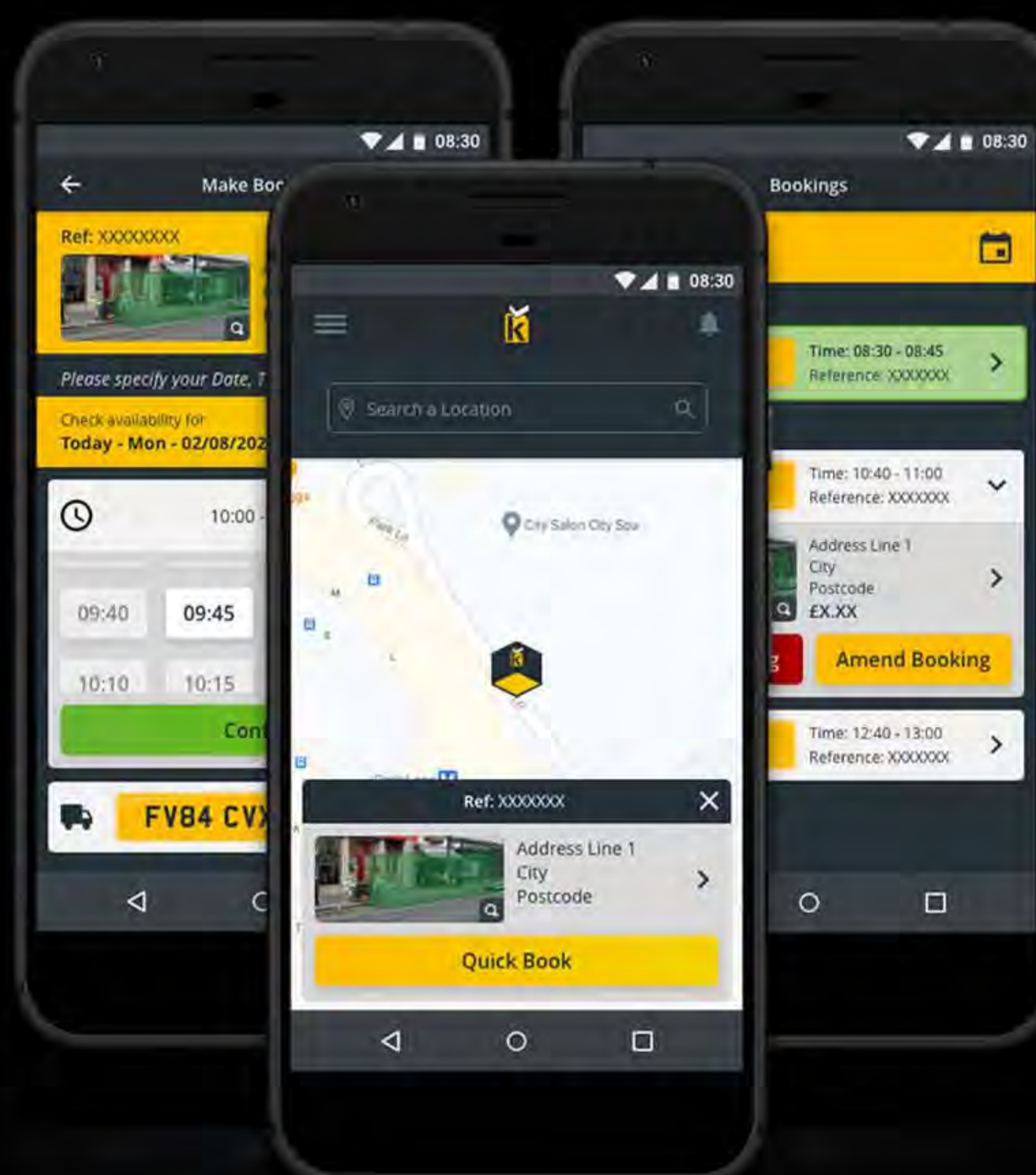
Bay usage can be customised both temporally and spatially, dramatically increasing kerbspace availability and throughput from what was a previously fixed asset. This gives cities greater flexibility in how this scarce public asset can be better used - think if the same kerbside can be used as a loading bay in the morning, cargo bike parking in the afternoon, streaterie in the evening and taxi rank by night.

