

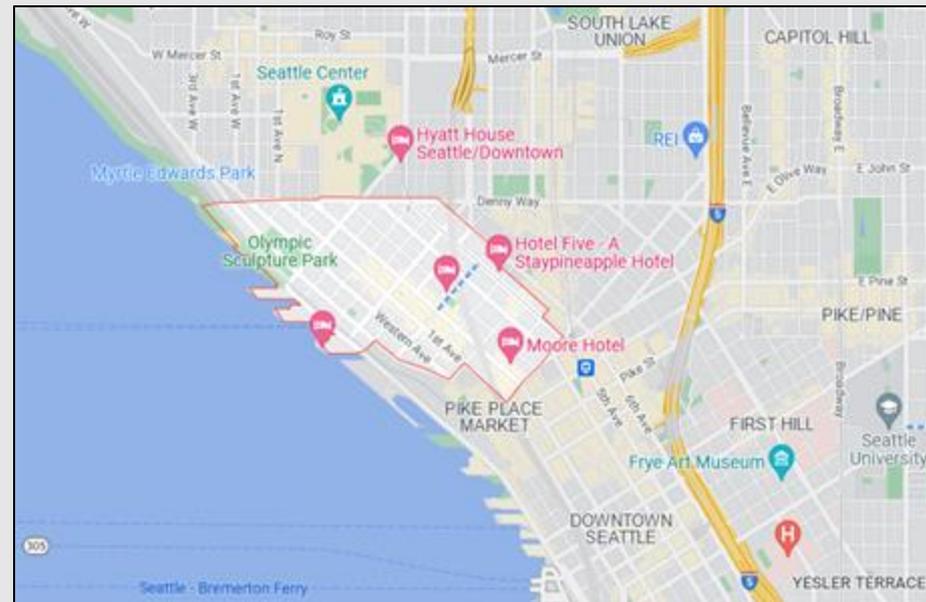
# Investigation of Private Loading Bay Operations in Seattle's Central Business District

Griffin Donnelly & Prof. Anne Goodchild



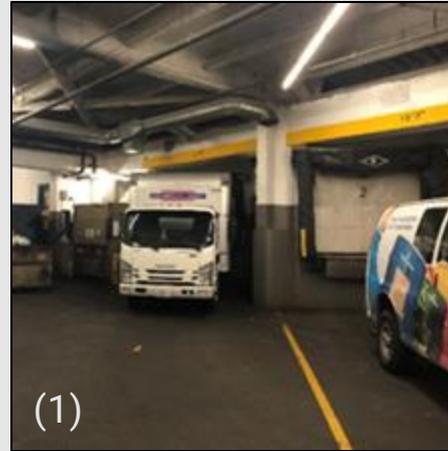
# Research Objectives

1. Understand the importance of off-street commercial parking.
2. Shine a light on how these facilities are managed.
3. Determine if off-street commercial parking is an underutilized resource for deliveries.



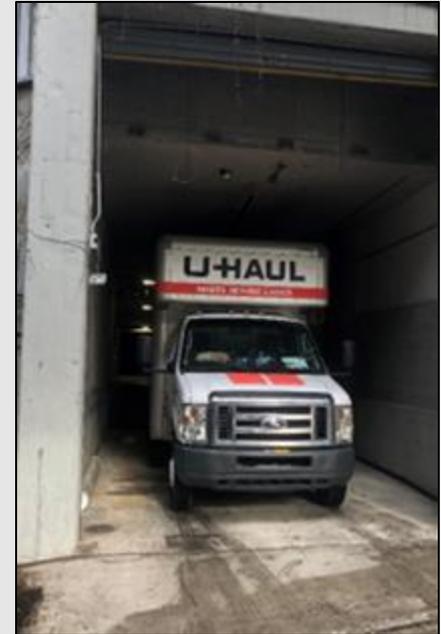
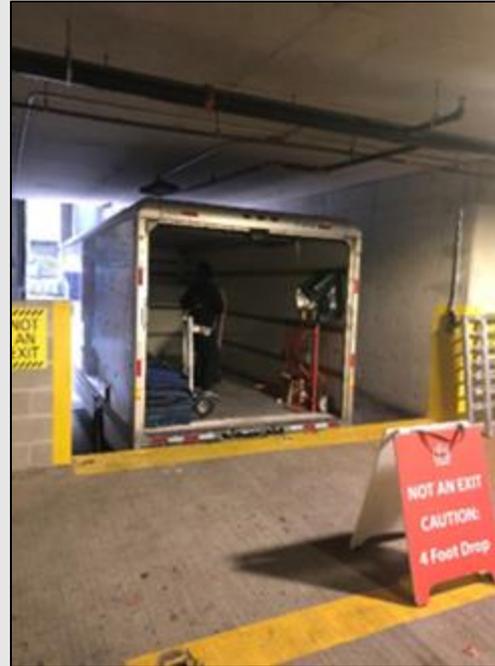
# Introduction

