



PORTLAND LOADING ZONE PARKING ASSESSMENT

Downtown Portland - 2018

Prepared by

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Loading Zone Use Characteristics Assessment

The consultant team was charged with measuring utilization behavior of loading zones in three parking districts – Northwest Portland, Central Eastside Industrial District, and Downtown Portland. ***The following summary outlines the findings of the study conducted in the Downtown Parking District.***

Data Collection Methodology

The outline below provides the basic methodology used for conducting the loading zone data collection in all three study areas. For analysis and evaluation purposes it was essential to categorize field observations in a manner that is consistent for all surveyors as well as being easily recognizable without field equipment (such as tape measures). These survey fields were distilled down into a usable data collection template for surveyors to use in the field. Data at each of the identified loading zone stalls was collected every 20 minutes over the courses of the posted loading zone enforcement period (denoted on street signage).

Parking areas monitored:

- Northwest Parking District
- Central Eastside Industrial District
- Downtown District

Hours & Frequency:

- Survey hours 7:00 AM – 7:00 PM
- Counts conducted every 20 minutes

Metrics analyzed:

- Occupancy
- Turnover
- Average length of stay
- Peak hour utilization
- Permit utilization
 - Requires information on applicable permits and authorized length of stay allowed by permit
 - Each vehicle was examined for permit use – whether or not one was present, if the permit was still valid (expired), and whether or not it was used correctly (parked on the proper block faces)
- Parking violations
 - Vehicles staying longer than 30-minute time limit
 - Improper vehicle parked in loading zone

- Anecdotal observation of delivery vehicles improperly parking in the travel lane
- Final destination of delivery
 - Surveyors, where possible, observed delivery vehicle operators to determine the distance of their destination from the parked delivery vehicle. The distances were categorized using the following three options:
 - ✓ Adjacent or across the street
 - ✓ Within 1.5 blocks
 - ✓ 2 or more blocks away

Vehicle characteristics:

- Vehicle class and description
 - Car
 - Van/pickup
 - Box truck
 - Semi-trailer
 - Other (e.g., postal, taxi)
- Commercial or non-commercial vehicle (vehicles labeled or signed for business/agency were classified as commercial; vehicles with no visible signage were classified as non-commercial)
- Vehicle length (incombered curb space)
 - < 20 feet,
 - 20 – 40 feet
 - > 40 feet

The Downtown loading zone study was conducted on Thursday, May 24, 2018 from 7:00 AM to 7:00 PM.





Figure A illustrates the study area boundary used for the loading zone study. It is the same boundary as the Downtown parking district. There are 731 loading zones in Downtown; this survey sampled 134 of those loading zone stalls. The sampled stalls were selected in coordination with PBOT staff to be

representative of different stall types (e.g., length, time stays, etc.) and were geographically distributed throughout the district.

