UNIVERSITY TRANSPORTATION CENTER

RESEARCH BRIEF

PROJECT TITLE: **Developing Design Guidelines for Commerical Vehicle Envelopes on Urban Streets**

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INSTITUTION: MULTI-INSTITUTION PROJECT
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Background

Commercial vehicles are not typically provided with an envelope, or a space allocation adjacent to the vehicle for loading and unloading activities. While completing loading and unloading activities, drivers are required to walk around the vehicle, extend ramps, and maneuver goods; these activities require space around the vehicle. The unique needs of a delivery truck are not acknowledged in current design practices.

Drivers of them resort to using pedestrian pathways for unloading activities and using bicycling infrastructure to transport goods by hand. These actions put themselves, and other road users in direct conflict and in harm's way. The purpose of this research is to improve our understanding of the interactions between heavy vehicles and other users in an urban environment, in particular, in cases where commercial vehicle activity disrupts the activity of pedestrians and bicyclists. This information will support better roadway and load zone design guidelines, which will allow our urban street system to operate more efficiently, safely, and reliably for all users.

Research Project

This research will use two methods to better understand the need for a commercial vehicle operating envelope - a space around the vehicle for unloading or loading activity and driver maneuvering.

The first is a field study in urban Seattle of current practice and the evaluation of existing infrastructure. The research team will survey and observe freight activity at a range of different configuration of Commercial Vehicle Load Zones (CVLZ). The length and width of each observed CVLZ and the space used for unloading activity will be recorded. The research team will also collaborate with a trucking company to simulate various deliveries while recording the movement around each truck. As a second phase, the researchers will work with Oregon State University's driving simulator laboratory to design an experiment to test driver and bicyclist behavior around the truck and to estimate a safe operating envelope that would absolve conflicts. Different envelope will be explored for different vehicle types, handling equipment, and cargo characteristics. From these results, design recommendations will be drawn that will allow for safe and efficient shared roadway use.

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