



# Overcoming the Barriers for Commercial Cargo Bike Goods Movement

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## Project Objective

The use of cargo bikes for last-mile deliveries has seen renewed interest, as more sustainable modes are needed to meet the carbon reduction strategies. Furthermore, cargo-bikes contain possibly the greatest co-benefits of any emission reduction strategies for the freight sector. With the goal of informing state, regional, and local government efforts for transforming local goods movement, researchers at the University of California, Davis synthesized the literature on cargo bikes for goods movement with a specific focus on the challenges facing California. Key findings from the research are summarized in this brief.

## Problem Statement

General accounting suggests that around 43.1% of transport GHGs come from freight transport and over 80% of these transport emissions come from trucks (Hollingworth & Sims, 2011). Furthermore, the GHG emissions from freight have been increasing rapidly. These increases have become of great concern as climate targets have become more aggressive (Hofmann et al., 2017). In addition to emission concerns, growing e-commerce and freight volumes have put greater stress on cities including infrastructure wear, congestion, and air pollution (Hofmann et al., 2017). Large scale changes in how we distribute goods is urgently needed.

## Results

**Lack of infrastructure such as protected bike lanes and unloading zones are a barrier for cargo bikes.**

Safe and direct bicycling networks are needed to allow for cargo bike goods movement. Relatedly, traffic signals that prioritize bike traffic and make intersections safer (e.g., protected left turns, no turn on red) are needed to support bicycling of all kinds. These benefits accrue for moving people and goods by bike.

**Local distribution hubs or micro consolidation centers (MCCs) are needed to make cargo bike last-mile delivery possible.** Because bikes have limited cargo capacity, they are best suited for frequent short trips near a centrally located hub for reloading cargo. Designing and implementing these hubs or centers requires a lot of coordination between government and private operators, and customers.

**New flexible regulations on vehicle form (e.g., number of wheels), speed, capacity, and insurance, among others are needed to provide structure for the development of standardized vehicles.** To take advantage of the growth in vehicle form factors, regulations should be clear yet flexible to allow for future vehicle types to suit a variety of good movement needs.

**The combination of incentives to operate cargo bikes with disincentives for vans and truck (including zero-emission vehicle zones, truck-free zones, slow-speed zones, access restrictions), are the most powerful interventions to implement a shift from trucks to bikes for last-mile deliveries.** Evidence is less clear on awareness campaigns, although much of that uncertainty may be due to challenges in measurement and evaluation and less to do with the effectiveness of the strategy. Public, government, and operator awareness may still be important strategies to pair with incentives and infrastructure.

**Cargo bikes have a huge potential for goods movement in the US.** However, a major shift in the delivery landscape is needed to realize this potential. That shift includes new collaborations across different organizations, from the top leadership level to the bottom cargo bike delivery person level as well as integration of the communities who would be primary service beneficiaries.

**Cargo bikes can be efficient last-mile delivery vehicles, working as a complement to trucks in the freight landscape.** Accelerating the cargo bike adoption requires support from the local and state level that includes the development of urban consolidation hubs, investment in bike infrastructure, and strict restrictions on diesel vans. In addition, providing incentives to the freight operators can encourage them for the larger deployment of cargo bikes that in turn can achieve economies of scale and drive down the cost of delivery in the long run with cargo bikes.

**Several strategies and policies require certain land use contexts and stakeholders to be successful.**

Table 1 summarized several strategies and their policy considerations.

**Table 1. Synthesis of policies and strategies to support cargo bikes for goods movement**

Category	Policy/Strategy	Stakeholders	Land Use Context
Funding / Incentives	Direct incentives to delivery companies for capacity building	<ul style="list-style-type: none"> <li>Food and parcel delivery companies</li> </ul>	Dense mixed-use
	State-level funding for running pilot projects	<ul style="list-style-type: none"> <li>Food and parcel delivery companies</li> <li>Local government</li> <li>Local businesses</li> </ul>	Dense Mixed, Residential, Commercial
	Incentives in the form of free parking for delivery	<ul style="list-style-type: none"> <li>Food and parcel delivery companies</li> <li>Local parking management authority</li> </ul>	Dense Mixed, Residential, Commercial
Bike Infrastructure	Providing community-level safe bike infrastructures	<ul style="list-style-type: none"> <li>Food and parcel delivery companies</li> <li>Individuals living in communities</li> </ul>	Dense Mixed, Residential, Commercial
Parking infrastructure	Providing cargo bike corrals along the curbside of the road for loading unloading and parking while delivery	<ul style="list-style-type: none"> <li>Food and parcel delivery companies</li> <li>Local parking management authority</li> </ul>	Dense Mixed, Residential, Commercial
Urban consolidation centers (UCCs) and Micro Consolidation centers (MCCs)	Provide UCCs and MCCs at appropriate locations that serve the integration of truck deliveries to last-mile cargo bike deliveries	<ul style="list-style-type: none"> <li>Local businesses</li> <li>Local government</li> </ul>	Dense Mixed, Mixed, Single, and Multi-family Residential, Commercial
Charging Facilities	Provide charging facilities for cargo bikes with electric vehicles	<ul style="list-style-type: none"> <li>Local government</li> </ul>	Dense Mixed, Mixed, Single, and Multi-family Residential, Commercial

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Category	Policy/Strategy	Stakeholders	Land Use Context
Truck/ Van restrictions	Restriction of trucks/vans on certain types of streets in the neighborhood	<ul style="list-style-type: none"> <li>• Local businesses</li> <li>• Food and parcel delivery companies</li> <li>• Local government</li> </ul>	Dense Mixed, Residential, Commercial
Design regulations	Produce homogenous cargo bike design regulations that can accommodate a variety of designs and vehicle forms	<ul style="list-style-type: none"> <li>• Food and parcel delivery companies</li> <li>• Local government</li> <li>• Cargo bike manufacturer</li> </ul>	
Cargo bike movement guidelines on roads	Consistent and clear guidelines for allowing the movement of different types of cargo bikes on different types of roads and bike infrastructures across communities	<ul style="list-style-type: none"> <li>• Food and parcel delivery companies</li> <li>• Local government</li> </ul>	Dense Mixed, Residential, Commercial
Parking Citation	Provide a clear guideline regarding how the commercial cargo bikes will be cited when violate parking regulations	<ul style="list-style-type: none"> <li>• Food and parcel delivery companies</li> <li>• local parking management authority</li> </ul>	Dense Mixed, Residential, Commercial
Awareness and Outreach	Community-level awareness building for accommodating the disruptive change in the delivery landscape	<ul style="list-style-type: none"> <li>• Food and parcel delivery companies</li> <li>• Individuals living in communities</li> <li>• Local government</li> <li>• Local businesses</li> </ul>	Dense Mixed, Mixed, Single, and Multi-family Residential, Commercial

The full white paper, “Policies and Strategies for Cargo Bike Goods Movement in California” can be found at <https://doi.org/10.7922/G2KK994C>.