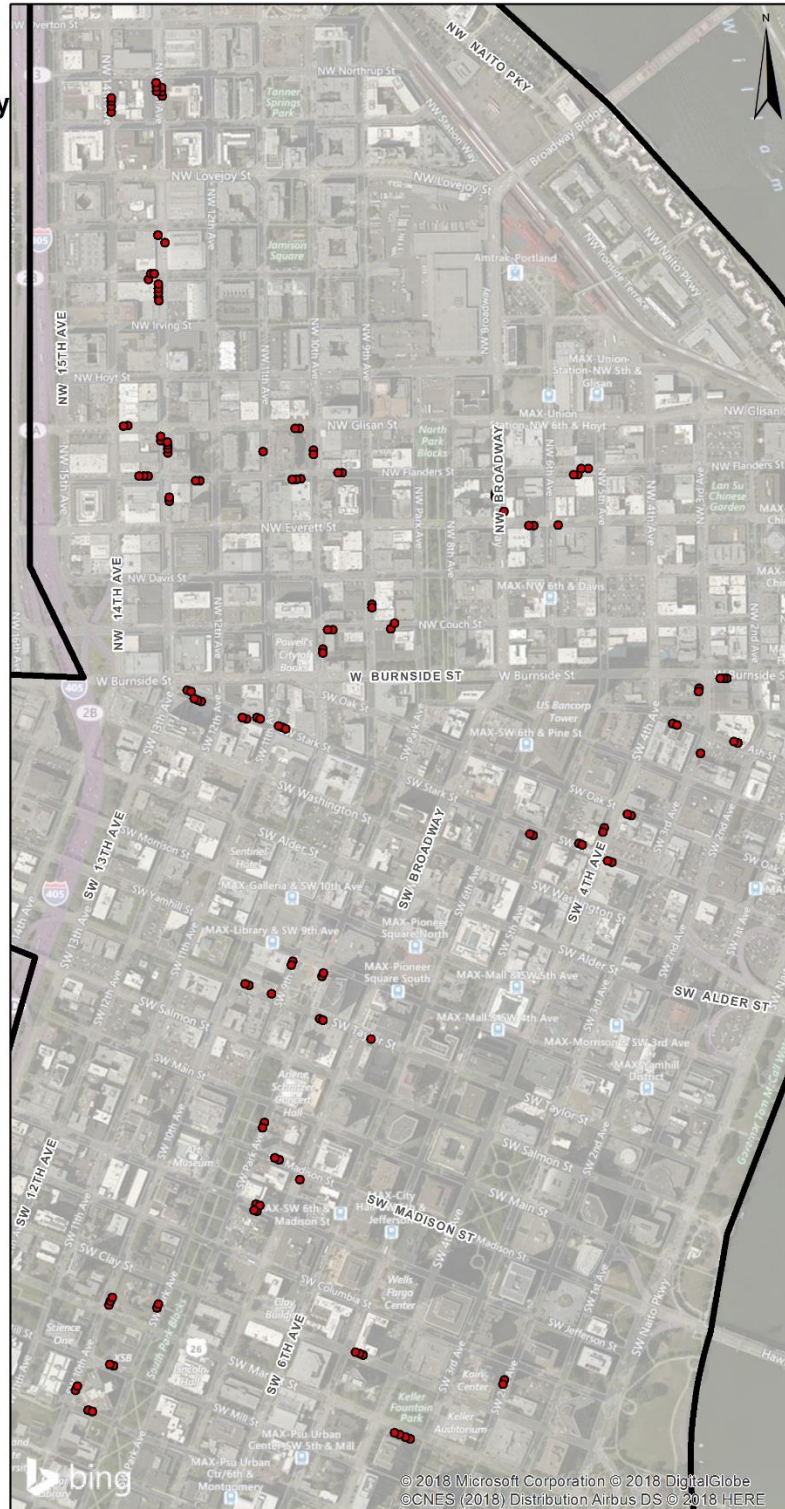
Figure A: 2018 Downtown (DT) Portland Loading Zone Sample Study

City of Portland
2018 Downtown
Loading Zone Parking Study

-  Downtown Boundary Area
-  Loading Zone Location

0 162.525 650 975 Feet

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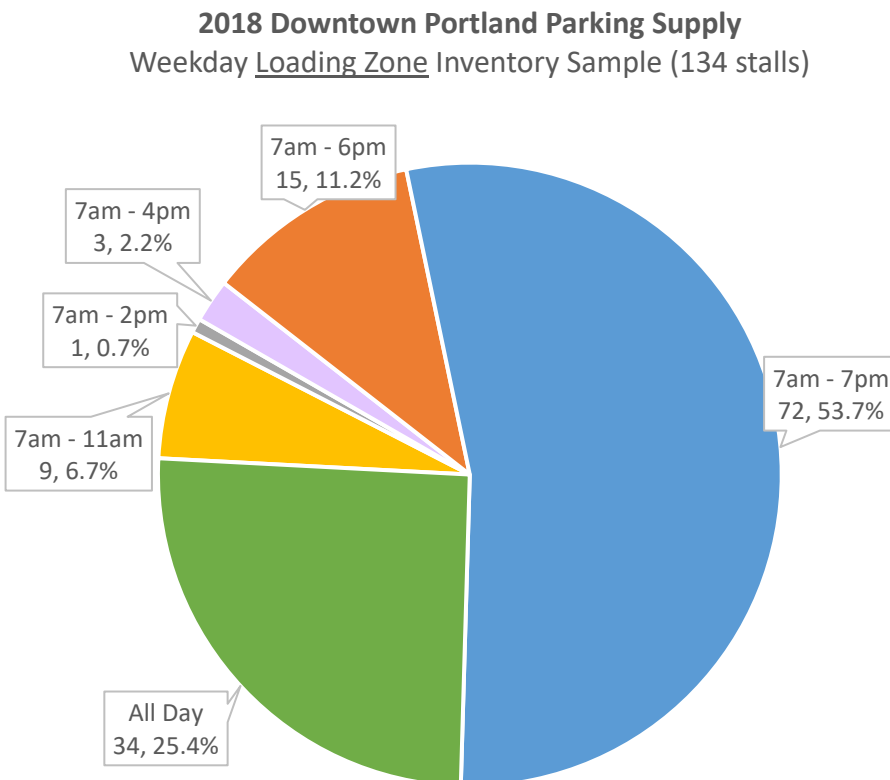


Inventory

Figure B illustrates the Loading Zone inventory sample that was collected in Downtown Portland, categorized by hours of enforcement. Each loading zone type shows the number of stalls sampled of that type and its percentage of the total inventory sample studied (134 stalls). All loading zones have a time limit of 30 minutes.

