Alley Occupancy Toolkit

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CONTENTS

1 SEATTLE ALLEY OCCUPANCY PROJECT SYNOPSIS

Seattle is thought to be the first city in the U.S. and the E.U. to comprehensively map the Center City area's commercial vehicle load/unload space network, including its alleys. The Urban Freight Lab (UFL) occupancy study is linked to that inventory study, as alley design and functional features directly impact how commercial operators use alleys. This study documents commercial vehicle occupancy of representative alleys to better understand alleys' current use and operational capacity, recording use-patterns such as how long vehicles were parked in alleys; how long and what times of day alleys were vacant; and what types of vehicles were parking in alleys.

Seven representative Center City area alleys were selected to study, two of which were then chosen as more detailed case studies. Each of the seven alleys was chosen to represent various features (such as the number of access points for freight or passenger parking); characteristics (pavement type, alley width, overall condition); and location (some are near—and therefore serve—office buildings, retail centers, residential buildings, or some mix of these).

The occupancy study documents that each alley has unique features that impact operations, suggesting the need for flexible alley management/operation guidelines with myriad options available. The study also drives home the reality that alleys do not function in isolation, but rather form one element of the Center City's broader load/unload network, including the curb and private loading bays. To mitigate congestion, many cities face a growing need to actively manage their load/unload network. An alley occupancy study is a key part of this process, helping policymakers and transportation officials understand how the city's alley system is being used at street level—and how alley design and features affect that use.

2 STUDY GOALS

To conduct an occupancy study of representative Center City area alleys using methods that are:

- Replicable;
- Available at reasonable cost;
- Ground-truthed;
- Governed by quality-control measures in each step.

An alley occupancy study, as outlined here, can help cities actively manage their alleys as part of the comprehensive load/unload network (which includes private loading bays/docks and curb space).

3 METHOD OVERVIEW AND STEP-BY-STEP PROCESS TO CONDUCT AN ALLEY OCCUPANCY STUDY

A team of 25 trained data collectors worked in pairs to document use of each of the seven selected alleys for one to four days during two weeks in February and March 2018. Data collectors worked in three-to-five-hour shifts so that each alley would be continuously observed from 8am to 5pm.

Using human data collectors (rather than video or other technology) to track alley usage allowed for the reliable capture of significant details, such as windshield permit stickers and company names on vehicles. The

study documents the parking behavior of delivery, service, and other commercial and passenger vehicles in representative alleys.

Each data collector was stationed at one of two positions in the alley. Each alley was essentially divided in half, with each data collector covering four zones that met roughly in the middle of the alley. These zones allowed the data collector to easily determine and record where in the alley a vehicle was parked. Each alley had a data-collection sheet for each position. Any vehicle parked in the alley for one minute or more was recorded. The data-collection sheet was divided by zone, with space for the data collector to record:

- The start/end time a vehicle spent parked in the alley (recorded to the minute)
- The type of vehicle parked in the alley
- If visible, the company name for commercial vehicles parked in the alley
- If visible, the presence of a commercial permit on a passenger vehicle parked in the alley

Step 1. Determine study parameters

Based on project scope and budget, determine at the outset the:

1. Scope/size of study area
2. Number and types of representative alleys to be observed
3. Specific location of each alley to be observed
4. Data-collection/observation hours for study alleys (unlike an alley inventory, periods of low activity should be avoided if the project seeks to document "typical" usage)
5. Use of human data collectors versus video/other technology to capture vehicle occupancy (enabling capture of salient details such as windshield permit stickers or company names on vehicles that would otherwise be challenging to capture accurately).

Step 2. Use UFL's detailed vehicle typology to accurately track vehicle categories

The UFL typology covers 14 separate vehicle categories, based on prior field work and knowledge of Center City area alley operations.

Several passenger vehicle types are included to account for individuals using their own vehicles for commercial activities, such as to deliver packages through services such as Amazon's "Prime Now" or food through services such as "Amazon Fresh."

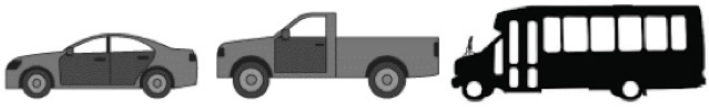
UFL Vehicle Typology

NAME	EXAMPLES AND DATA-COLLECTION NOTES
TRUCK OR VAN TYPES Truck (T)	 *Truck with trailer, 3 or more axles*
Box Truck (B)	 *Single-unit trucks, fewer than 3 axles*
Garbage Truck (G)	 
Cargo Van (CV)	 
Service Van (SV)	  
Van (V)	 *A cargo or service van usually displays a business logo. If there was not enough information visible, data collectors marked the vehicle as a van.*

Continued next page

PASSENGER VEHICLE TYPES:

For each passenger vehicle type, data collectors were instructed to look for a commercial permit and mark P (permit), NP (no permit), or U (unknown) for the vehicle type.

Service Passenger Vehicle (SP)	*A personal vehicle being used for provision of a service, such as a cleaning company. Often a logo or commercial permit is visible.*
Vehicle Making a Package or Food Delivery (D)	*A personal vehicle being used to deliver packages (such as Amazon Prime Now) or food (such as Amazon Fresh).* 
Vehicle Making a Passenger Drop-off (e.g. Uber / Lyft) (U)	
Passenger Vehicle (P)	

OTHER VEHICLE TYPES:

Taxi (X)

Motorcycle (M)

Cargo-bike (C)

Construction Vehicles

Step 3. Assess each alley's safety/security and design features/facilities

Identifying and assessing alley design features and facilities accessed through the alley will:

- aid in ensuring data collectors have clear sight lines when using the data-collection method, which assigns collectors fixed positions within an alley.
- allow researchers and transportation professionals to understand occupancy in context of alley design features and the facilities accessed through an alley and discern patterns in occupancy relative to these components, if any.

DESIGN FEATURES	
Feature	**Under what conditions do these require documenting?**
Type of end points	Required
Width of end points	Required
Narrowest point(s) inside the alley	If interior width is at least 1 foot less than the narrowest end point
Length of the alley	Required
Height restriction	If vehicle clearance in alley is less than 14 feet and narrows down the alley by 1ft or more
Apron width for each end point connected to the street	Required
Apron length for each end point connected to the street	Required

FACILITIES ACCESSED THROUGH THE ALLEY
Location of freight parking infrastructure (such as loading bays/docks)
Location of passenger parking facilities
Location of building doors with pedestrian access

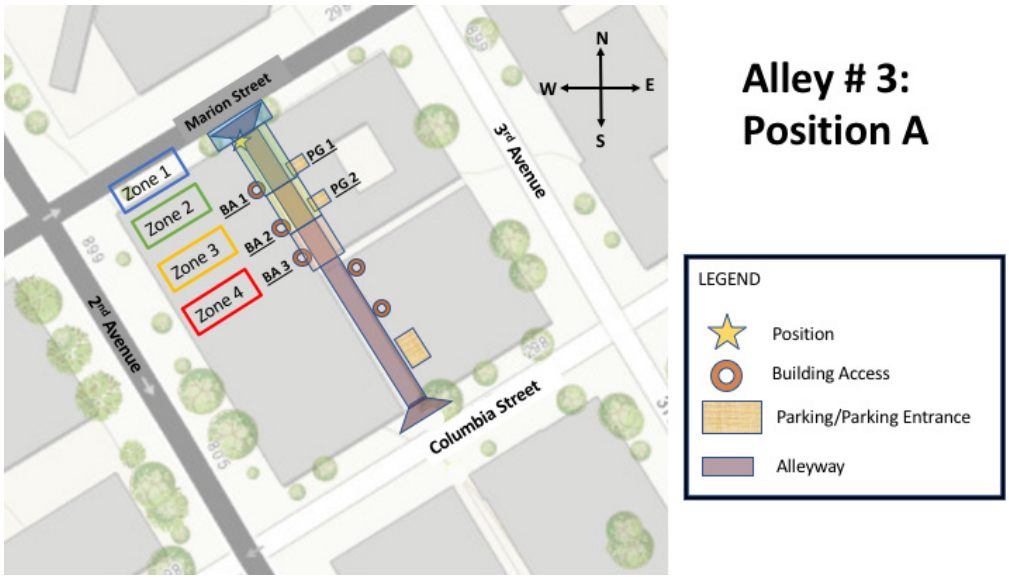
Based on alley features and facilities, data-collector position locations should:

- assure data collectors are out of the alley's regular traffic flow
- grant data collectors an unencumbered view of vehicles in the alley to enable accurate data on who is parking where, when, and for how long

Step 4. Prepare data-collection forms and data-collector position maps

For each position in each alley, collectors need:

Position map. Divide each data-collector position into zones, with limits easily identifiable in-field using alley features, landmarks and/or facilities, as shown below.



Alley # 3: Position A

Alley # 3: Position B

FACILITY NAME	CODE USED
Building Access	BA
Freight parking facility	LB
Passenger Parking Facility	PG
Driveway	DR

Data-collection form. Create a paper form in Microsoft Excel as shown below for data collectors to record observations.

Surveyed Alley : Alley 3 - Columbia St & Marion St - Position B

Collector name		Date:	Shift: Morning or Afternoon

VEHICLE TYPE CODE

Truck or Vans Types: Truck (T) | Box truck (B) | Garbage Truck (G) | Cargo Van (CV) | Service Van (SV) | Van (V) |

Passenger Vehicle Type: Service Passenger Vehicle (SP)| Making a package or food delivery (D) | Making a passenger drop-off - e.g. Uber / Lyft - (U) | Passenger (P) |

For passenger vehicles only. Indicate if the vehicle has a commercial permit or not by adding P (permit), NP (not permit), U (Unknown) to the code.

Others: Motorcycle (M) | Cargo-bikes (C) | Taxi (X)

INSTRUCTIONS: Capture all vehicles and other obstructions that parks in the alley for one minute or more. If a vehicle is blocking several zones please capture it in both zones

Time precision (ST & ED): 1 min

Zone 1	Zone 2		Zone 3		Zone 4		Additional Notes
ST = ED =	ST = ED =	ST = ED =	ST = ED =	ST = ED =	ST = ED =	ST = ED =	
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Total of Handtrucks during the work shift:

Pilot-test maps and forms before official collection begins.

Step 5. Select data-collection tools

For each data-collection shift, collectors need:

- Position's map
- Clipboard
- Security vest
- Data-collection forms
- A watch or timekeeping device to record the start/end time of each vehicle's parking
- Official letter of permission from the city or relevant entity authorizing data collectors' work and providing contact information for project leads at the city or relevant authority.

Step 6. Recruit and train data collectors

Recruiting: Project budget; timeline; survey length/complexity; security concerns; time needed for in-field collection, including commute time to/within study area, and in-office quality-control determine number of data collectors and supervisors needed. The UFL research team used a team of 25 data collectors with two data collectors per shift, per alley; one for position A, one for position B.

Training: Two sessions recommended, with first done in classroom-type setting and second done in field.

First session**:** Covers study parameters, vehicle typology, data-collection method, key alley terms, position map and data-collection forms.

Second session: Covers using position map and pilot-testing data-collection form to record vehicles that park in the alley.

Step 7. Collect data

Develop check-out/check-in process for collectors' needed shift materials.

Ensure continuous observation of each alley. In the UFL project, data collector shifts ranged from 3-5 hours to ensure continuous observation of each alley from 8am to 5pm.

Provide regular breaks to collectors assigned to an alley position (who must not take their eyes off the alley while in position.) Such breaks can include rotating position collectors into the role of monitoring other collectors in nearby alleys.

Establish comprehensive security protocol and multilayer communications plan for all interested parties to avoid unsafe situations in field, including instructing data collectors to:

- not enter alley if uncomfortable, including due to vehicles obstructing alley access
- exit alley at any point if uncomfortable while collecting data
- carry official documents from sponsoring agency (including agency official contact information) explaining project and granting data-collection authorization.

Recruit and inform police and other relevant agencies to help communicate with all building managers in the survey area.

- In Seattle, police notified all survey area building managers in real time where/when collectors were working via pre-existing information exchange for building operators and the police.
- Seattle Department of Transportation webpage communicated to public and stakeholders where and when data collectors were working.