- Typology of delivery infrastructure established by Goodchild et al.
  - Internal Loading Bay (1)
  - Exterior Loading Dock (2)
  - Exterior Loading Area (3)



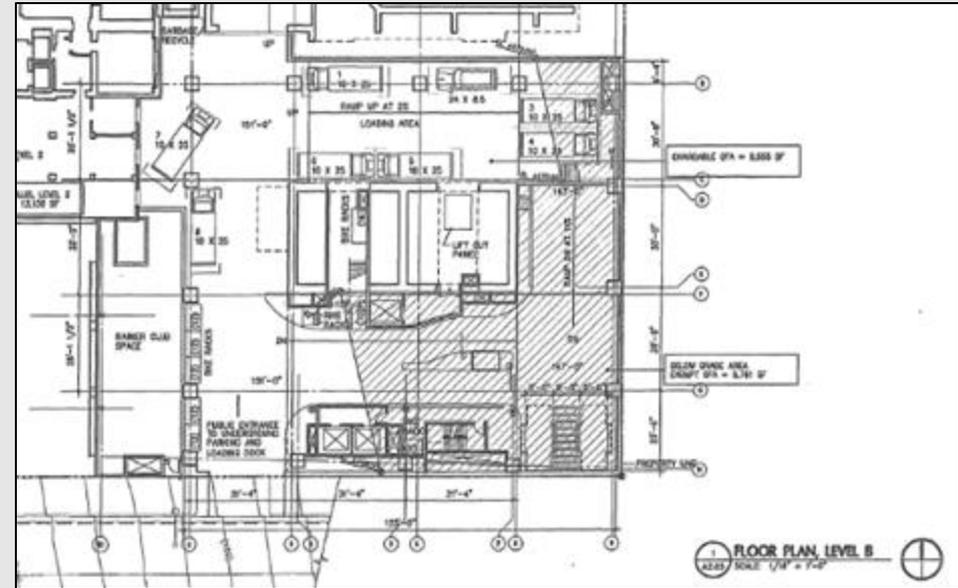
# Outreach

1. Determined location of commercial and residential buildings with off-street delivery infrastructure using Google Maps and field observations.
2. Established connection with property manager or other building operations lead.
3. Conducted online interviews or on-site tour when possible.



# Exploratory Conversations

1. What methods for managing these facilities are utilized in the downtown Seattle area?
2. Are these facilities utilized to their full capacity?
3. What roadblocks exist in the current facility design or operations that prevent the facilities from being fully utilized?
4. Are building managers and property owners the only actors in their off-street facility's utilization?