- The largest number of loading zone stall types (72 stalls) were those signed 7:00 AM – 7:00 PM (54% of stalls sampled)
- 34 of the assessed loading zone stall types were signed All Days, All Hours (25% of stalls sampled)
- 15 of them were signed 7:00 AM – 6:00 PM (11% of stalls sampled)
- 9 was signed 7:00 AM – 11:00 AM (7% of stalls sampled)
- 3 was signed 7:00 – 4:00 PM (2% of stalls sampled)
- 1 was signed 7:00 – 2:00 PM (>1% of stalls sampled)

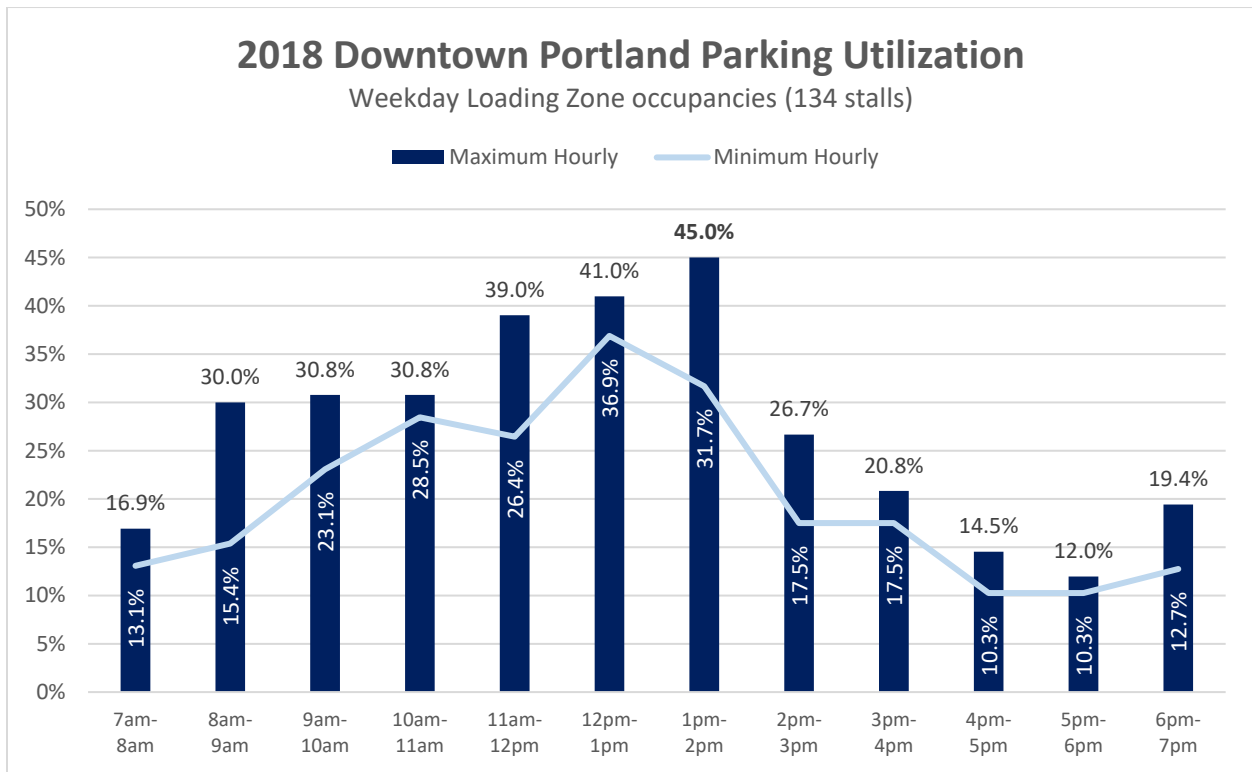
Figure B: 2018 Downtown Portland Loading Zone Inventory Sample



Utilization (aggregate)

Figure C illustrates hourly utilization of all loading zone stalls during the survey day. With data collected every 20 minutes, each hour had three measured occupancies. For purposes of this discussion, the lowest (light blue line graph) and highest (dark blue bar graph) collected are shown here for each hour.

Figure C: 2018 Downtown Portland Loading Zone Utilization



- The highest recorded peak was when 45% of loading zone stalls were occupied; this occurred from 1:20 – 1:40 PM.
- The lowest recorded level was 10.3% occupied between the hours of 4:20 – 4:40 PM & 5:00 – 5:20 PM.
- In general, occupancy levels remained fairly constant between 8:00 AM and 2:00 PM; after 2:00 PM occupancy levels began to fall off, though not surprisingly, a small uptick occurs at the end of the day when enforcement hours end (6:40 – 7:00 PM).

