

Urban space and dynamic curbside management
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Increasing accessibility of customers and freight vehicles to stores:
promoting the local economy and address the decline of physical stores in
commercial streets

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**SUSTAINABLE URBAN
FREIGHT SYSTEMS**

Curbside complexity: so many demands on this space



Walking
Eating
Shopping
Building repairs
Waste collection
Moving home
Cycle hire
Waiting

...

...

Curbside users

Decisions on curbside allocation are contentious since satisfaction of one user's needs may happen at the expense of other users' needs.

	Demand Type				
	Access to transport services	Movement of people	Storage	Access to goods	Enjoyment of public space
Examples	• Public transport stops • Ride hailing pick-up / drop-off • Taxis pick up / drop off	• Public transport (bus lanes) • Pedestrian alleyways • Bike lanes • Scooter riders	• Private vehicle parking (short and long term) • Electric vehicle charging • Bike parking • Scooter parking • Waste containers	• Loading zones for freight • Commerce delivery	• Trees • Planters • Tactical urbanism • Farmer's markets • Snow removal • Construction • Restaurants / cafés service areas • Parklets
Street functions	Movement		Place		Place/Environmental

Modified from (Smart Cities Collaborative, 2020)

Range of users and needs: Pedestrians

Safe environment

Wide range of ages

Encouraging walking (and cycling)