Step 8. Create data transcript

Establish a method for data collectors to transcribe recorded field observations no more than 24 hours after their shift ends, allowing them to double-check entries (first step in data cleaning). In the UFL project, data collectors received a Google Excel sheet for each alley, shown below.

DAY	ALLEY	POSITION	START TIME	END TIME	ZONE	VEHICLE TYPE	COMPANY	PASSENGER PERMIT	ADDITIONAL INFORMATION

Step 9. Clean data

A data-collection lead must review the data and check for data transcript errors and missing values.

Step 10. Assemble and summarize data

Assemble data in final format that best meets city and/or researcher needs, such as a final spreadsheet listing every vehicle, its details, the alley it was in, and the amount of time it was parked. This allows for a broad range of data analysis relevant to the study project goals.

4 KEY TAKEAWAYS FROM THE SEATTLE ALLEY OCCUPANCY STUDY

Cities that want to strategically manage their load/unload space network can use the toolkit to replicate the UFL alley occupancy study and generate much-needed data and findings to inform policy and practice.

The Seattle alley survey and occupancy study produce several key findings that give policymakers and transportation officials new understanding of the Seattle Center City area alley system and how the system can best be managed to avoid massive gridlock. Among those findings are that:

1. The occupancy study confirms the operational constraints discovered in the alley infrastructure survey: parking per alley is largely limited to one-to-two commercial vehicles at a time given that 90% of Center City area alleys are constricted to one lane.
2. 68% of all vehicles parked in alleys were there for 15 minutes or less.
3. Alleys are vacant about half of the time during the business day. But as alleys typically hold only one-to-two parked trucks at a time, they are not a viable alternative to replace the use of commercial vehicle loading zones (CVLZS) along city curbs.

As one parked vehicle operationally blocks the entire alley, the Urban Freight Lab team concludes that the goal of new alley policies and strategies should be to reduce the amount of time alleys are blocked to additional users. Adding to street congestion and pollution by pushing commercial vehicles onto surface streets to circle until an alley is free is an undesirable outcome.

The two occupancy case studies illustrate how differently alleys can be used and by what vehicles, as well as how each alley has its unique ecosystem in terms of connection to the street network, who and what is served on the block and nearby blocks, and features (or lack thereof) inside the alley.

5 SUPPORTING MATERIALS/LINKS

- Step-by-Step guide to conduct an alley occupancy study
- Reference maps
- Data collector training Power Point
- Authorization letter for data collectors to carry in field

The data-collection and analytic methods represented here are:

- Replicable;
- Available at reasonable cost;
- Ground-truthed;
- Governed by quality-control measures in each step.

The following section details the step-by-step procedure to replicate the alley observation method developed and implemented by the UFL research team.

STEP 1: DETERMINE STUDY PARAMETERS

The first step should define these key parameters at the study's outset based on the project scope and budget:

- Scope/size of study area
- Number of alleys to be observed
- Specific location of each alley to be observed
- Data-collection/observation hours for study alleys (unlike an alley inventory, periods of low activity should be avoided if the project seeks to document "typical" usage)

In selecting sites for data collection, alleys should be assessed to ensure both the safety of the data-collection team and to ensure the alleys offer clear visibility for the data-collection method. (See Step 2).

STEP 2: ASSESS EACH ALLEY

For each alley, it is important to identify the following alley design features and facilities.

1. Alley design features:

Note: There is no need to collect these features if this information is already available in an existing alley inventory. Below are the needed features to document in each study alley. Please see page 27 in the Alley Inventory for a detailed explanation of alley typology/design features referenced below.

DESIGN FEATURES	
Feature	**Under what conditions do these require documenting?**
Type of end points	Required
Width of end points	Required
Narrowest point(s) inside the alley	If interior width is at least 1 foot less than the narrowest end point
Length of the alley	Required
Height restriction	If vehicle clearance in alley is less than 14 feet and narrows down the alley by 1ft or more
Apron width for each end point connected to the street	Required
Apron length for each end point connected to the street	Required

2. <u>Facilities accessed through the alley:</u>

FACILITIES ACCESSED THROUGH THE ALLEY
Location of freight parking infrastructure (such as loading bays/docks)
Location of passenger parking facilities
Location of building doors with pedestrian access

Assessing these features and facilities will help with identifying the proper position locations for data collectors to stand. Position locations should assure data collectors are out of the alley's regular traffic flow. They should also grant an unencumbered view of vehicles in the alley so data collectors can accurately gather data on who is parking where, when, and for how long.

STEP 3: PREPARE MAPS AND OCCUPANCY DATA-COLLECTION FORMS

Position maps and data-collection forms should be prepared for each position within each alley.

1. Position map:

Each data collector is responsible for observing and collecting information for a particular section of the alley, called a position. Each position is divided into zones. The limits of each zone should be easily ikey dentifiable in-field, using alley features, landmarks and/or facilities. Below are outlined key alley facility terms. Figures E1 and E2 map the positions, zones, and key facilities in an alley.

Table E-1. Key alley features and codes

FACILITY NAME	CODE USED
Building Access	BA
Freight parking facility	LB
Passenger Parking Facility	PG
Driveway	DR

Figure E-1. Map of position A's responsible territory divided into zones

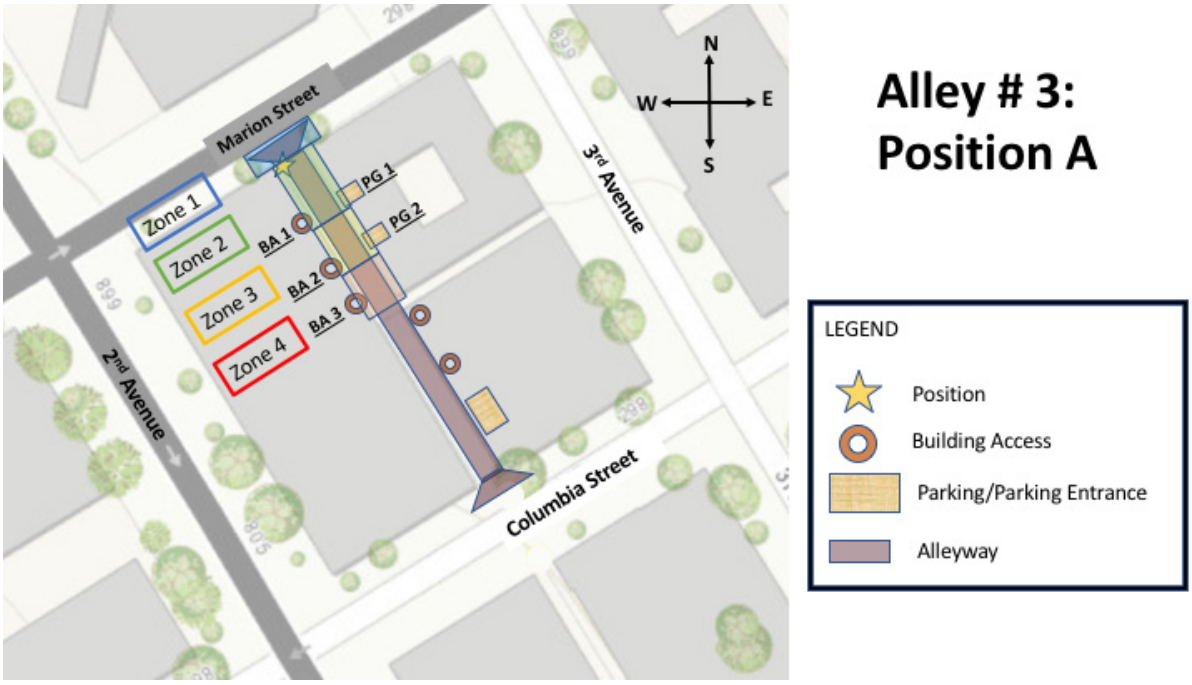
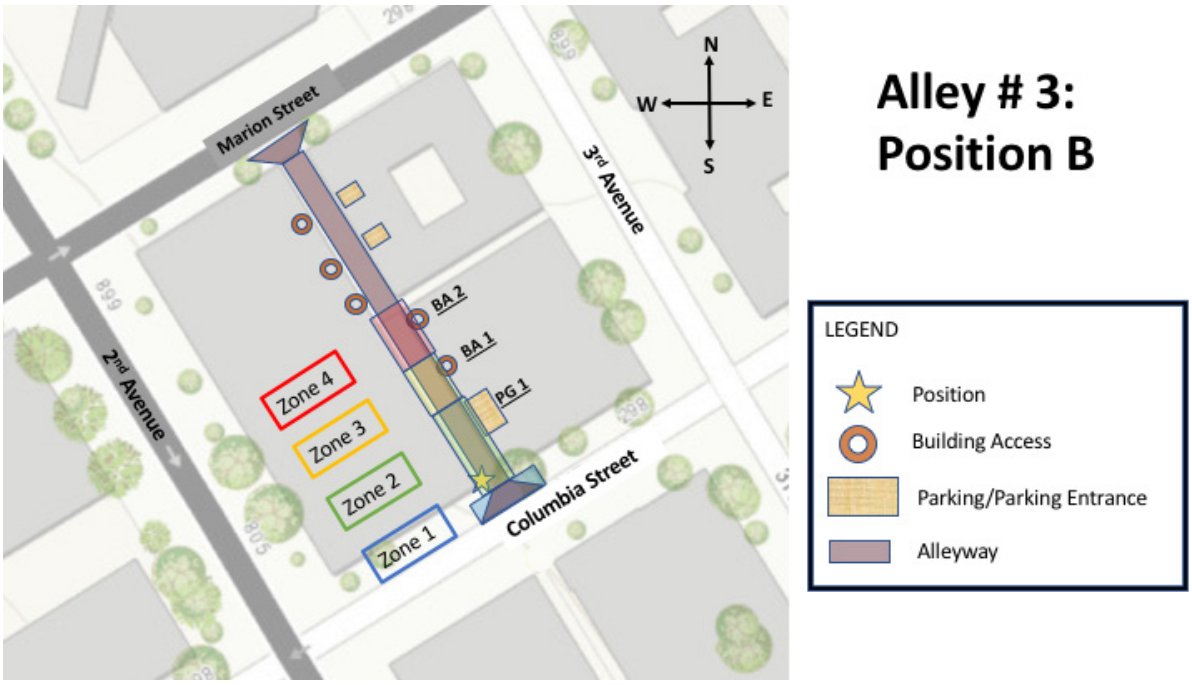


Figure E-2. Map of position A's responsible territory divided into zones



Data-Collection Forms:

A paper form should be created for the data collector to record his/her observations. The form can be made in Microsoft Excel. As shown in Figure E-4, the form should include these components:

1. **<u>Part I - Header</u>**. The alley location, number, and position.
2. **<u>Part II - Shift information</u>**. Space to record the data collector's name, as well as data-collection date and shift.
3. **<u>Part III - Vehicle type code</u>**. A legend listing each vehicle type and its corresponding code, along with any notes.
4. **<u>Part IV - Instructions.</u>** Any instructions for the data collector from the project team.
5. **<u>Part V - Data-collection table</u>**. A table organized by zones in the same order established in the position's map. The table should have:
    a. At least one column for each zone
    b. Space to record information on a vehicle that parks in the assigned position (vehicle code and associated information—logo, company name, etc.)
    c. Space to record the parking start and end time.

Table E-2: Key alley features and codes

Surveyed Alley : Alley 3 - Columbia St & Marion St - Position B

Collector name		Date:	Shift: Morning or Afternoon

VEHICLE TYPE CODE

Truck or Vans Types: Truck (T) | Box truck (B) | Garbage Truck (G) | Cargo Van (CV) | Service Van (SV) | Van (V) |

Passenger Vehicle Type: Service Passenger Vehicle (SP)| Making a package or food delivery (D) | Making a passenger drop-off - e.g. Uber / Lyft - (U) | Passenger (P) |

For passenger vehicles only. Indicate if the vehicle has a commercial permit or not by adding P (permit), NP (not permit), U (Unknown) to the code.

