STRIDE | Southeastern Transportation Research, Innovation, Development and Education Center

Technology Transfer Final Report

STRIDE Project C2

Urban Freight and Planning

August 1, 2018- December 31, 2019

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1. Project Overview

Limited freight loading space provision in city centers increases illegal loading behaviors such as double parking or parking in bicycle lanes or sidewalks. Such traffic violations have caused concerns among urban planners, engineers, and the public about localized congestion and safety impacts on delivery workers and other road users. Despite the importance of these issues, research on the planning processes that determine freight loading provision is very limited. Our study addresses this gap by reviewing the zoning code requirements for loading zones in the twenty largest U.S. and the four largest North Carolina cities and by interviewing professionals about loading zone policies and practices.

We discovered significant variations in off-street loading requirements across large cities. In some of them like Los Angeles and Houston, the requirements are so low that most small buildings in city centers are exempt from any required loading space provision. While on-street loading spaces are currently an important supplement to off-street ones, interviews with transport planners revealed that the provision of on-street loading spaces is often ad-hoc based on requests by local businesses.

The findings can help transportation planners and engineers better understand how the accommodation of urban freight delivery demand links to urban planning zoning requirements for off-street loading zones and practices around on-street loading space provision.

2. Research Goals

The goal of this research was to identify the urban planning policies and practices that determine the supply of on- and off-street loading zones. This is important because changing consumption patterns have increased freight demand leading to congestion and safety concerns.

3. Findings

We discovered that processes for off- and on-street freight loading zones are ad-hoc and have generally not been updated to reflect current demands for freight delivery. These findings suggest a localized spatial mismatch between freight loading demand and overall loading supply given the current zoning systems. Such mismatch, which contributes to congestion delays for freight and people as well as road safety impacts, calls for special attention from policymakers by revising off-street loading requirements in zoning codes and considering proactive processes to ensure adequate on-street loading zones in high-demand areas.

4. Performance Metrics

Metric	# Completed
Product(s): Number of new or improved tools, technologies, products, methods, practices, and processes created or improved	1 (City-level summary of freight loading zone requirements)
Technical Report: Number of client-based technical reports published	1 (STRIDE Final Report)
Body of Knowledge: Number of trainings for transportation professionals	3
Professionals Trained: Number of professionals participating in trainings	87
Stakeholders: Number of stakeholders you met with to encourage adoption or implementation of product(s)	1

Metric	# Completed
Adoption/Implementation: Number of incidences outputs of research have been implemented or adopted	0

5. Product

City-level summary of off-street freight loading zone requirements

This product provides benchmarking information for cities to identify practices in other communities and assess how well current standards match needs. It is available for use by site review/development approval planners and can improve congestion because freight deliveries currently cause significant congestion on urban streets.

6. Who benefits/will benefit from your product?

Land use planners; transportation planners; local businesses; state transportation planners

7. Image of Product – N/A

8. Body of Knowledge & Professionals Trained

1) STRIDE Webinar – August 12, 2020: Charles Edwards (NCDOT/UNC) and Noreen McDonald (UNC) presented "Planning for Urban Freight Delivery: How do City Codes Accommodate Freight?" (32 participants, 23 YouTube views) Video available at: https://stride.ce.ufl.edu/technology-transfer/workshops-webinars-conferences/
2) NCDOT Research & Innovation Summit – May 2019; Quan Yuan presented "Urban Freight Delivery and Loading Spaces" (45 participants)
3) Presentation to Freight and Logistics Division at NCDOT -- December 2019 (10 participants)

9. Stakeholder Engagement

STRIDE person at meeting	Noreen McDonald
Date of Activity	ongoing
Type of Activity	in-person meeting
Location	Zoom/NCDOT
Stakeholder(s)	Charles Edwards (NCDOT); Dana Magliola (NCDOT)
Narrative	Findings of project were shared.

10. Adoption/Implementation

The report and journal article will be available to practicing planners.

11. Broader Impacts

This project has increased awareness of the problems with the supply of freight loading spaces. This project resulted in follow-on research with NCDOT around urban freight safety.