Health - air quality



Range of users and needs: Residents

Parking

Deliveries to the home

Services - building, renovation, repairs



Range of users and needs: Transport companies

Importance of cost and efficiency

Operate safely and within the law

Complex regulations

Time taken to deliver often more than driving time



Range of users and needs: Business

Reliable deliveries and access at the right time

Safe working environment

Many items time sensitive - food, urgent packages etc



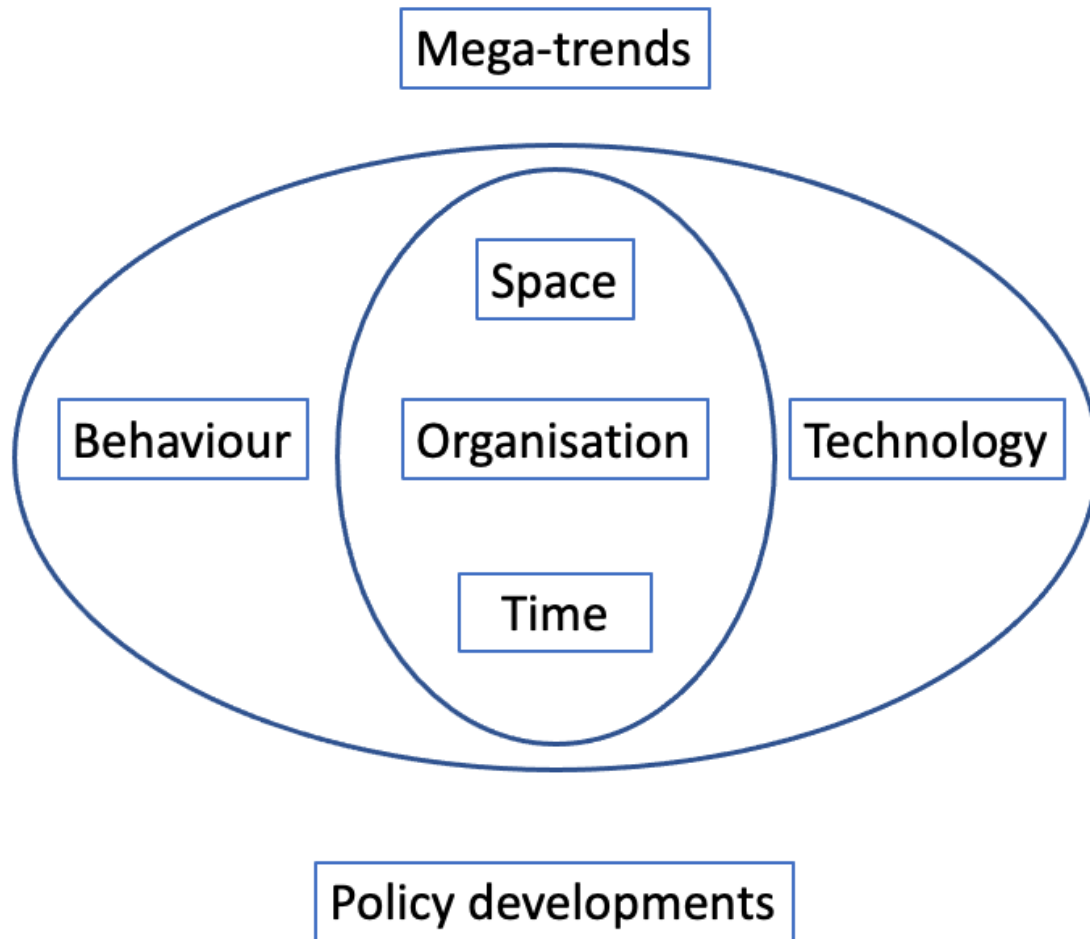
Freight operations at the curbside

- Freight vehicles spend between 40% and 80% of the time parked on urban streets (Sanchez-Diaz et al., 2020; Fransoo et al., 2022).
- Lack of curbside space for freight operations, e.g., loading zones, leads to either cruising for parking or illegal parking.
 - Cruising for parking occurs in 70 – 80% of the last-mile deliveries in European cities (Lopez et al., 2016).
 - Illegal parking, e.g., double parking, occurred in up to 50% of the freight movements (Roca-Riu et al., 2017).
- The Council of Supply Chain Management Professionals estimated that last-mile deliveries represent 28% of the cost of the entire supply chain (Butrina et al., 2017)



Better curbside space management for freight operations is one of the most promising tools for reducing the impacts of last-mile deliveries in urban areas.

Urban logistics perspective



- Space
- Time
- Organization

Can relate these to the challenges of managing the curbside and deliveries

Space - Time - Organisation

Space

- Urban design
- Building design (taking account of freight deliveries)
- Street design – potential improvements
- Transport – changing needs
 - People
 - Goods (road and curbside)

Time

- 24 hours – but cannot be fully used
- Problem of the peaks
- Time taken to implement change

Organisation

- Hierarchy of use and allocation of space
- Inventory of space and measurement of demand
- Management and enforcement

Changes in kerbside regulations and allocation over time (Allen, 2021)

1900-1950

No kerbside regulations
No dedicated kerbside space



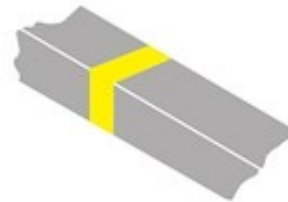
Source:
https://commons.wikimedia.org/wiki/File:Broadstairs_High_Street,_Kent_England_-_pre_WWI.jpg



Source:
https://commons.wikimedia.org/wiki/File:Little's_Adelaid_House_Cafe,_Central_Parade,_Deal,_Kent_England.jpg