Others: Motorcycle (M) | Cargo-bikes (C) | Taxi (X)

INSTRUCTIONS: Capture all vehicles and other obstructions that parks in the alley for one minute or more. If a vehicle is blocking several zones please capture it in both zones

Time precision (ST & ED): 1 min

Zone 1	Zone 2		Zone 3		Zone 4		Additional Notes
ST = ED =	ST = ED =	ST = ED =	ST = ED =	ST = ED =	ST = ED =	ST = ED =	
ST = ED =	ST = ED =	ST = ED =	ST = ED =	ST = ED =	ST = ED =	ST = ED =	
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Total of Handtrucks during the work shift:

STEP 4: RECRUITING AND TRAINING OF DATA COLLECTORS

Recruiting

The workforce requirements (e.g. number of data collectors needed) will be determined by the project budget, timeline and survey length. Security concerns and survey complexity may also result in different workforce needs. The UFL research team used a team of 25 data collectors. Two data collectors per shift were designated for each alley; one for position A, one for position B.

Beyond the time required for data collection in-field, project organizers should also account for the time needed for data-collection staff to commute to/from the study area and conduct data quality-control tasks in office. These tasks will take a varying amount of time depending on the nature, size and location of the study area, and are important to consider when estimating workforce needs in relation to the desired project duration.

Training

Two training sessions are recommended before data collection starts. One can be in a classroom setting for theoretical training of data collectors; the other is designed as an in-field session for data collectors.

1. **Theoretical training session.** A presentation should cover the following aspects:

- The study parameters
- The typology of vehicles
- The data-collection method
- Important alley terms (such as apron, end point, etc.)
- Review of the data collector position's map and data-collection forms

2. **In-field training session.** While visiting an alley, data collectors will ensure they understand its representation on the map and the data-collection method. Data collectors will pilot the recording of vehicles that park in the alley.

STEP 5: DATA COLLECTION

For each data-collection shift, collectors will require a data-collection kit consisting of:

- Position's map
- Clipboard
- Security vest
- Data-collection forms
- A watch or timekeeping device to record the start/end time of each vehicle's parking
- Official letter of permission from the city or relevant entity authorizing data collectors' work and providing contact information for project leads at the city or relevant authority.

For the UFL alley occupancy project, data collector shifts ranged from three to five hours each. Depending on the determined observation time and data collectors' availability, any number of shifts can be scheduled to cover each alley. That said, collectors must not take their eyes off the during the determined data-collection period. To give collectors breaks, data collectors can rotate from being on an assigned position in an alley to being in a role monitoring other collectors in nearby alleys.

STEP 6: DATA TRANSCRIPT

A method must be established for data collectors to transcribe their recorded field observations after their shift ends. For the UFL project, data collectors received a Google Excel sheet for each alley. The sheet was pre-formatted with columns based on data structure defined for this method, as shown in Table E-4. Data collectors should enter in their observations no more than 24 hours after their shift ends. Transcribing the data allows data collectors to double-check their entries for clarity and serves as a first step in data-cleaning.

Table E-4. Excel sheet for data transcript

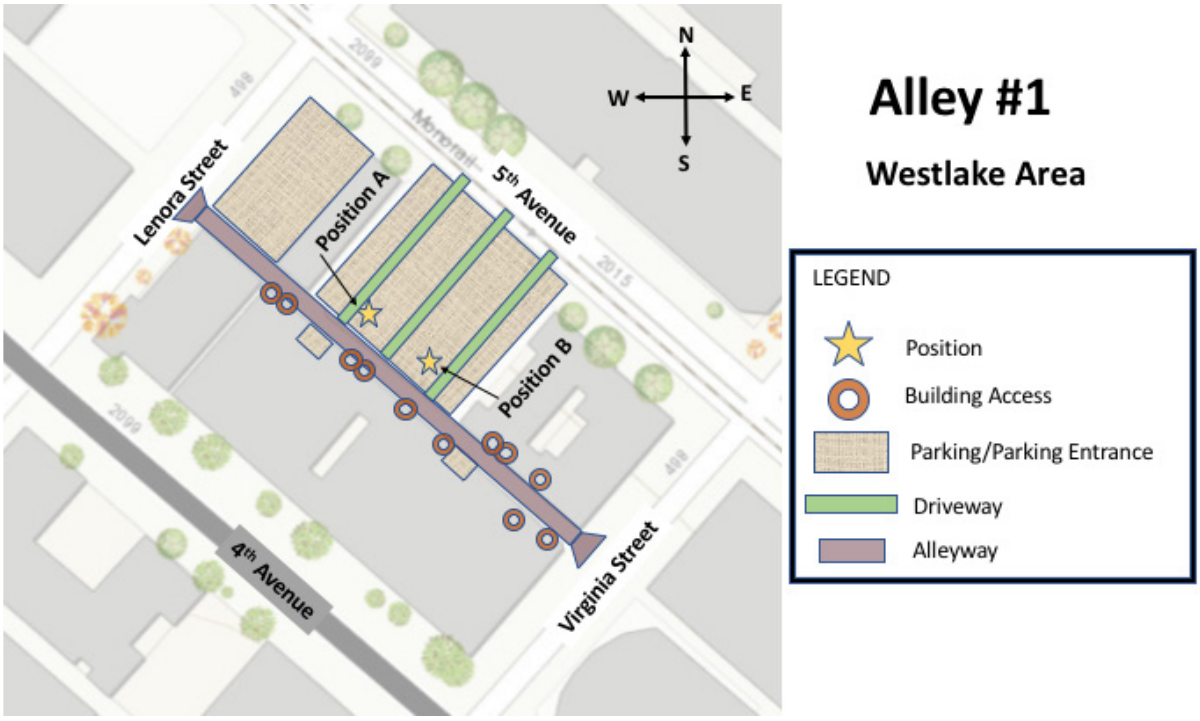
DAY	ALLEY	POSITION	START TIME	END TIME	ZONE	VEHICLE TYPE	COMPANY	PASSENGER PERMIT	ADDITIONAL INFORMATION

STEP 7: DATA CLEANING

A data-collection lead must review the data and check for data transcript errors and missing values.

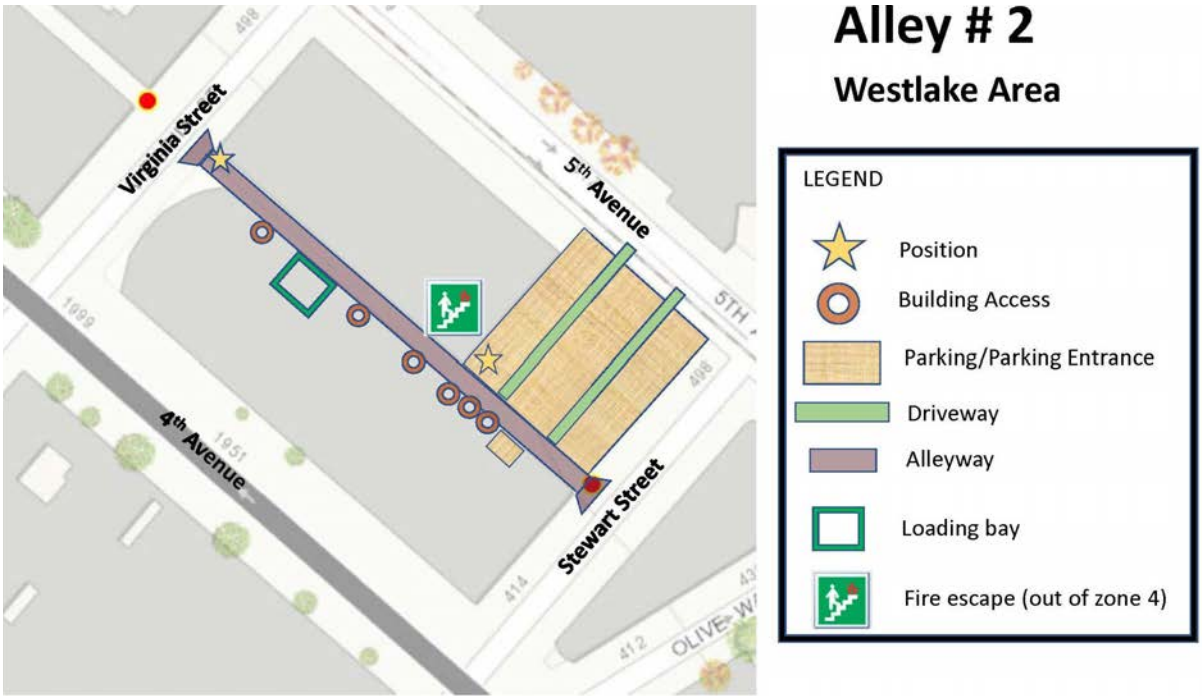
STEP 8: PUT TOGETHER AND SUMMARIZE THE DATA

The data can be packaged into a final spreadsheet that concisely lists every vehicle and its accompanying details, the alley it was in, and the amount of time it was parked. This allows for data analysis relevant to the study project's goals.

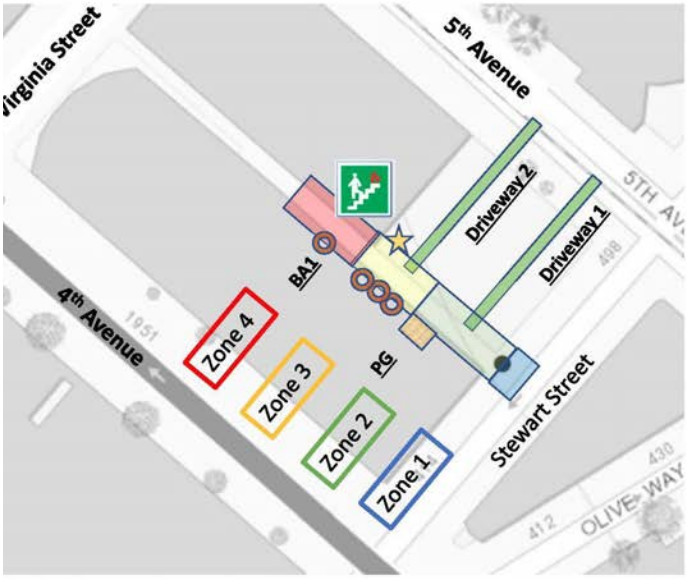

N
W
E
S
Lenora Street
Position A
5th Avenue
Position B
4th Avenue
Virginia Street
Alley #1
Westlake Area
LEGEND
Position
Building Access
Parking/Parking Entrance
Driveway
Alleyway

Alley # 1: Position A

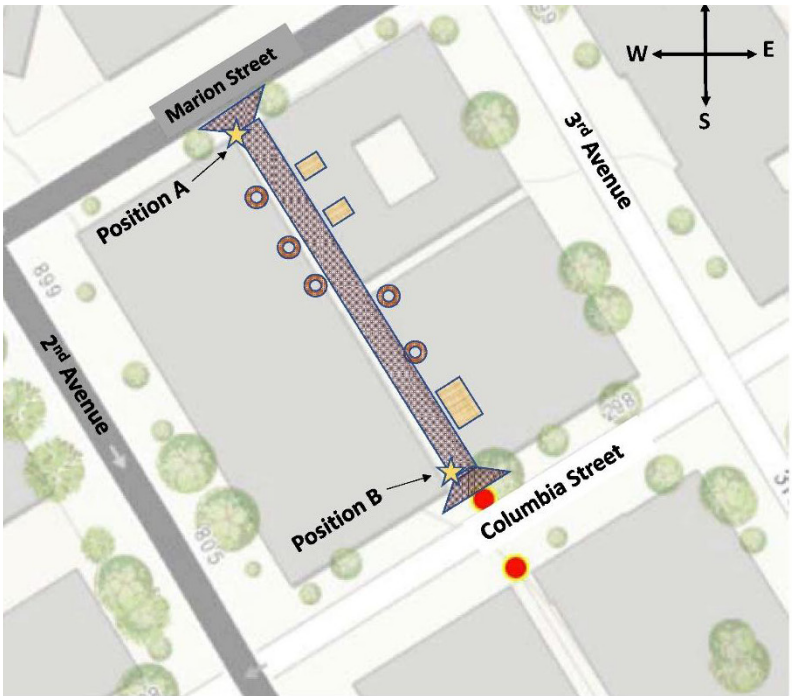
Alley # 1: Position B


Alley # 2
Westlake Area
LEGEND
Position
Building Access
Parking/Parking Entrance
Driveway
Alleyway
Loading bay
Fire escape (out of zone 4)
Virginia Street
5th Avenue
4th Avenue
Stewart Street

