Mapping urban freight parking infrastructure for planning: a method demonstration

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Seattle Department of Transportation DOT engaged the Urban Freight Lab to identify the geospatial locations and features of all private freight load/unload spaces in 5 high-density Seattle’s neighborhoods.

Credit: http://onecentercity.org/
Four Data Collection Principles

The research team developed an original data collection method, which is:

1. Replicable;
2. Cost effective;
3. Ground-truthed;
4. And have quality control measures built into every step.
What is a “Loading Dock”?

University of Washington
Typology of Database

Is the infrastructure inside the building?

Yes → Loading Bay

No → Is there a loading dock?

No → Exterior Loading Area

Yes → Exterior Loading Dock
Building a data structure

- Facility Location
- Access Type
- Access Maneuver
- Entrance Grade
- Door Dimension
- Access Security
- Entrance Door Angle
- Parking Spaces
- Max truck size
- Dock Height
- Apron
The survey captures four types of features:
- Location,
- Access Features,
- Security measures,
- Capacity features.
Innovative data collection process

For the data collection effort, the team:

• Chose off-the-shelf devices and software with a reasonable cost
• Developed mobile data collection app
• Integrated data quality control measures through the process.
Integrated System
Security required multilayer communication

- UW letter and security vest
- Seattle Shield Blast
- SDOT website – Final 50 Feet Program
Data Quality Control

To prevent errors in the database, researchers:

• Identified and addressed the sources of error found in the pilot tests: positional and attributes.

• Improved the data quality control plan during all phases of data collection.

• Had a private carrier, an Urban Freight Lab member, review findings.
Collaborating with the Private Sector Greatly Reduced Uncertainty

- Data collectors in the field identified **548 potential loading bays**.

- However, in **206 cases the doors were closed**.

- UPS had their local drivers review the closed door locations, based on their extensive knowledge of the area. The Urban Freight Lab provided photos and location information.

- That review allowed the Lab to rule out 90% of the locations behind closed doors, **reducing uncertainty from 38% to <1%**.
Survey Results

In the study area, we found a total of:

- 175 loading bay entrances;
- 137 exterior loading docks;
- 26 exterior loading areas.
Benefits

• Completed the first comprehensive and maintained database of private loading / unloading parking spaces in urban areas in the U.S.

• Proved an original data collection method that is applicable in other urban areas.

• Provided new information to SDOT to support development of their truck parking policies.
The future of urban freight?

Credit: Leonard Dupond, Flex Website

Credit: James Dyson Foundation
Next Steps

ON-GOING WORK:

• Urban Freight Lab
  https://depts.washington.edu/sctlctr/members/urban-freight-lab

• UW-SDOT: The final 50ft.
  http://www.seattle.gov/transportation/thefinal50feet.htm

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