Utilization (by stall type)

Table 1 illustrates parking utilization and use characteristics of all loading zone stall types (top row) as well as each unique stall type (bottom five rows).

- **Peak Occupancy** shows peak occupancy and the time it occurred.
- **Unique License Plates** gives the number of unique vehicles observed on the survey day (labeled this way as to not be confused with Unique Vehicle Trips¹).
- **Length of Stay** shows the average duration for all vehicles parked for each stall category.
- **Overstay Violation Rate** gives the rate of a vehicle violating the 30-minute time stay restriction as a percentage of Unique Vehicle Trips; because surveyors were on a 20-minute parking count interval, time limit violations were recorded on the third continuous observation of a vehicle parked in a single loading zone (indicating a time stay of at least 40 minutes).
- **% Illegal Use** shows the percentage of Unique License Plates that were parked illegally (non-commercial with an expired permit or no permit displayed).

Table 1: 2018 Downtown Portland Loading Zone Utilization by Type

Use Type	Stalls	Peak Occupancy	Unique License Plates	Length of Stay	Overstay Violation Rate ²	% Illegal Violation ³
Loading Zone Supply Studied	134	45.0% 1:20 – 1:40 PM	368	42m	12.5%	31.5%
7am – 11am	9	44.4% 10:00 – 10:40 AM	11	33m	9.1%	54.5%
7am – 2pm	1	0% N/A	0	N/A	N/A	N/A
7am – 4pm	3	66.7% multiple hours	9	38m	7.7%	11.1%
7am – 6pm	15	64.3% 12:20 – 12:40 PM 1:20 – 1:40 PM	50	34m	4.6%	26.0%
7am – 7pm	72	47.1% 1:20 – 1:40 PM	231	39m	11.0%	37.7%

¹ Unique Vehicle Trips account for all stalls utilized by a unique vehicle whereas Unique License Plates will only account for the first stall that a vehicle occupies.

² Percentage of Unique Vehicle Trips.

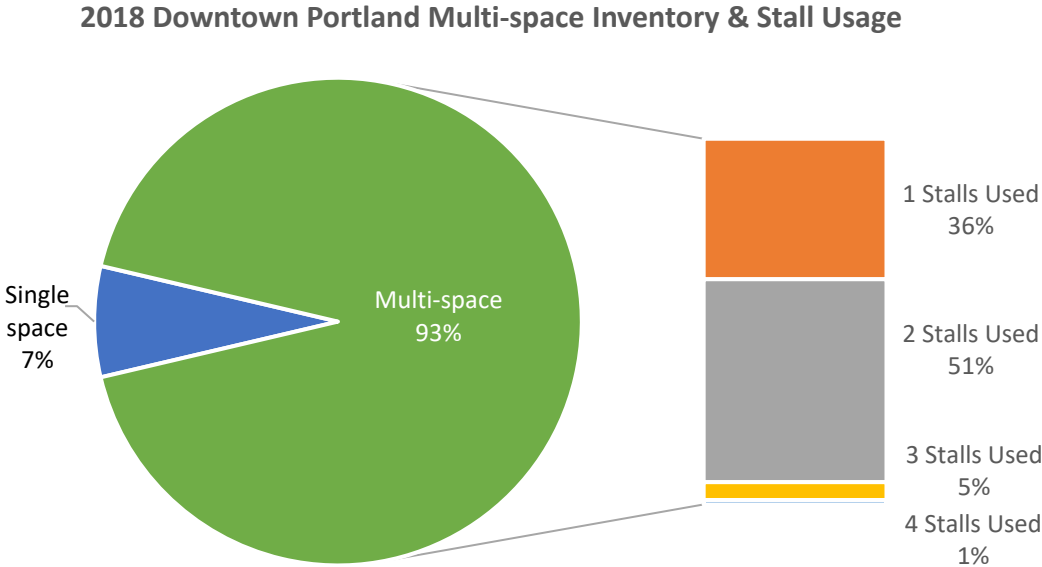
³ Percentage of Unique License Plates.

Use Type	Stalls	Peak Occupancy	Unique License Plates	Length of Stay	Overstay Violation Rate ²	% Illegal Violation ³
All Days/Hours	34	47.1% 11:40 AM – 12:00 PM 12:40 – 1:00 PM	67	57m	23.5%	13.4%

- The average length of stay for all loading zone stalls is 42 minutes.
- The longest length of stay (for a stall type) was All Days, All Hours where the average vehicle parked for 57 minutes. Not surprisingly, this category of stall type had a high violation rate at 23.5%.
- The overall Overstay Violation Rate is relatively low, 12.5%, given limited enforcement.
- However, the most notable finding is the % Illegal Use⁴, which shows the percentage of illegal usage of loading zone stalls during enforcement hours. In this instance 31.5% of users are illegally parking in loading zone stalls without the proper credentials.