Alley # 2: Position A



Alley # 2: Position B

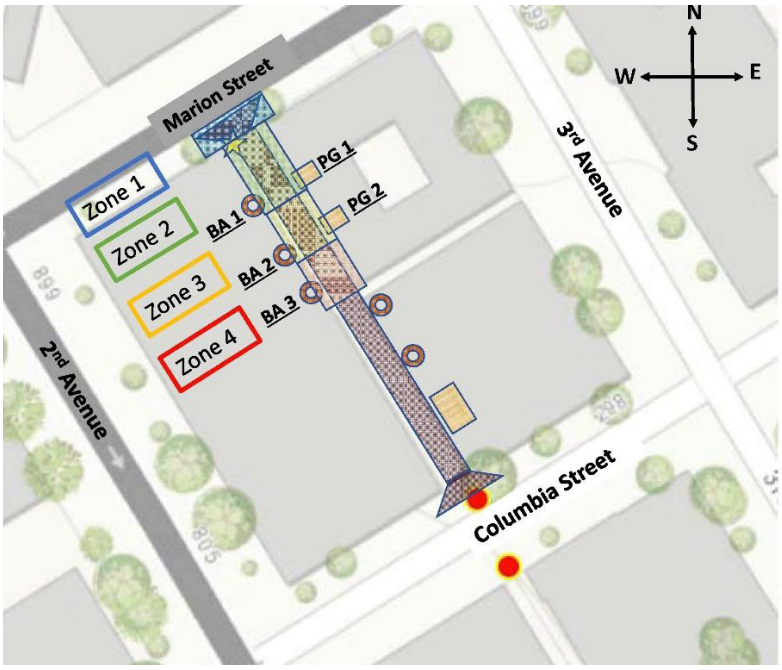


Alley # 3

Downtown CBD

LEGEND

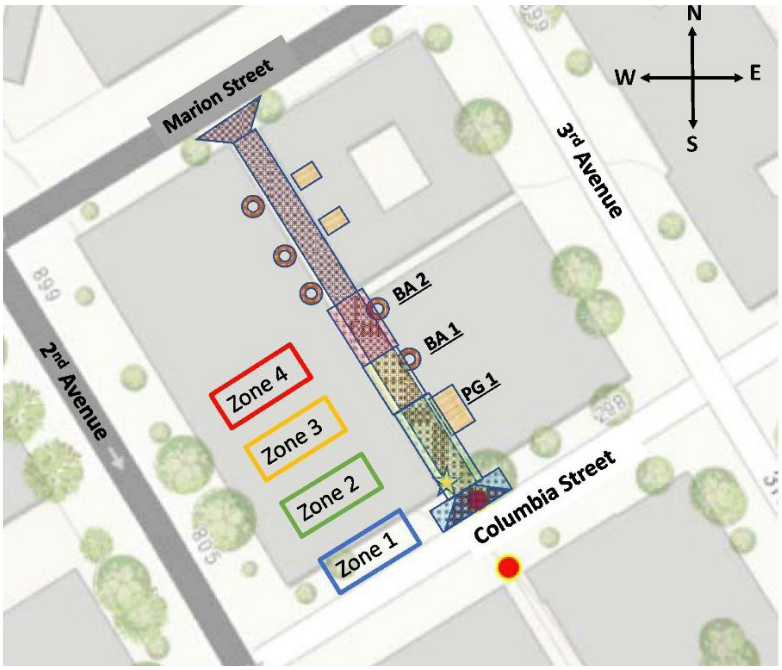
- Position
- Building Access
- Parking/Parking Entrance
- Alleyway



Alley # 3: Position A

LEGEND

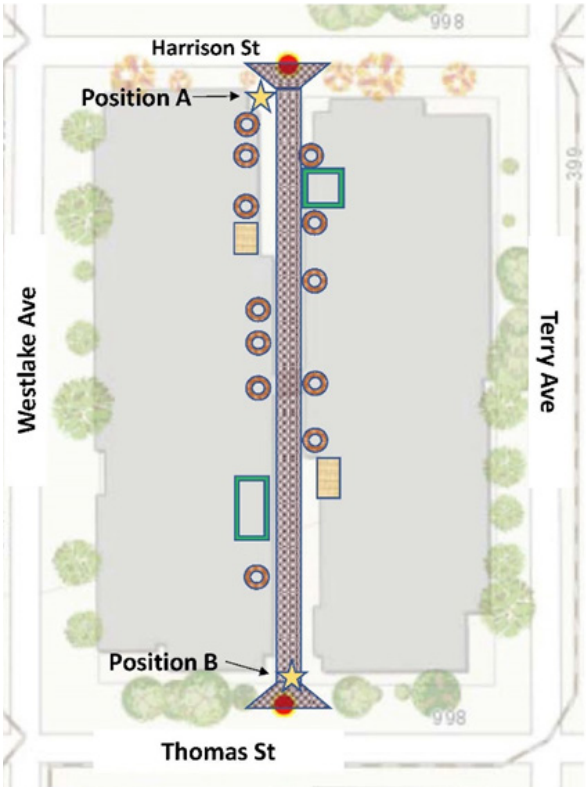
- Position
- Building Access
- Parking/Parking Entrance
- Alleyway

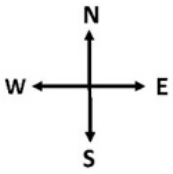


Alley # 3: Position B

LEGEND

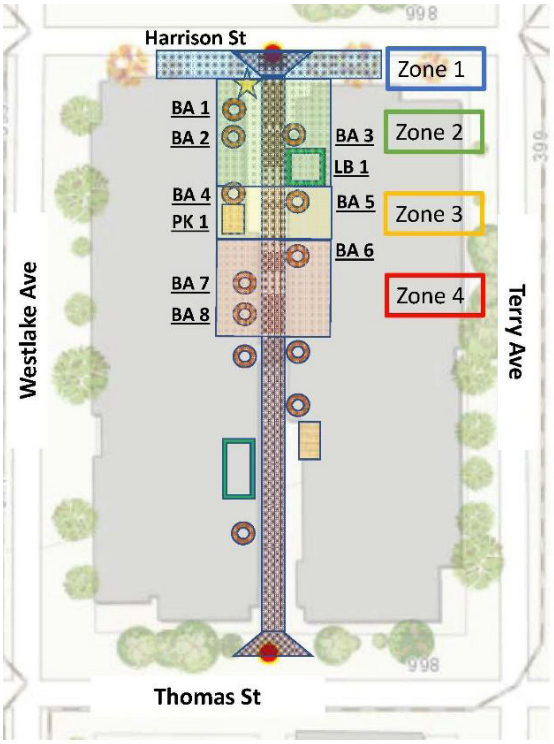
- Position
- Building Access
- Parking/Parking Entrance
- Alleyway