Kerb not only addresses the immediate and near term kerbside uses, but also anticipates the connected and automated mobility kerbside and pavements of the future. The earlier a holistically digitally managed kerbside is implemented the greater the overall environmental, social, societal and economic gains to be made.



Kerb Users

Commercial vehicle operators, freight and logistics, delivery drivers, service and maintenance vehicles.



Kerb Owners

Local authorities and landowners with the legal responsibility for highway and kerbside management, congestion, planning and air quality.

Bringing order to the kerbside with a flexible, user management tool enabling prioritisation and a permissions hierarchy approach to turn a static 2 dimensional piece of real estate into a 3 dimensional flexible and dynamic asset

Kerb Platform Solutions

The Kerb platform consists of a suite of products, currently Kerb Delivery, and Kerb Construction, that can be implemented across a single bay, multiple bays or wider areas; varied by time of day, vehicle type and location. All of which can be augmented by e-ink on two or three-sided smart signs on the street providing information on current and future uses and bookings.

Kerb Delivery – Provides an advanced booking capability to access kerbside locations. It incorporates a web app for the delivery company, a mobile app for drivers and connects directly to the highway authority's mapping, enforcement and payments solutions. It currently has four bay types, designed to meet the specific needs of different Kerb Users, and the rules and priorities of the Kerb Owner.

- **Permit Loading Bay:** The digitalisation and management of an existing on-street parking or loading bay, allowing bookings to be made by time slots via the Kerb platform.
- **Virtual Loading Bay:** Digitally created alternative location for when the Permit Loading Bay is blocked or unavailable; or as a standalone digitally created bay that requires no physical signage or infrastructure.
- **Loading extension:** Ability to extend the typical 20 mins LGV, and 40 mins HGV loading time limits in designated loading zones.
- **Zonal permit:** Daily access permit allowing access to restricted kerbside within a permit restricted zone, or defined geographical area.

Kerb Construction – Coordinates last mile vehicle movements to and from a construction site via a series of 'Virtual Holding Bays'. It incorporates a web app for site management, contractor and haulier, and a mobile app for drivers and traffic marshals.

Assessment method

Global transport and infrastructure consultancy Stantec assessed the Kerb products using the Department for Transport's Transport Appraisal Guidance (TAG). As part of the assessment a range of parameters and metrics were defined such as delivery slot duration, kerbside capacity and kerbside demand. These assumptions were then used to examine the performance of the products in different urban settings and to compare costs with benefits for both kerb owners (i.e. local highway authorities) and kerb users (i.e. delivery companies).

Benefits

The findings suggest that a fully deployed scheme across the capital would deliver a suite of positive and complementary social, environmental and economic benefits for the whole of London.

Highlighting savings of more than 20 million kilometres driven from the freight, servicing and delivery sector, which would reduce CO2 emissions by 15,000 tonnes per annum (more than saved annually by ULEZ), an annual equivalent of removing 12,600 cars from the road.

Kerb would also enable 21% more deliveries for the freight servicing and delivery sector by improving operational efficiency, and saving over 3 million hours of wasted delivery time each year - by removing the hassle of finding suitable and safe parking points to deliver goods.

The scheme could generate up to £140 million per annum in revenue for TfL and London local authorities, while substantially improving safety on the capital's roads.

Other schemes

The Kerb platform was compared with a selection of other transport schemes. Kerb delivers a comparable and complementary set of benefits.

