

Where's my package? Common carrier freight lockers can ease city traffic and prevent failed deliveries

December 12 2018, by Barbara Ivanov And Anne Goodchild



Common carrier locker pilot test at the Seattle Municipal Tower. Shown: Chris

Eaves and Jude Willcher, Seattle Department of Transportation, and Barbara Ivanov, Urban Freight Lab. Credit: Barbara Ivanov, [CC BY-ND](#)

Online shopping is a big convenience for many Americans, but porch piracy can ruin the experience. For example, Mikaela Gilbert lived in a row house in West Philadelphia while she studied systems engineering at the University of Pennsylvania. By her junior year, Gilbert had lost enough packages to thieves that she devised an elaborate three-pronged security strategy.

Her first line of defense was having online purchases shipped to a friend who lived in a high-rise apartment where a doorman secured incoming packages. She also sent orders to her parents' house in New Jersey when she had a visit home planned. But both of those options were hugely inconvenient, so sometimes she routed deliveries to her place after texting her seven housemates to be on the lookout.

When Amazon installed [branded delivery lockers](#) near the center of campus, Gilbert began receiving packages there, which was less stressful than managing a small army of collaborators. But it limited her shopping to just one retailer. When Amazon didn't have something she wanted, she had to fall back on her circle of friends.

Retailers delivering to a customers' homes also want to avoid these situations. Research at our lab has identified a promising alternative: publicly accessible common carrier freight lockers where all retailers can leave packages for pickup.

So many stops, so little time

Like Amazon's branded lockers, common carrier lockers are automated,

self-service storage units that provide a secure location for customers to receive online purchases. However, any retailer or delivery firm can access them. Some private buildings have such lockers now, but those are only open to residents. [Our study](#) examined the effectiveness of locating them in [public spaces](#) in dense urban areas, where they can be available to everyone.

The University of Washington's [Urban Freight Lab](#) is a structured research work group composed of leading retail, logistics and delivery firms. We partner with the Seattle Department of Transportation, collect and analyze data, and run pilot tests of promising solutions in Seattle's Center City area. Our focus is on solving urban delivery issues in an age when e-commerce is exploding, city populations are expanding, and gridlock is reaching epic levels.

In its [first report](#), published in early 2018, the lab analyzed the "Final 50 Feet" of the urban goods delivery system – the last leg of the supply chain. It begins when trucks pull into a parking space and stop moving, whether at the curb, in an alley, or at a building's loading dock or internal freight bay. From there, it follows delivery people inside urban towers, ending where customers receive their packages.



Urban Freight Lab student data collectors document delivery times in Seattle Municipal Tower pilot project. Credit: Barbara Ivanov, [CC BY-ND](#)

Researchers discovered two especially thorny challenges in this segment of the chain: extended "dwell time," when trucks are parked in load/unload spaces too long, and failed first delivery attempts due to causes that include porch piracy. Solving these puzzles could reduce delivery costs, traffic congestion and crime rates, and improve online shoppers' experiences.

Delivering packages one at a time to individual homes or offices is time-consuming and requires driving to multiple locations and parking in multiple spaces. It also results in failed first delivery rates of up to 15 percent in parts of some cities, according to some of our lab's member

companies. Instead, we decided to try creating delivery density in a single location right where the trucks unloaded.

Centralized lockers where people live and work

Accordingly, the Urban Freight Lab's second research project pilot-tested placing a common carrier locker system in the 62-floor [Seattle Municipal Tower](#) in downtown Seattle's financial district. This step [cut the time required to make deliveries in the tower by 78 percent](#). The next question was where to locate more of these delivery density points, or "mini-distribution nodes," as the study called them.

Amazon, which is headquartered in Seattle, had already approached regional transportation agency [Sound Transit](#) about locating its branded lockers at the agency's Link light rail stations. But public stewards of the property – the Seattle Department of Transportation, Sound Transit and King County Metro – did not want to advantage one carrier or retailer over others. Instead, we suggested locating common carrier lockers.

The transit agencies saw that this could reduce [delivery](#) truck traffic in neighborhoods they served, easing congestion and reducing vehicle emissions. And their mobility hub policies aimed to create lively public spaces that offered not only multiple transportation modes but lots of convenient amenities.

In a survey of 185 riders at three transit stations, our lab's third research study found [strong interest in the lockers](#), with up to 67 percent of respondents at each station willing to use them and the vast majority willing to carry a [package](#) three to six blocks to do so. These responses, plus the fact that some 137,000 people lived within a 30-minute walk of the three stations, suggested that tens of thousands of Seattle residents would be willing to use common carrier lockers at those stations.

For retailers like Nordstrom, the lockers represent a potential solution to porch piracy and other glitches associated with [online shopping](#). "Rather than leaving the package at a door, some carriers want customers to come to their location to collect the package, while others might redeliver," Loren VandenBerghe, director of transportation for Nordstrom, told us. "Whatever the process, the customer has to track down the package. Instead, we'd prefer to get the package in our customer's hands when they expect it."

Researchers have developed criteria for selecting locker locations and chosen five possible sites at or near the transit stations for pilot testing. We have received funding from the U.S. Department of Energy to expand use of common carriers lockers in public spaces to a larger area in Seattle's dense urban core and start actively managing the load/unload space network with new technology. Delivery drivers will be able to pull right up to lockers and unload goods, and riders can pick up their packages when they hop on or off a bus – making it much more convenient than waiting for a truck and scanning the street for porch pirates.

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