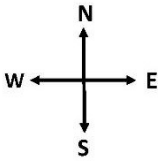




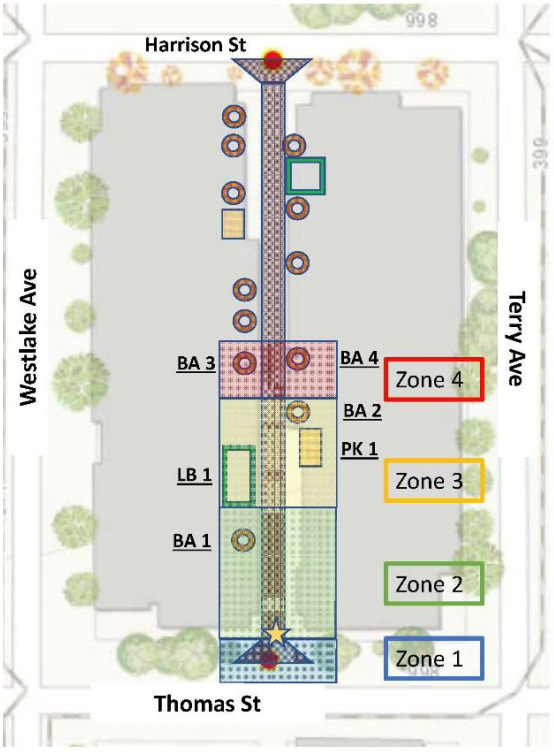
Alley # 4

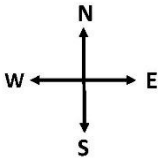
South Lake Union



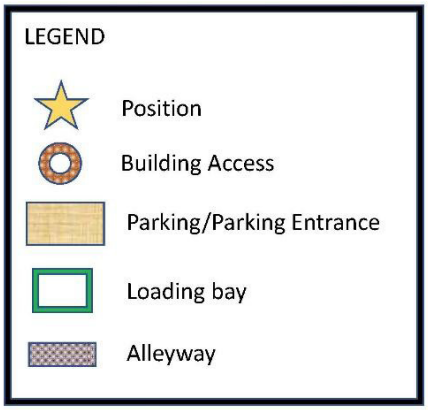


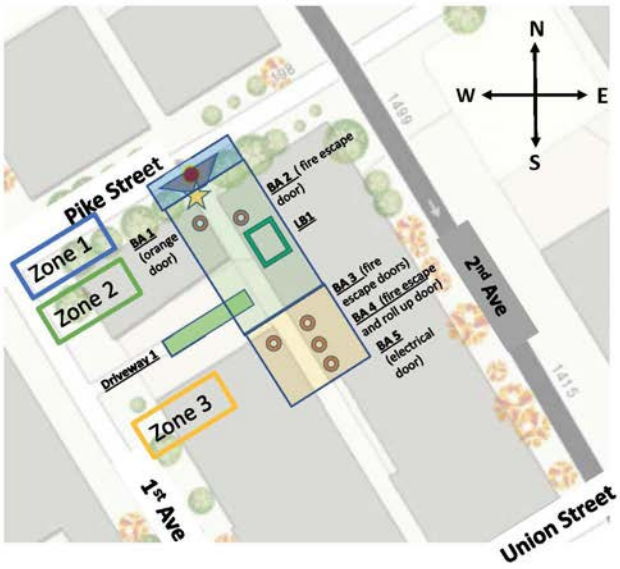
Alley # 4: Position A



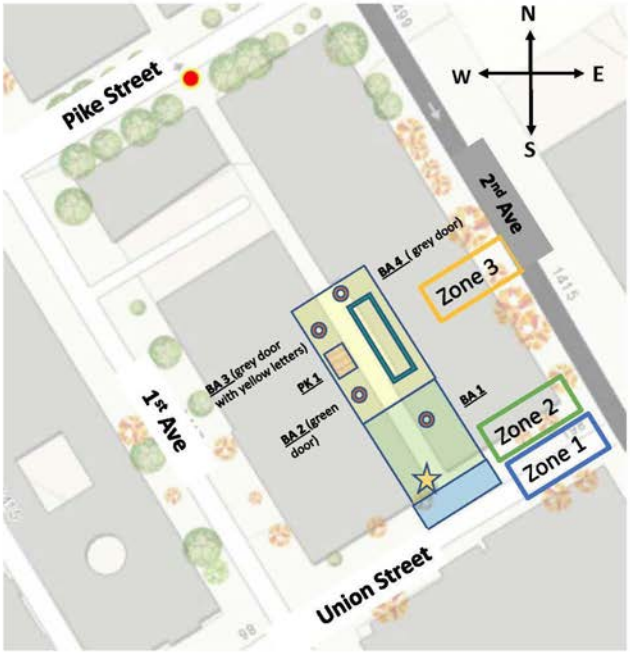


Alley # 4: Position B

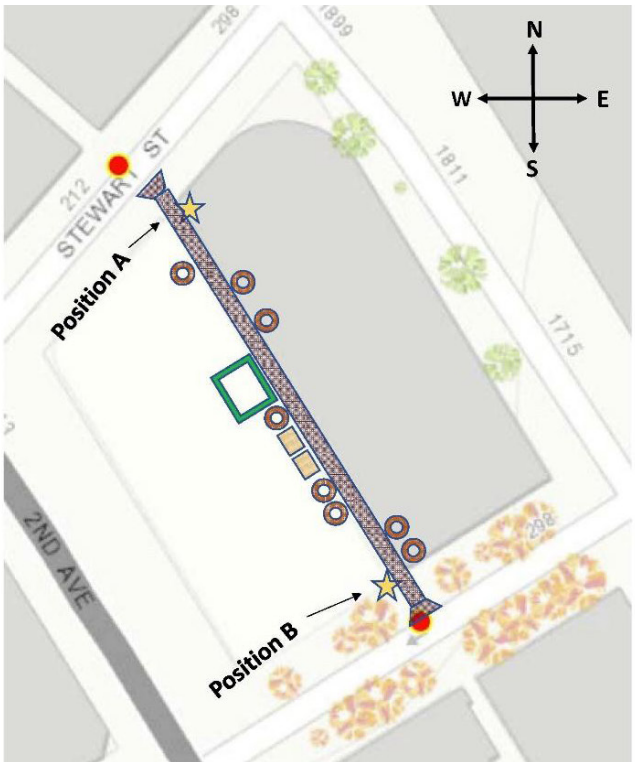




Alley # 5: Position A



Alley # 5: Position B

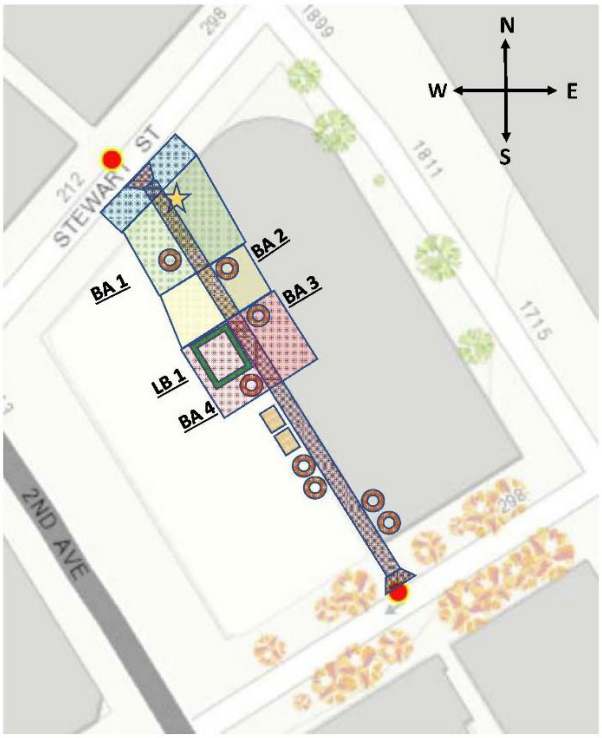


Alley # 6

Westlake Area

LEGEND

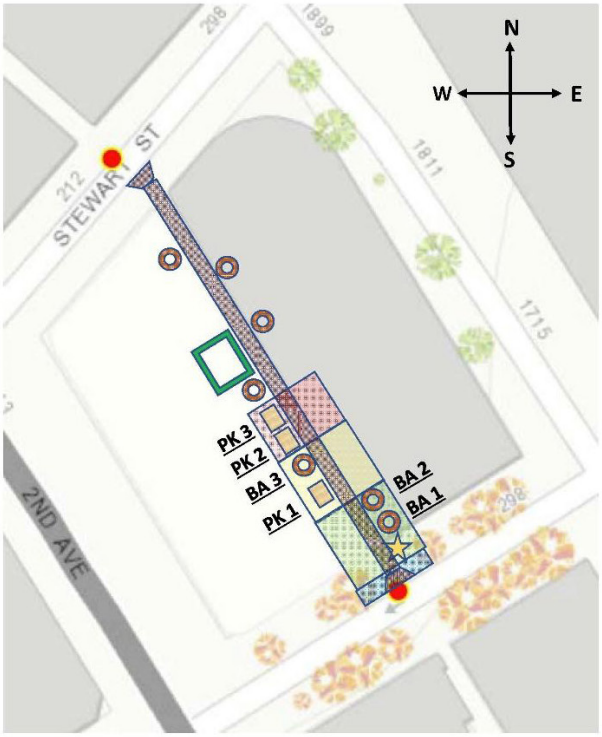
- Position
- Building Access
- Parking/Parking Entrance
- Loading bay
- Alleyway



Alley # 6: Position A

LEGEND

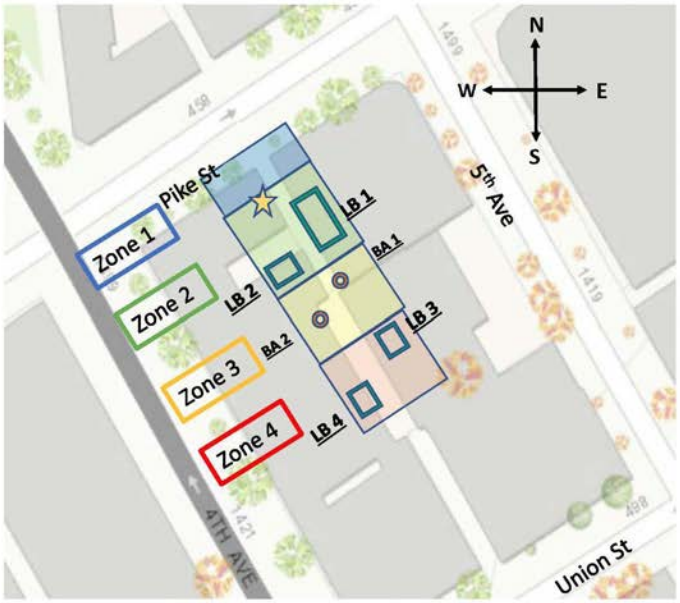
- Position
- Building Access
- Parking/Parking Entrance
- Loading bay
- Alleyway



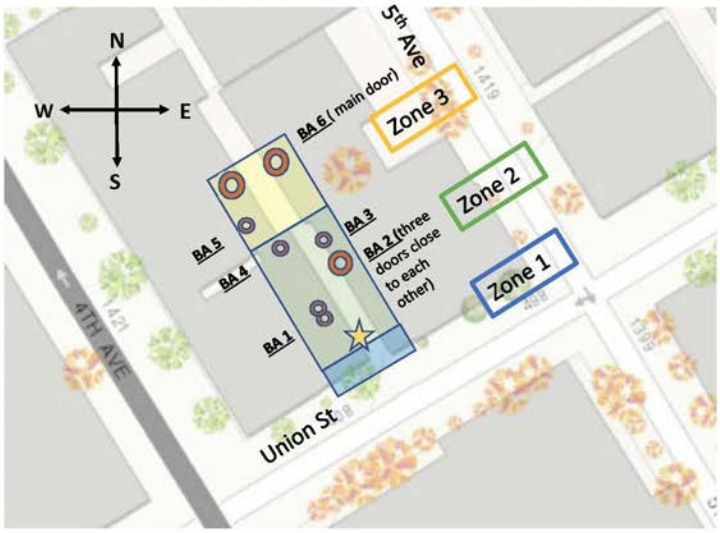
Alley # 6: Position B

LEGEND

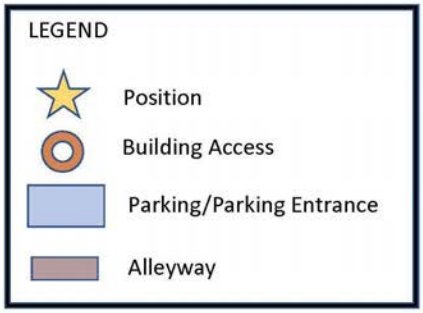
- Position
- Building Access
- Parking/Parking Entrance
- Loading bay
- Alleyway



Alley # 7: Position A



Alley # 7: Position B



UW
SUPPLY CHAIN TRANSPORTATION
AND LOGISTICS

Alley Truck Load/Unload Occupancy Study
Urban Freight Lab
Final 50': Goods Delivery System Research Project
Task Order 4

Training Session - Winter 2018

Project goal

Observe parking activity on alleys to determine minutes vacant and minutes occupied by:

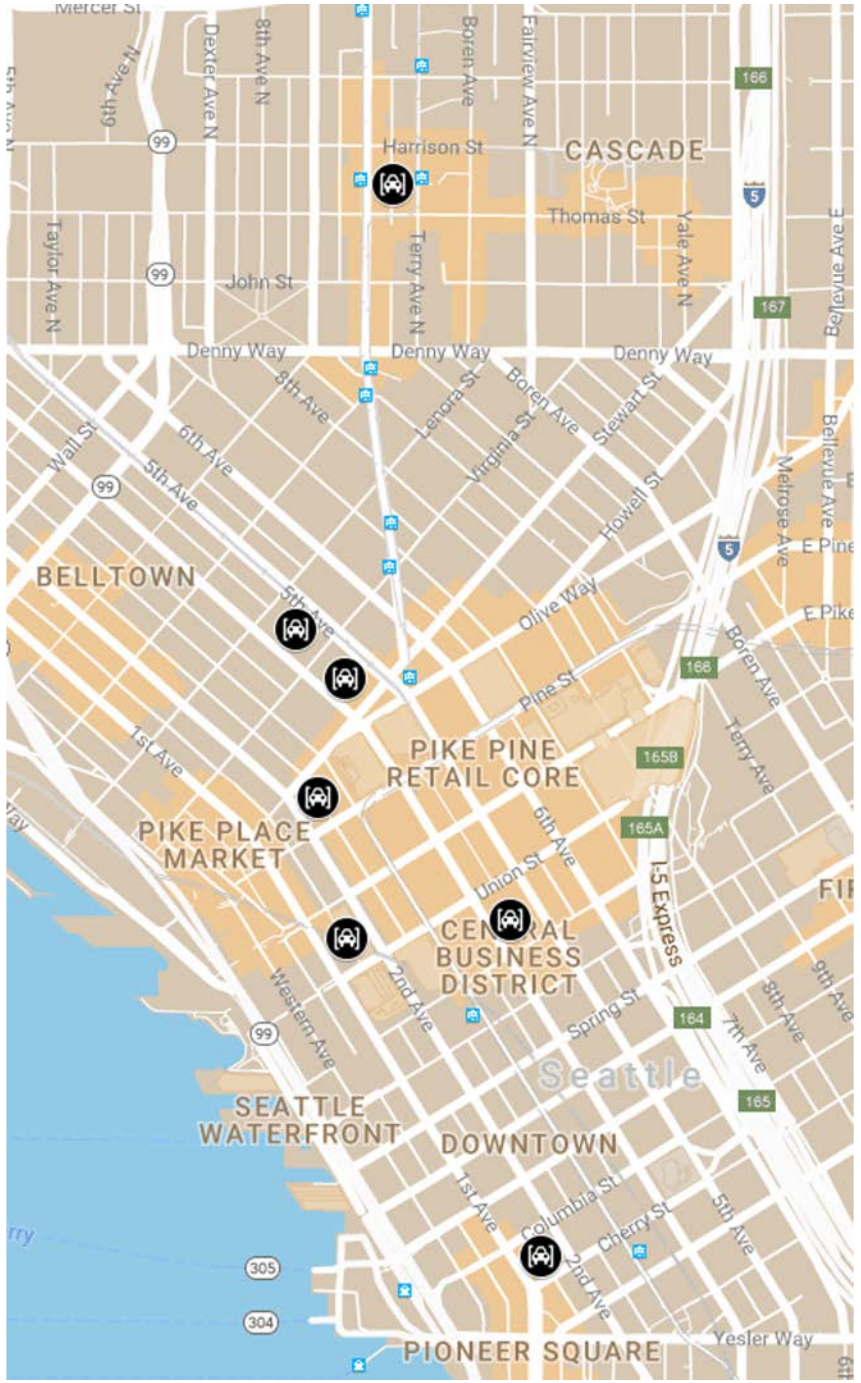
- Commercial vehicles
- Passenger vehicles acting as delivery vehicles
- Cargo bikes and trikes