1950s/1960s

Yellow lines regs introduced
No dedicated kerbside space

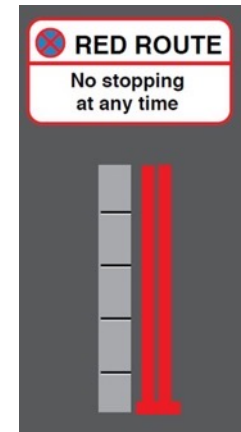


No Loading
Mon - Sat
8.30 am - 6.30 pm

Source: London Councils

1990s

Increase in dedicated bus
lanes & red routes



Source: Logistics UK

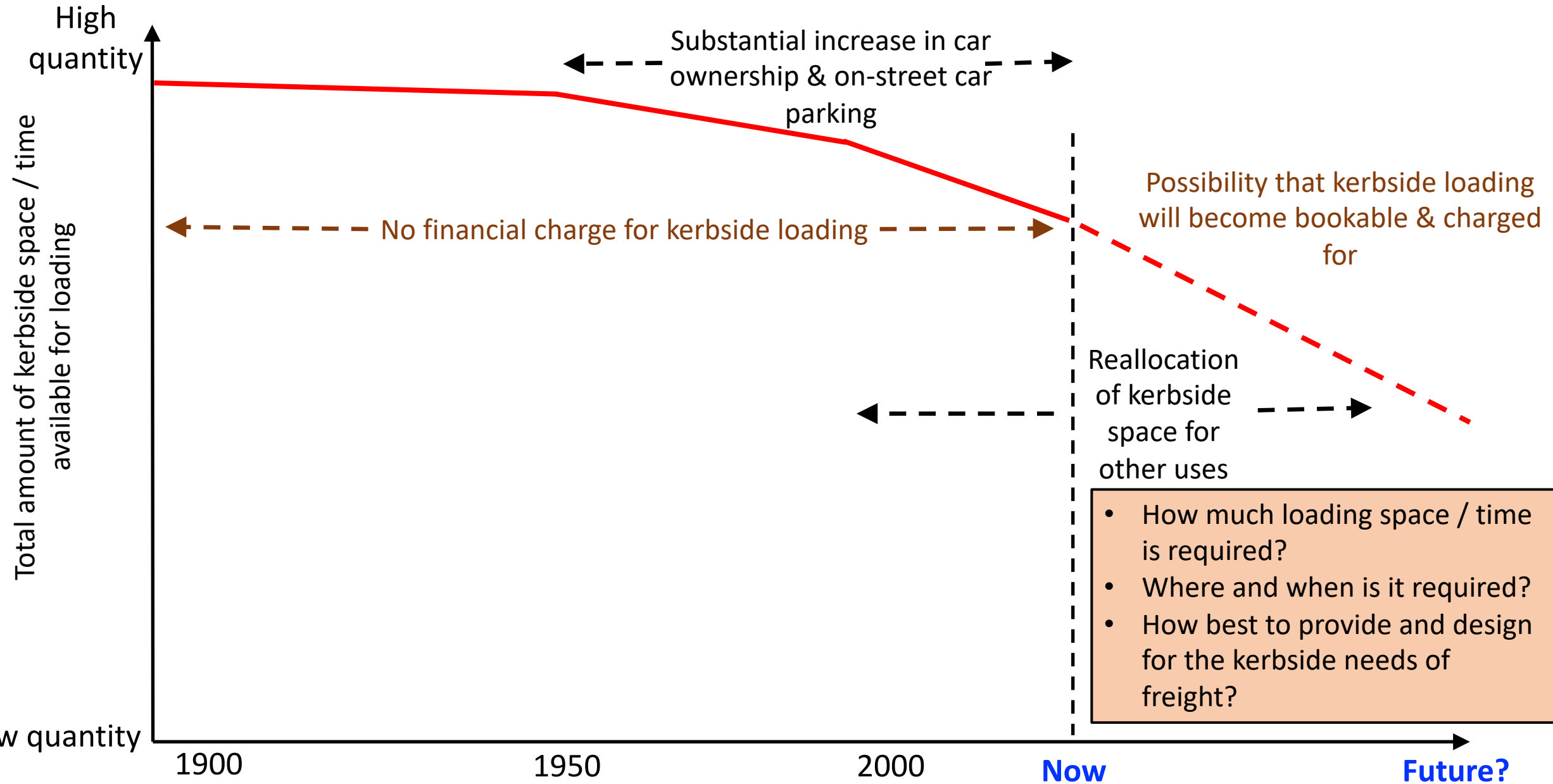
Last decade

Further increase in dedicated
kerbside space for various uses



← Increasing requirement to use dedicated
space for loading in some locations →

Indicative change in available kerbside loading space / time (Allen, 2021)



Reflections

- Critical, complex and contested
- Demands rising but space static or diminishing – new approaches needed
- Area based solutions versus a more narrow focus
- Essential to find ways to increase flexibility – time, space and organisation
- Engagement and partnership should be considered alongside technology developments

Thank you



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- Allen, Julian. (2021) presentation to the Central London Freight Quality Partnership 2 November 2021.

Other articles

- Castrellon, Juan Pablo. Sanchez-Diaz, Ivan. (2022). Uncovering freight curbside management effects on cities' sustainable development goals. A systematic literature review. Accepted at the Transportation Research Arena (TRA) Conference.
- Kalahasthi, L., Sanchez-Diaz, I., Castrellon, J.P., Gil, J., Browne, M., Hayes, S., Sentis, C. (2022) 'Joint Modeling of Arrivals and Parking Durations for Freight Loading Zones: Potential Applications to Improving Urban Logistics'. *Transportation Research Part A: Policy and Practice*, 166, pp. 307–309.

Links and further information

1) Urban Freight Platform an initiative at University of Gothenburg and Chalmers supported by the Volvo Research & Educational Foundations (VREF):

<http://www.chalmers.se/en/centres/lead/urbanfreightplatform/Pages/default.aspx>

VREF Urban Freight Conference, Gothenburg (March 2021 – online event with a selection of presentations available at:

<https://www.chalmers.se/en/centres/lead/urbanfreightplatform/vref-2021/Pages/Conference-Program.aspx>

2) Center of Excellence: Sustainable Urban Freight Systems (supported by VREF) for webinars and other information available see: <https://www.coe-sufs.org/>

3) Why Goods Movement Matters - by the RPA in collaboration with the VREF

<http://www.vref.se/publications/researchsynthesisreports/researchsynthesisreports/whygoodsmovementmattersbytherpaincollaborationwithhevref.5.1feef8b156cfde87aa3d60e.html>

Interactive website: <http://goodsmovementmatters.org>