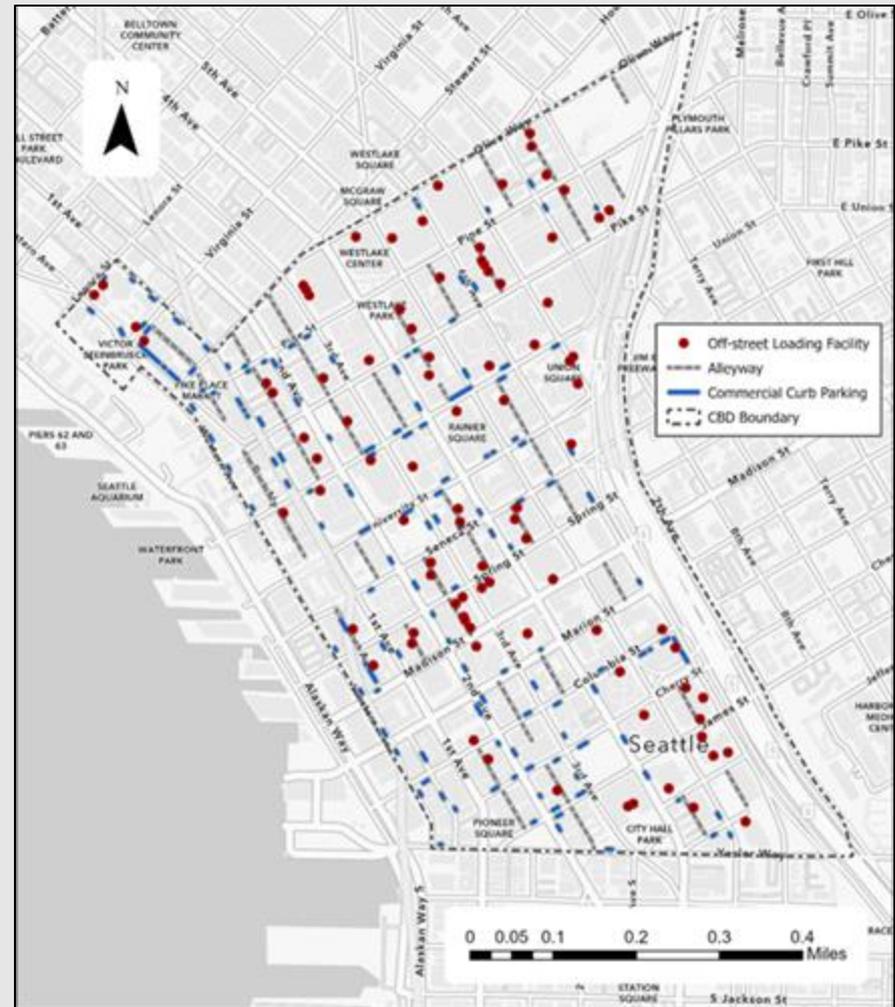
# Exploratory Conversations

1. Most involved management of loading bays used simple tenant booking system for deliveries.
2. Respondents reported consistent activity before COVID, but never overbooking or lack of off-street space.
3. Building managers that relied on curb space for commercial vehicle deliveries noted that said infrastructure was more limited in supply.
4. Loading bay operations were hindered by municipal services like garbage collection, especially when connecting to alleyways.



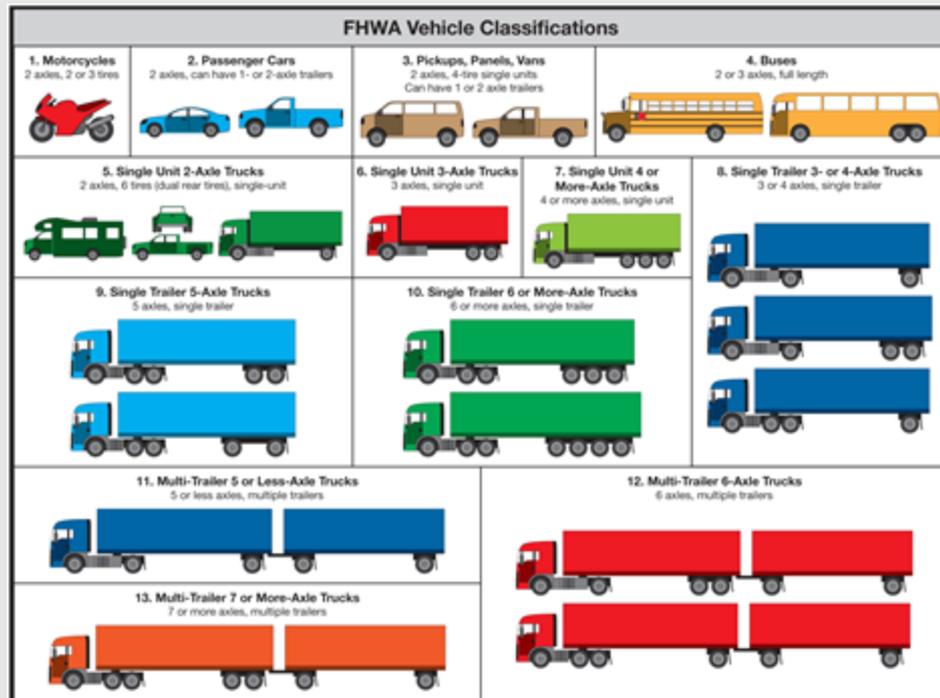
# Systemic Perspective

How does Seattle's total off-street parking infrastructure capacity compare to the supply of curb space?