Study areas

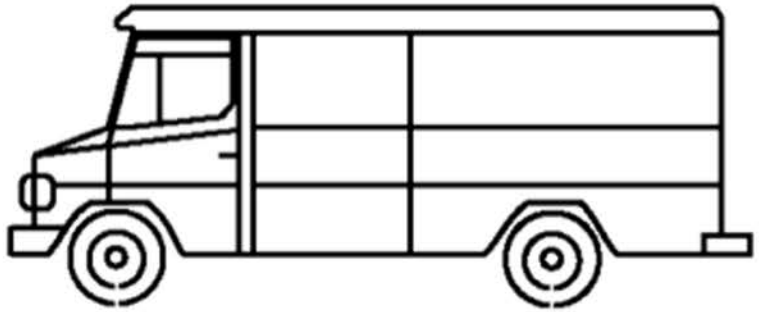
We will document freight activities in 10 alleys in:

- Downtown
- South Lake Union

Four alley locations need to be defined



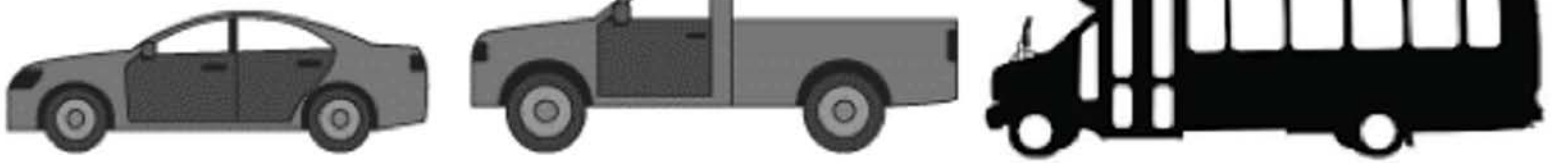
Typology of vehicles

CARGO VAN	 
SERVICE VAN	  
VAN	 In the case that the van does not show enough information to know if it is **Service van or Cargo van**

Typology of vehicles

BOX TRUCK		Single unit trucks & three or less axles
TRUCK		Truck with trailer or with four or more axles
CARGO – BIKE		

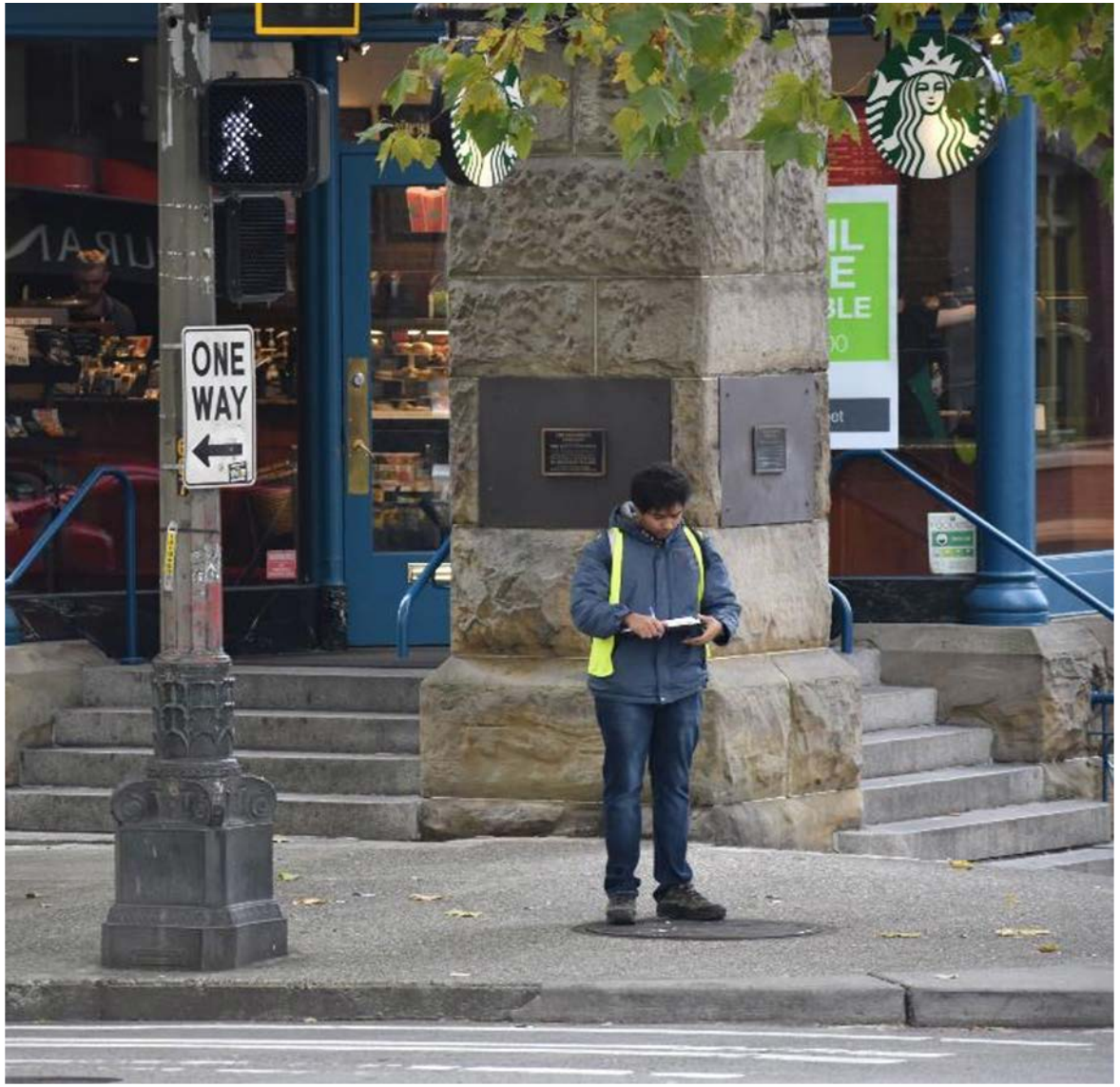
Typology of vehicles

PASSENGER	
OTHER	Motorcycle, police or fight fighter and taxi.

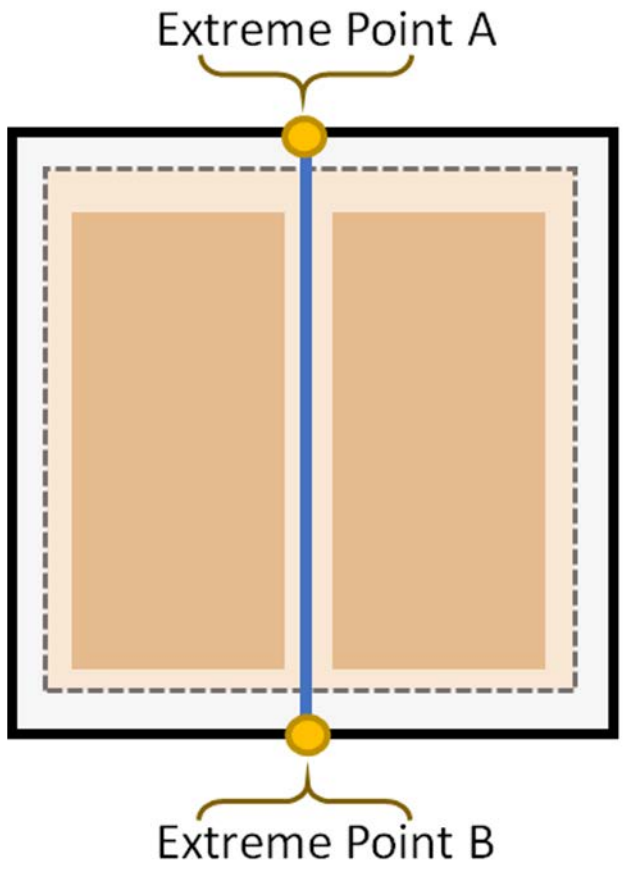
Data collection method

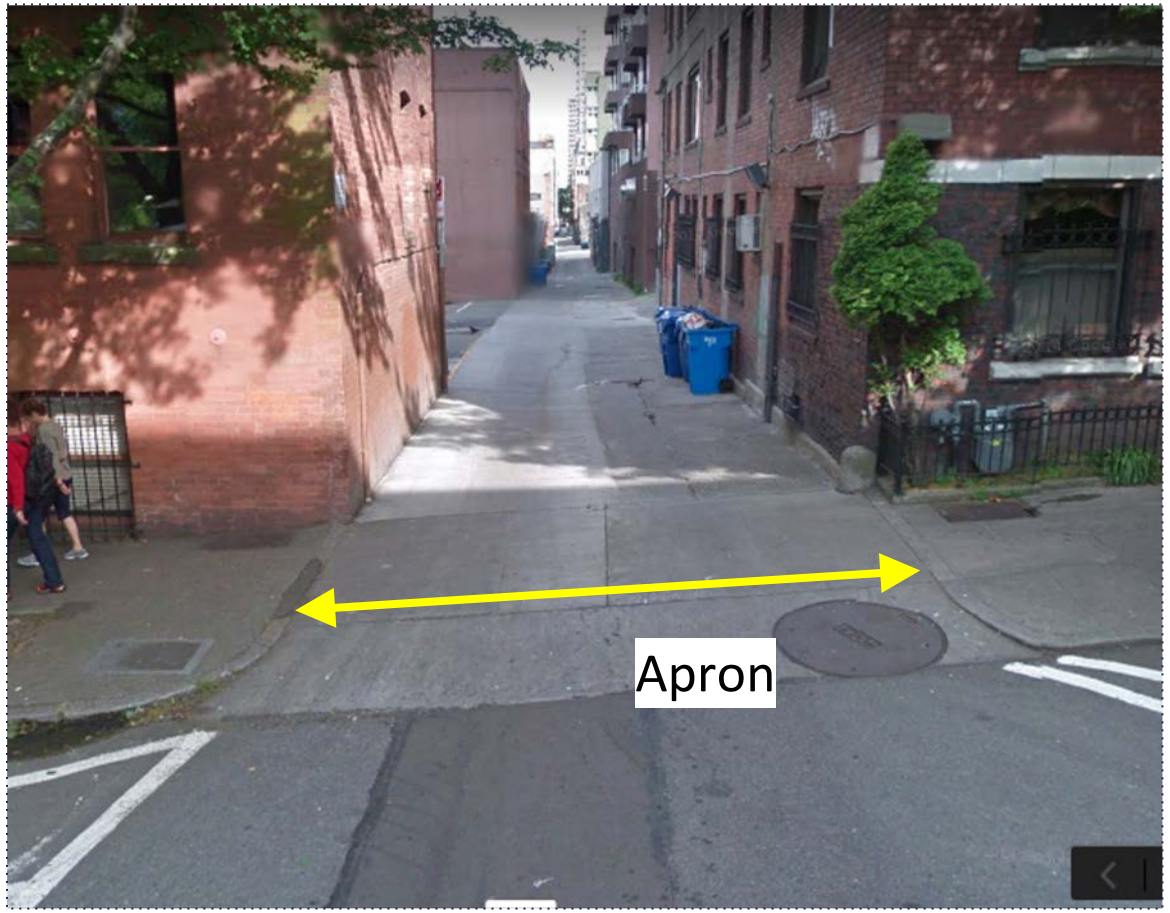
Human observers will monitor selected alleys to document:

- Start and end time of stops on the alley
- Vehicle type and company name
- Obstructions caused by stopped vehicles



Terms to remember





Terms to remember

Parking garage

Surface Parking Lot

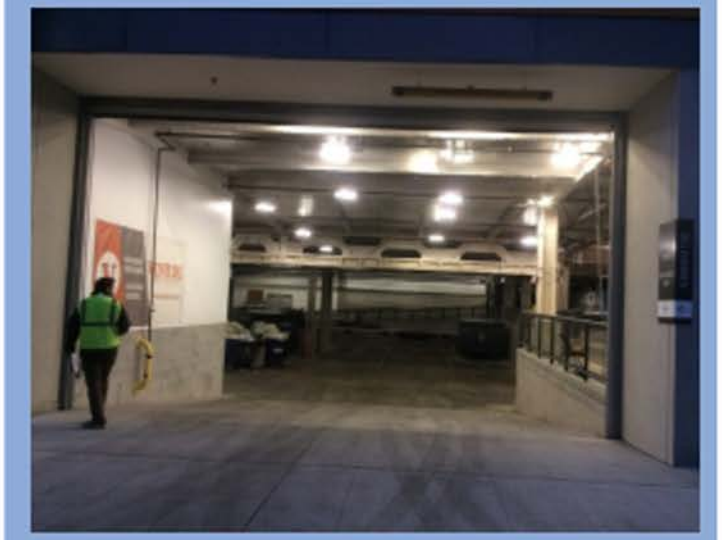
Terms to remember:
Freight Parking Infrastructure