Figure D illustrates the percentage distribution of single-space versus multi-space loading zones. It also shows how the multi-space zones are being used. In other words, are the vehicles parking there using one, two, three or four stalls when they park?

Figure D: 2018 Downtown Portland Multi-space Inventory & Stall Usage



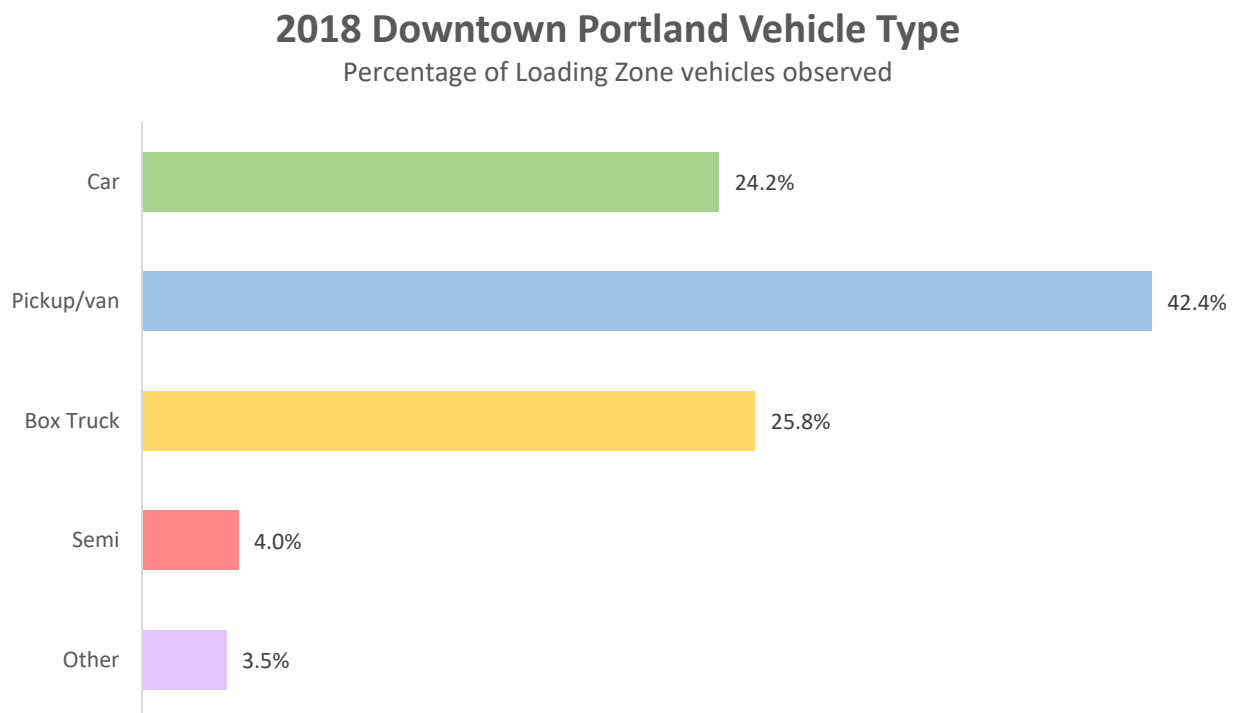
⁴ Non-commercial vehicles are allowed to park in loading zones if they display a valid loading zone permit, which, in some cases, are block face specific (only valid on specific blocks).

- Almost all of the loading zone stalls (93%) were formatted as multi-space, where they occupy 36 feet or more of the curb space. Only 7% were single-space.
- 36% of occupied multi-space zones were parked with vehicles that used 1 space (approximately 20 feet of curb space); 51% of occupied multi-space zones were parked with vehicles that used 2 spaces (approximately 40 feet of curb space); 5% of multi-space zones were parked with vehicles that used 3 spaces (60 feet of curb space); and 1% of multi-space zones were parked with vehicles that used 4 spaces (over 60 feet of curb space). This metric should not be confused with vehicle length (see **Figure F**); rather it is how drivers parked in the multi-space zones – how many stalls did they “consume” with how they parked. A more detailed comparison of how multi-space loading zones match up with delivery vehicle size see **Figure F**.

Utilization (by vehicle type)

Figure E illustrates the percentage of each individual vehicle type collected. Vehicles that fit in the “Other” category include taxis, school buses, and postal vehicles.