# Quantifying Loading Bay Capacity

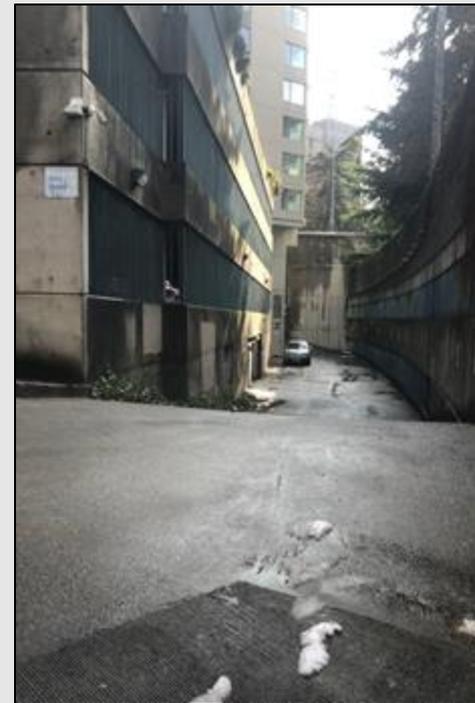
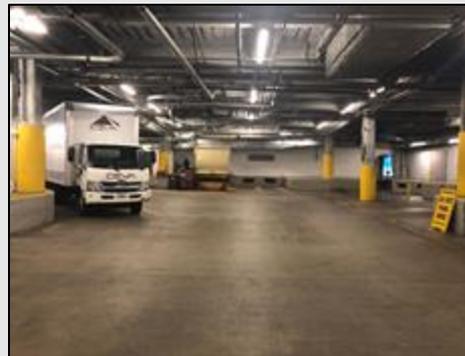
- Determined total parking supply for commercial vehicle classes 3, 5, 6, 8, and 9.
- Converted curb parking and off-street facilities into their respective maximum capacity by vehicle classification.
- Different vehicle classes utilize loading bay space differently, cannot use observed parking spaces from data collection in the field without reduction.
- Used 4 scenarios to measure off-street parking utilization in order to factor reductions from different vehicle sizes and configurations.





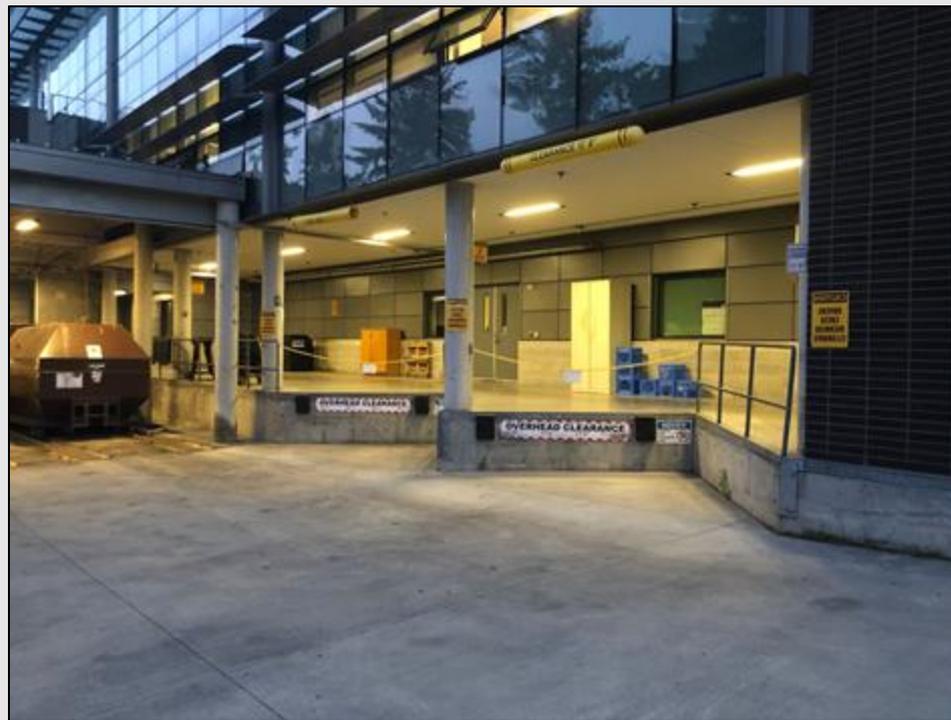
# Quantifying Loading Bay Capacity

- Off-street parking capacity in Seattle CBD greater than **50%** curb capacity for all vehicle types in all scenarios.
- Box trucks (FHWA 5 & 6) had at least **80%** of potential curb capacity in off-street loading bays.
- 2 out of 4 off-street utilization scenarios saw capacity reach at least **83%** of on-street parking capacity for vans (FHWA3).



# Conclusion

- Off-street parking represents a significant portion of commercial delivery space at the curb.
- Existing literature on loading bay management emphasizes simulation, there is a potential for application.
- Cities like Seattle, Chicago, and New York City have regulations for requiring loading bay space in building designs, but do not set standards for how these facilities are used.



Thank You!