Outside of building walls

EXTERIOR LOADING DOCK

EXTERIOR LOADING AREA

Interior of exterior wall

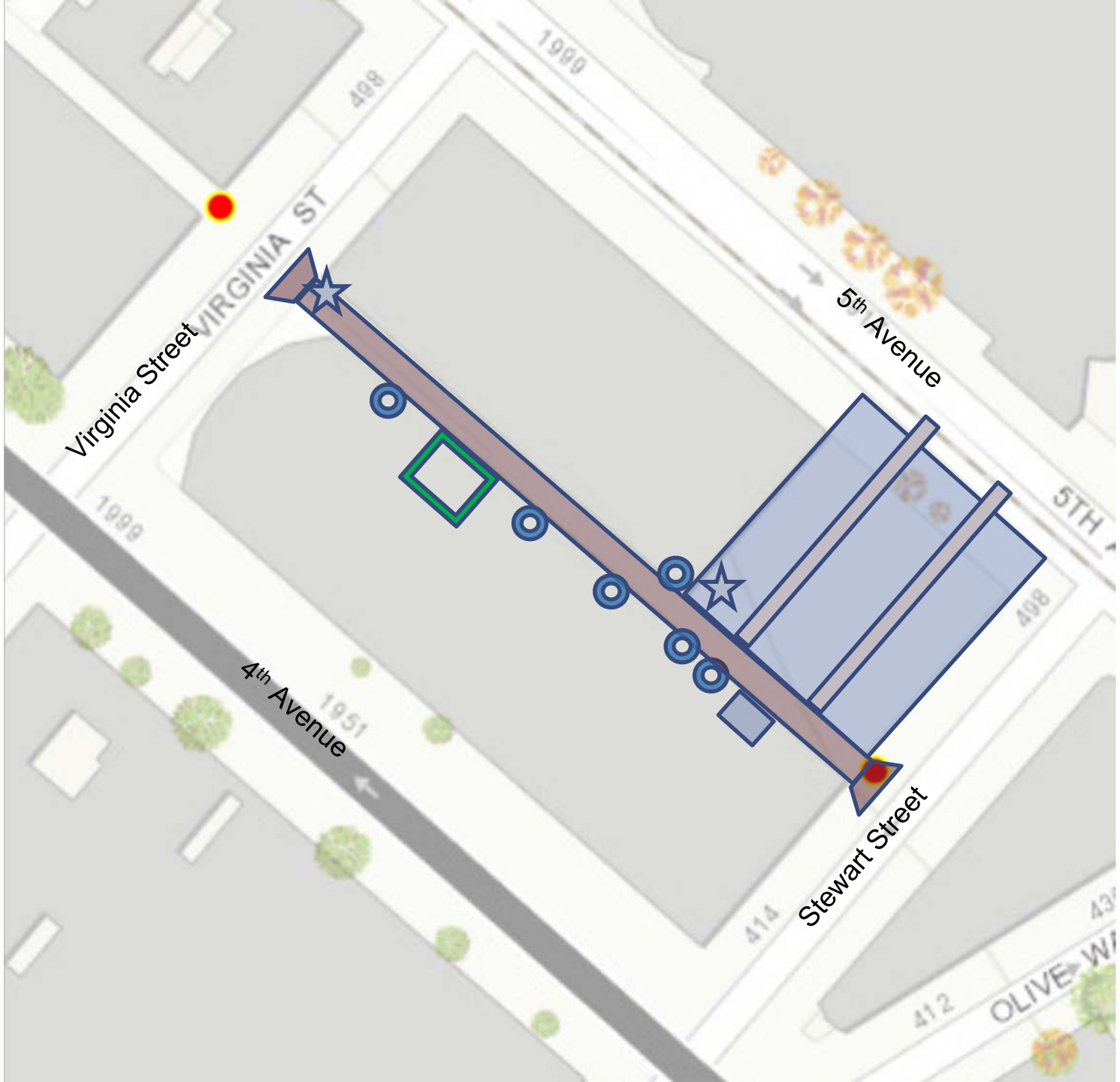


INTERNAL LOADING BAY

Terms to remember

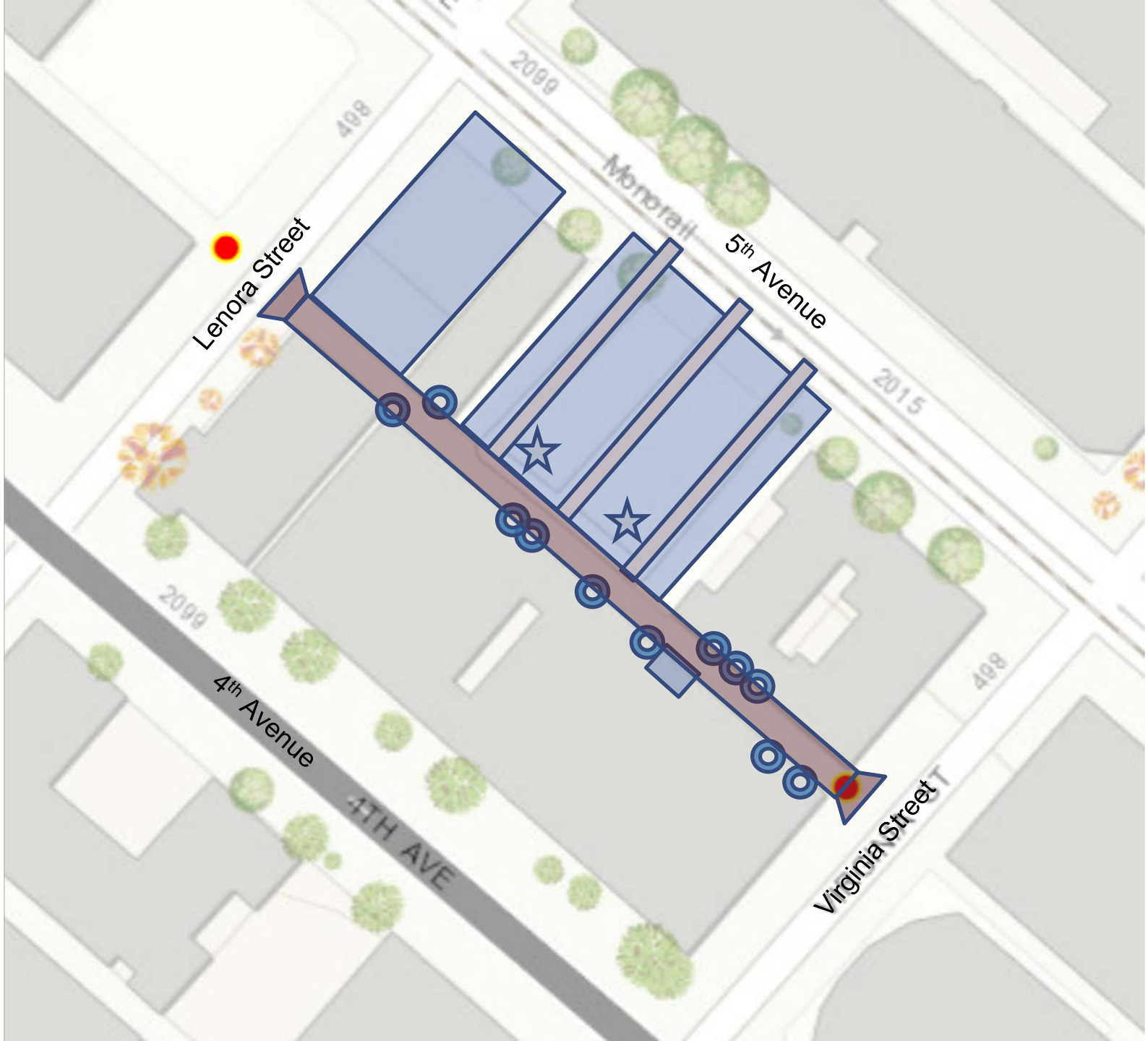
Driveway

Building Access



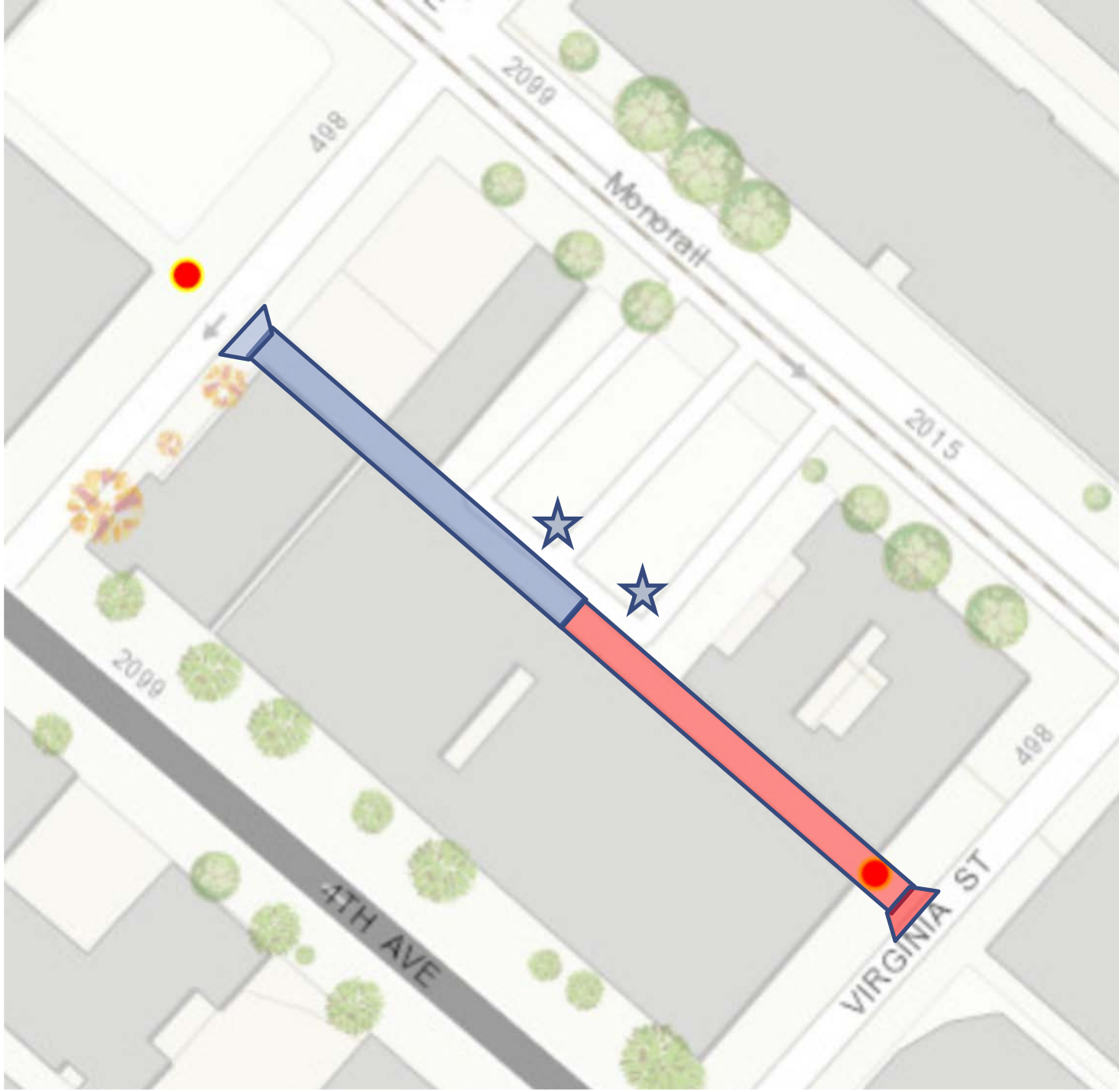
LEGEND

- Position
- Building Access
- Parking/Parking Entrance
- Driveway
- Alleyway
- Loading bay

