Identifying the Network of Truck Load/Unload Spaces in One Center City

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The Truck Load/Unload Space Network in the City of Seattle

In 2016 the City of Seattle Department of Transportation’s geospatial databases included city curb parking spaces, but privately-owned loading docks and bays were missing.
Mapping Private Loading Bays and Docks

SDOT engaged the Urban Freight Lab to identify the geospatial locations and features of all private truck load/unload spaces in One Center City.

The urban centers include:

- Downtown
- Uptown
- South Lake Union
- Capitol Hill
- First Hill
Typology of Database

Outside of building walls

EXTERIOR LOADING DOCK

EXTERIOR LOADING AREA

Inside the building

INTERNAL LOADING BAY
Four Data Collection Principles

The Urban Freight Lab adheres to four principles when designing original data collection plans. To be widely used methods must be:

1. Replicable;
2. Cost effective;
3. Groundtruthed;
4. And have quality control measures built into each step.
The Research Team Developed a Truck Loading Dock/Bay Survey App

Development Steps:

1. Reviewed literature on loading dock and bay standards in the U.S. and EU;
2. Tested the feasibility of collecting data from city sidewalks in site visits;
3. Created version 1 of the survey form;
4. Pilot tested the survey form;
5. Revised format and redesigned survey logic;
6. Developed survey app.
## Data Collection Platform

The research team chose the Esri suite’s integrated software

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Data Collection Process

1. Recruited and trained survey team.
2. Based on encounters with private and public security personnel, stopped work to create a new multilayer communication system.
3. Conducted surveys throughout urban centers.
4. Refined data quality control steps.
5. Processed final database.
Types of Data Collected

• GPS coordinates;
• Security features such as barriers and screens;
• Identification of the road access to the location;
• Truck loading bay and dock features.
Truck Loading Dock and Bay Features

- Loading bay features such as:
  - Number of truck parking spaces;
  - Entry dimensions;
  - Number of parking spaces with a loading dock.

- Loading dock features such as:
  - Platform height;
  - If there is a dock leveler.
Data Quality Control

To prevent errors in the database, researchers:

- Identified and addressed three sources of error found in the pilot tests: positional, attributes and conceptual.
- Had Urban Freight Lab members review findings.
- Improved the data quality control plan during all phases of data collection.
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 One Center City

In Uptown, South Lake Union, Downtown, Capitol Hill and First Hill there are:

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

• Completed the first comprehensive inventory of private truck parking spaces 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.
Questions?

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