- **Click and Collect:** London First found a network of click and collect across London could save 75 million van kilometres, and reduce parcel delivery CO2 emissions by 20% or 16,700 tonnes per year.
- **The Ultra Low Emission Zone (ULEZ):** TfL estimates the ULEZ could save more than 12,300 tonnes of CO2 each year.
- **E-cargo bikes:** a two-week trial used e-cargo bikes to make 95% of local deliveries under 5km – gave potential annual saving of 2,200kg of CO2.
- **Consolidation:** an academic study by FTC2050 modelled five parcel carriers in central London, delivering 3000 items to 900 locations, using a single carrier. It showed delivery vans and drivers needed fell from 33 to 13, saving 39,000 driver hours, 175,000km driven, 53,000kg of CO2 and 56kg of NOx.
- **Portering:** FTC2050 assessed the potential of portering (i.e. multiple deliveries made on foot from a vehicle) based on a major parcel carrier in London. Results suggest CO2 emissions fall by 45% (9500kg/year), NOx by 33% (8kg/year), and driving distance reduced by 78% (48,100km/year).

Kerb Owner Benefits



Reduce CO2 emissions by **15,000 tonnes** per annum (more than the 12,300 tonnes of CO2 saved by ULEZ per annum).



Equivalent to removing **12,600 cars off the road per annum.**



The scheme could generate up to **£140 million in revenue for London per annum** and substantially improve safety on the capital's roads.

- Delivering on Freight Action Plans
- Reduced congestion
- Reduced emissions
- Targeted enforcement efficiencies
- Increased kerbside utilisation
- Safer streets with fewer poorly parked vehicles reducing conflict with Vulnerable Road Users
- Data to inform re-timing of fleet delivery schedules, or re-allocating or amending kerbside restrictions/zones
- Revenue positive solution
- Data to inform EV charging infrastructure at locations where delivery vehicles dwell, enabling 'graze' charging
- Two or three sided smart sign conveying usage restrictions, booking & community information; with flexibility to make dynamic changes to individual signs or block adjustments to kerbside restrictions

Kerb User Benefits



Saves over **3 million hours** in wasted delivery driver time per annum by removing the hassle of finding safe and suitable kerbside locations to park.



Enables **21% more deliveries** by improving operational efficiency.



Reduces freight, servicing and delivery kilometres by **20 million per annum** in London helping to ease congestion and improve safety in the capital.

- Certainty of kerbside timing, access, use and cost
- Easy API integration enables operational routing & scheduling, and load planning efficiencies
- Reduced PCNs - savings reinvested towards going fully EV
- Reduced impact on congestion and pollution
- Reduced driver frustration
- Precise understanding of restrictions
- 21% operational efficiency gains
- Standardised approach to kerbside access across authorities

About Grid Smarter Cities



Grid Smarter Cities is a technology and software solutions company founded in 2009, specialising in kerbside management solutions for commercial freight. It has 15 granted patents across a number of territories covering kerbside delivery, servicing and construction sectors.

Grid has assembled a unique team and suite of solutions to address the full complexity of freight servicing and delivery challenges. Grid's award winning solutions have attracted worldwide interest from cities, transport & infrastructure companies, consultancies, and strategic international investors.

Grid's mission is to improve journeys and lives by curating an ecosystem of connected technologies that enables equitable and sustainable access within communities.

About Stantec



Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of place and of belonging. That's why at Stantec, we always design with community in mind.

We care about the communities we serve—because they're our communities too. This allows us to assess what's needed and connect our expertise, to appreciate nuances and envision what's never been considered, to bring together diverse perspectives so we can collaborate toward a shared success.

We're designers, engineers, scientists, and project managers, innovating together at the intersection of community, creativity, and client relationships. Balancing these priorities results in projects that advance the quality of life in communities across the globe.

See the full reports here:



Loads Easier:

unlocking the power of the kerb

[Read the full report](#)

Worth the Weight:

Making London's deliveries greener and smarter

[Read the full report](#)

For the goods of the city:

A new approach to freight, servicing and deliveries traffic

[Read the full report](#)

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