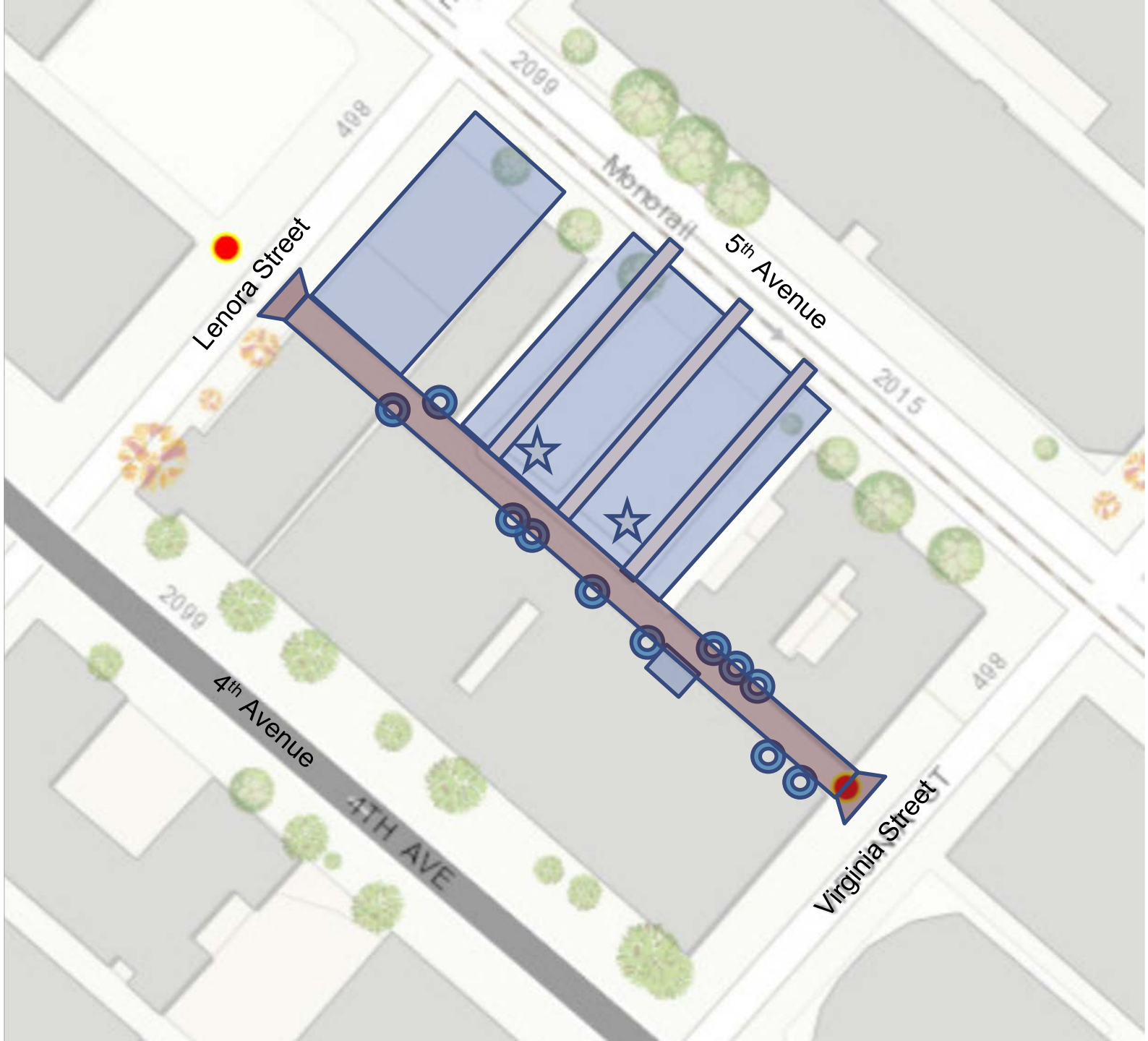


LEGEND

- Position
- Building Access
- Parking/Parking Entrance
- Driveway
- Alleyway

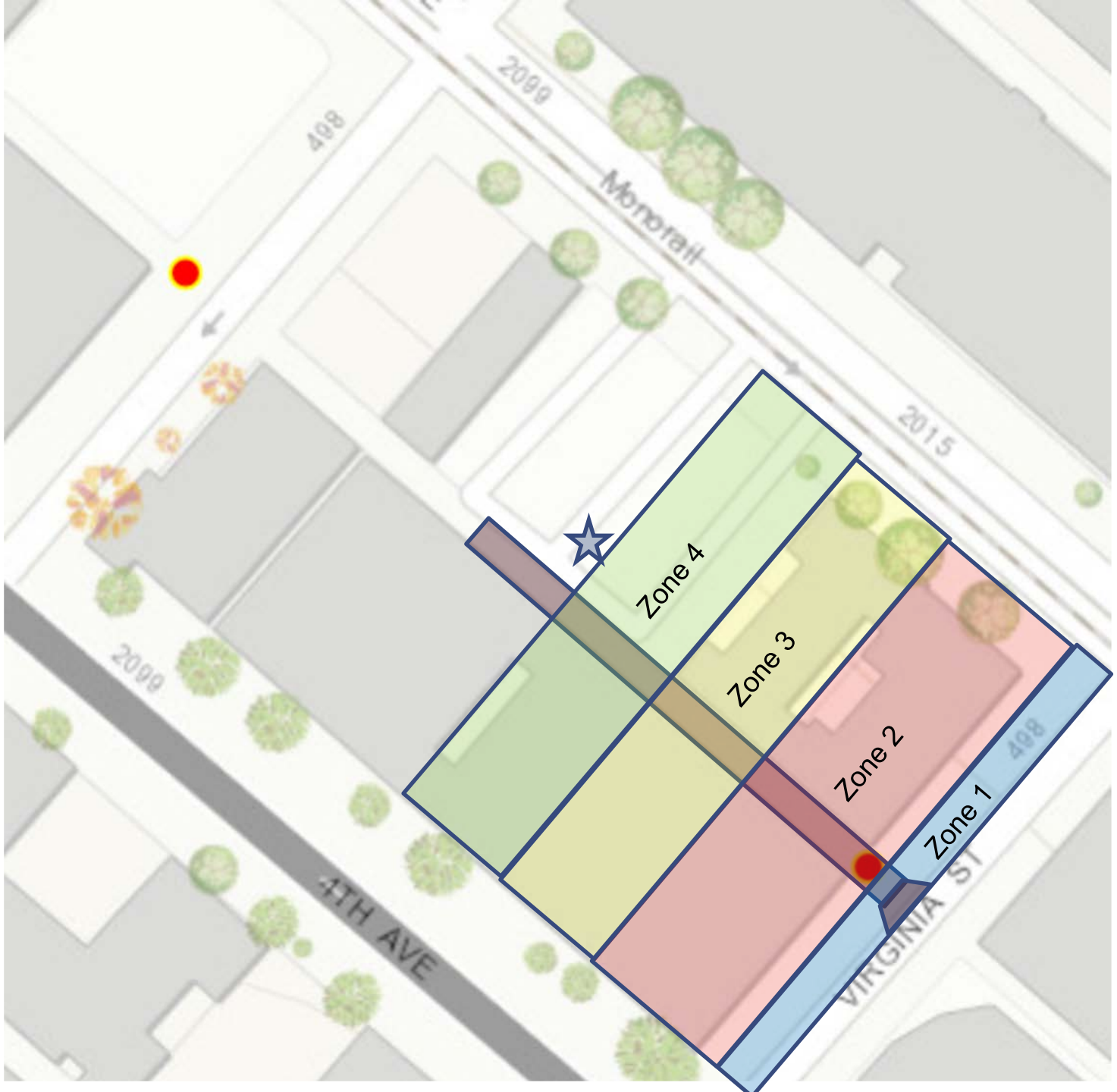

2099
498
Monorail
2015
2099
4TH AVE
498
VIRGINIA ST


Zone 1
Zone 2
Zone 3
Monorail
2099
498
2015
2099
498
4TH AVE
VIRGINIA ST



LEGEND

- Position
- Building Access
- Parking/Parking Entrance
- Driveway
- Alleyway


2099
498
Monorail
2015
Zone 4
Zone 3
Zone 2
Zone 1
2099
4TH AVE
498
VIRGINIA ST

Alley Observation Data Form: Alley		Collector initials:		Date:	
Vehicle type code: Truck (T) | Box truck (B) | Cargo Van (CV) | Service Van (SV) | Van (V) | Passenger & Pick-up (P) | Motorcycle (M) | Cargo-bikes ©					
Zone 1	**Zone 2**	**Zone 3**			**OBS**
A	A	A	B	C	
		PG / PD / Dri	PG / PD / Dri	PG / PD / Dri	
ST: // ET:	ST: // ET:	ST: // ET:	ST: // ET:	ST: // ET:	
		PG / PD / Dri	PG / PD / Dri	PG / PD / Dri	
ST: // ET:	ST: // ET:	ST: // ET:	ST: // ET:	ST: // ET:	
		PG / PD / Dri	PG / PD / Dri	PG / PD / Dri	
ST: // ET:	ST: // ET:	ST: // ET:	ST: // ET:	ST: // ET:	

Thank you!

Gabriela Giron-Valderrama
Research Assistant

Jose Luis Machado
Research Assistant

AUTHORIZATION LETTER FOR DATA COLLECTORS TO CARRY IN FIELD

City of Seattle
Jenny A. Durkan, Mayor

Department of Transportation
Goran Sparrman, Interim Director

From: Seattle Department of Transportation
Transportation Operations Division
Seattle Municipal Tower 700 Fifth Avenue, Suite 3700
Seattle, WA 98104

January 18th, 2018

This letter is lists persons working with the University of Washington's Supply Chain Transportation and Logistics (SCTL) Center in cooperation with the Seattle Department of Transportation (SDOT).

The surveyors are:

[redacted]

They are performing research between January 18, 2018 and March 9th, 2018 to better understand goods delivery in highly developed urban settings in the 'Final 50 Feet'. This complex delivery step involves parking, building access, physical delivery, inventory sign-off and even payment, and all this must be performed in tight and crowded spaces and under demanding time constraints.

With your cooperation, UW and SDOT can use the information these students are gathering to improve delivery to buildings downtown and potentially traffic flow in Seattle. If you have questions or concerns, please feel free to contact either of us for more information.

Thank you,

Christopher Eaves P.E.
Senior Civil Engineer
Cell: [redacted]

Jude Willcher A.I.C.P.
Strategic Advisor
Office: [redacted]

Seattle Municipal Tower
700 5th Avenue, Ste 3800
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Fax: (206) 684-5180
Hearing Impaired use the Washington Relay Service (7-1-1)
www.seattle.gov/transportation

SUPPLY CHAIN TRANSPORTATION & LOGISTICS CENTER

UNIVERSITY *of* WASHINGTON

Urban Freight Lab

SCTL CENTER
UNIVERSITY OF WASHINGTON
BOX 352700
SEATTLE, WA 98195

Phone: 206.221.6407
Email: sctl@uw.edu

Glossary

Alleys ^back
Cities' alley definitions may vary. Seattle "Streets Illustrated" manual definition reads: "Alley means a public right of way not designed for general travel and primarily used as a means of vehicular and pedestrian access to the rear of abutting properties. An alley may or may not be named."

End Points ^back
According to the alley typology the UFL team developed, every alley has two end points, which fit one of three types: access point, dead end or intersection.

Apron ^back
The alley apron is a driveway (an entranceway) that starts at the curb and continues until the start of the alley pavement. The apron edge uses a curb cut to provide vehicle access from the street. Alley width, length, and cross slope were recorded; slope can determine whether fully-loaded handcarts can maneuver.

Position ^back
Data-collector position refers to a clearly delineated section of the alley for which each data collector is responsible for observing and recording data.