Figure E: 2018 Downtown Portland Vehicle Type

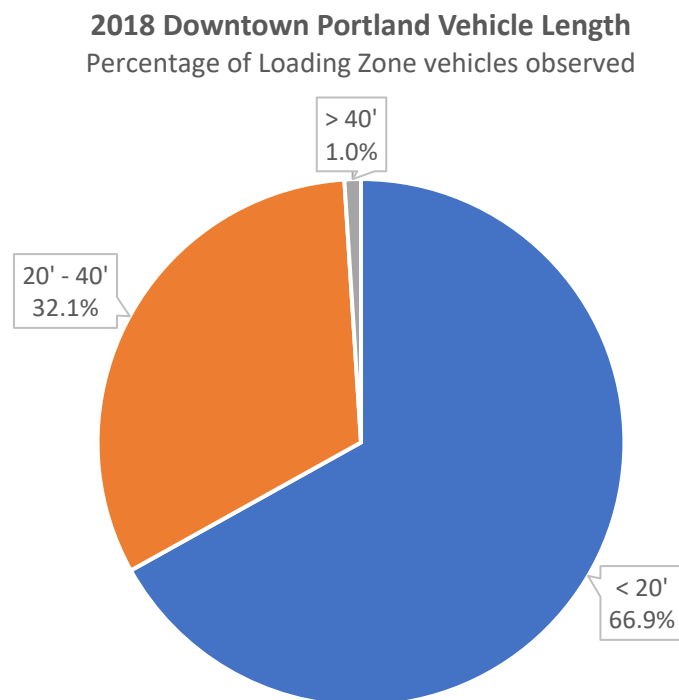


- The most frequently observed vehicle using loading zones was vans/pickup trucks at 42%. A quarter of vehicles (26%) were box trucks and approximately another quarter (24%) were cars.
- Only 4% of vehicles parked in loading zones were semis (that require at least 60 feet of curb space to safely park curb-tight). Similar to the NW loading zone study and based on field observations, the majority of semi-trucks opted to park in the travel lane to conduct their deliveries (see photo to the right).



Figure F illustrates the frequency or percentage of the different delivery vehicle lengths observed. Typically, Cars and “Other” vehicles were less than 20 feet long, the majority of Pickups/Vans were less than 20 feet in length (with a small percentage over 20 feet), Box Trucks were between 20 feet and 40 feet long, and Semis were over 40 feet long.

Figure F: 2018 Downtown Portland Vehicle Length



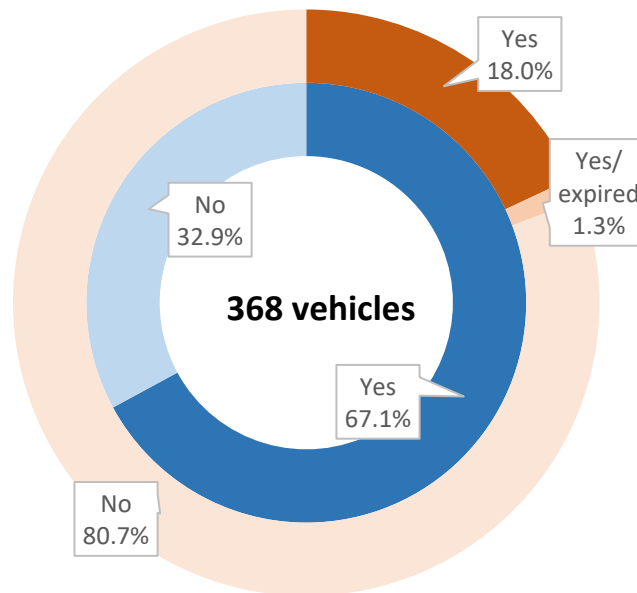
- Two-thirds of delivery vehicles (67%) were under 20 feet long.

- One-third (32%) of observed vehicles were 20 to 40 feet long.
- Very few vehicles observed (1%) were over 40 feet in length.
- **Figure D** indicated that 93% of loading zones were multi-space, yet 67% of delivery vehicles are less than 20 feet long. While this would initially indicate that loading zone spaces are, in general, too large, it does allow for multiple delivery vehicles to use the loading zone at one time, particularly in areas with frequent/intensive delivery needs (e.g., grocery stores, warehouses).
- In most cases, the size of a loading zone should be approximately 40 feet to allow for cars, vans, and box trucks (92% of vehicles observed) to park, use lift gates, and/or maneuver goods without difficulty. In some cases, where warranted, zones could be as large as 60 to 80 feet; similarly, a small percentage of spaces could be a more standard 20-foot loading zone.

Figure G illustrates two metrics, 1) whether a vehicle was a commercial vehicle (shown by inside circle) and 2) whether a vehicle had a permit displayed (shown by the outside circle).

Figure G: 2018 Downtown Portland Commercial Vehicle and Permit Characteristics

2018 Downtown Portland Commercial Vehicle vs Permits Displayed
Commercial Vehicle (inside) vs Permits Displayed (outside)



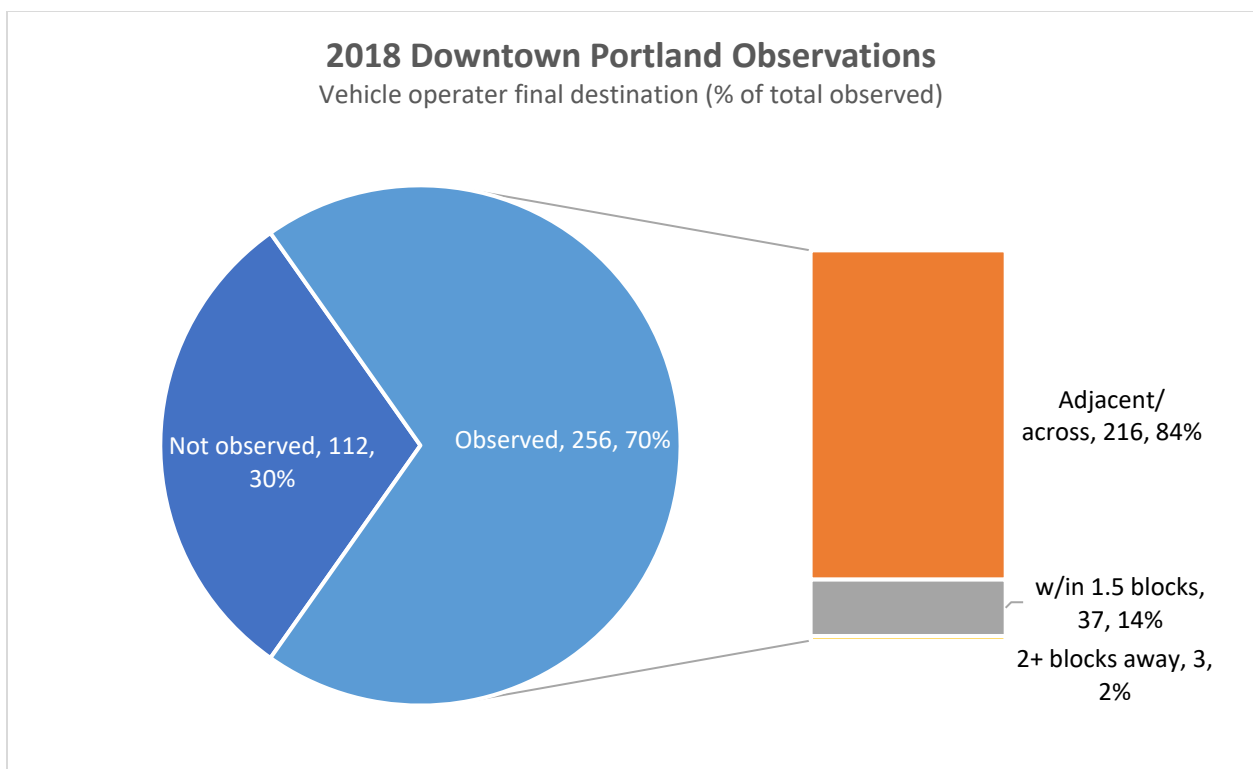
- 67% of the vehicles observed were commercial delivery vehicles, 33% of vehicles had no logo or company/agency messaging.
- All non-commercial vehicles are supposed to have a permit displayed on the vehicle dashboard. During the survey day, 18% of (all) vehicles parked in the sampled loading zones displayed a valid permit of some kind⁵; 1% of (all) vehicles parked displayed permits that were expired; the remaining 81% had no displayed permits.

⁵ Of the 129 non-commercial vehicles observed, 71 (55%) displayed a valid loading zone permit.

Utilization (delivery destination)

Figure H illustrates the observed final destination of a vehicle operator. This was a more challenging task than it sounds. Surveyors had very limited periods of time (2-3 minutes at most) to observe where delivery final destinations were. If the vehicle was being actively unloaded it made it easy, but if the vehicle was unattended it was more difficult to assess the distance, requiring additional time and potentially prolonging the route cycle. Consequently, this field survey question was selectively answered when a convenient observation could easily be made⁶. As such, the responses may be skewed slightly in favor of more proximate delivery locations (adjacent/across the street) as opposed more distant ones (2+ blocks).

Figure H: 2018 Downtown Portland Final Destination Observations

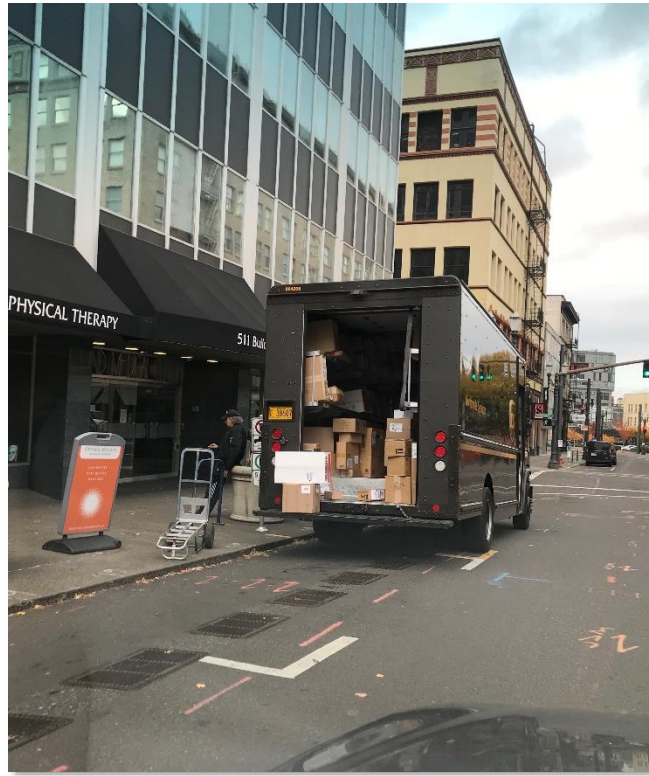


- 84% of observed deliveries (or pickups) were conducted at adjacent or across the street locations from the vehicle parked in the loading zone.
- 14% of observed deliveries occurred within 1.5 blocks of the parking location.
- Only 2% of observed deliveries occurred more than 2 blocks away.

⁶ 70% of unique vehicles (256 out of 368) parked in loading zones during the survey day had final delivery destinations noted.

Key Takeaways

- 54% of loading zones are signed until 7:00 PM; 25% are signed All Days, All Hours.
- 45% peak hour occupancy; only 2 out of 36 counts (3 per hour for 12 hours) exceeded the 40% occupancy level.
- 1:20- 1:40 PM was found to be the system wide peak hour.
- There was relatively high time restriction compliance with an 13% overstay violation rate.
- 32% of unique vehicles were observed illegally using a loading zone (non-commercial vehicle, no permit).
- 93% of zones are multi-space.
- 67% of observed delivery vehicles were less than 20 feet long.
- 84% of deliveries where a destination could be determined were either adjacent to or across the street from the loading zone.



Considerations

- Reduce the size of loading zones to approximately 40 feet, except for instances where 2 or more multi-space zones are warranted.
- Increase the use of combination zones where they serve loading and unloading needs for a portion of the day, then switch to a general access (paid) stall.
- Based on the utilization results, the number of loading zones could be strategically reduced in cases where there is little or no use of specific stalls.
- Prioritize strategically located loading zones along or just around the corner from, busy (narrow) commercial corridors to deter drivers from illegally double parking in the travel lane.

Summary

The primary land use type in the Downtown parking district is office and retail, and the number of truck loading zone stalls is therefore relatively high (731 stalls) compared to other residential or mixed-use parking districts. Despite this mix of land use and number of loading zone stalls, the peak utilization of sampled zones was only 45% (between 1:20 and 1:40 PM). Anecdotally, though while not as prevalent as in the NW parking district, surveyors made numerous observations of delivery vehicles loading and unloading from the travel lane. Consequently if there is a loading zone readily available next to the delivery destination, it will likely get used; however, if nearby loading zone space is not available, drivers will often double-park (typically on multi-lane, one-way streets) to complete their delivery (which is not reflected in the occupancy findings).

The increased popularity of online shopping has had a dramatic effect on delivery services for personal good across the country (Zalesky, 2017), (Goodchild, 2016). Despite the growing number of these delivery trips, it may not justify the need for more loading zones, particularly if they often go unused. Adding more loading zones decreases the number of actively used curb spaces for other competing uses such as customer trips, bike corrals, and visitor trips—users that might have a harder time double-parking without being cited. As with any scarce resource, curb space must serve a broad audience of users; the challenge is balancing parking demand with a properly calibrated supply while also trying to achieve community-based goals for access for priority user groups.

To this end, as noted above in the considerations, determining key variables to use for potential format changes will lessen user conflicts and provide a safer environment. Variables include strategically locating loading stalls; right sizing stalls for safe access, and increasing the use of combination stalls to maximize efficiency of all users. These elements may help mitigate illegal parking within loading zones and more users get to right stalls in Downtown Portland safely and efficiently.