

## SUPPLEMENTAL INFORMATION

**Table 1. Case Study Cities**

<b>City</b>	<b>Population</b>	<b>Micromobility fleet</b>	<b>Program start date</b>	<b>Parking regime</b>
Denver, CO	710,800	Dockless bikes and e-scooters	2018	Free floating
Grand Junction, CO	65,560	Dockless e-scooters	2023	Hybrid; mandatory parking zone in study area
Washington, DC	689,545	Dockless e-scooters e-bikes; docked bikeshare	2017 dockless e-scooters and e-bikes; 2010 docked bikeshare	Lock-to requirement

*Sources: 2022 5-year American Community Survey*

**Field Instrument**

*[Washington, DC]*

Location

- Thomas Jefferson St. NW and M Street NW, Georgetown
- E Street NW and 7th Street NW
- Union Market

Type of vehicle:

- shared e-scooter
- shared bike
- personal e-scooter
- personal bike
- other vehicle \_\_\_\_\_

*Display This Question:*

*If Type of vehicle: = shared e-scooter*

*Or Type of vehicle: = shared bike*

Company

- Lime
- Lyft
- Spin
- Veo
- Capital Bikeshare
- Other (specify): \_\_\_\_\_

*Display This Question:*

*If Type of vehicle: = shared e-scooter*

*Or Type of vehicle: = shared bike*

Vehicle ID: \_\_\_\_\_

Is the  $\{\text{type\_of\_vehicle/ChoiceGroup/SelectedChoices}\}$  located in the study parking corral?

- Yes
- No

*Display This Question:*

*If Is the = No*

Does the study corral appear to be at or over capacity (i.e., no room for more scooters/bikes to park)?

- Yes
- No
- Not sure

Display This Question:

If Is the = No

Where is the  $\{\text{type\_of\_vehicle/ChoiceGroup/SelectedChoices}\}$  located?

- Paved sidewalk furniture / curb zone
- Planting strip (grassy area between sidewalk and street)
- Middle of the sidewalk
- Against building / wall
- Bike rack
- Private property (e.g., front lawn, side of building)
- On the street (not in the corral)
- Other (specify): \_\_\_\_\_

Display This Question:

If Is the = No

Largest remaining sidewalk right-of-way:

- 3ft or more
- Less than 3ft remaining. Passable sidewalk width in inches: \_\_\_\_\_
- Not applicable

Display This Question:

If Is the = No

Is the  $\{\text{type\_of\_vehicle/ChoiceGroup/SelectedChoices}\}$  blocking access to any of the following? (Select all that apply)

- Crosswalk or pedestrian ramp
- Tactile dot pad
- Entrance to building
- Other \_\_\_\_\_
- No, it is not blocking anything [exclusive]

The  $\{\text{type\_of\_vehicle/ChoiceGroup/SelectedChoices}\}$  is...

- upright
- tipped over

How is the  $\{\text{type\_of\_vehicle/ChoiceGroup/SelectedChoices}\}$  parked relative to other parked scooters/bicycles?

- Not applicable (no other vehicles nearby)
- **Parallel** to nearby vehicles. How many bikes/scooters are in this group? \_\_\_\_
- **Not parallel** to nearby vehicles. How many bikes/scooters are in this group? \_\_\_\_

Is the scooter/bike locked to a rack?

- Yes, it is locked to a rack
- No, it is unlocked
- No, it is locked to itself

- No, it is locked to another object (please describe) \_\_\_\_\_

**Additional Notes**

*e.g. next to a fire hydrant, blocking access to street furniture, blocking driveway/stairs, on a blind corner, etc.*

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Take a photo of the `_${type_of_vehicle}/ChoiceGroup/SelectedChoices`:

Thank you. Click the bottom right arrow to submit your entry and load a blank data form.

### **Difference-in-difference methodology**

For the three different “vertical signage” treatments (sandwich board, feathered flag, and sign post), we conducted individual analyses of each treatment as well as a pooled analysis that grouped all three signage treatments (including the third intervention week in Grand Junction, which featured vertical signage and painted scooter corrals) to assess whether the signage was associated with more parking in corrals. We also conducted a DID test on the digital parking pin to evaluate changes in corral parking. We did not conduct a DID analysis of the painted scooter stalls, since we anticipated no effect of this design on parking within corrals, just to parking orientation.

To assess whether the parking stalls affected how scooters were parked within corrals (i.e., parallel to each other or perpendicular), we estimated a DID for the painted stall intervention in Grand Junction. We did not conduct DID analyses of the other interventions, as they related to wayfinding to encourage more parking at the corral, rather than influencing how scooters were parked within the corral.

We also estimated a DID to assess whether adding a parking corral led to increased clustering of scooters in that location. This was only applicable in Denver, which featured a week of data collection at the treatment location before a corral was installed.

**Difference-in-difference model results for the effect of vertical signage and a digital pin on parking within a corral**

Characteristic	Vertical signage			Digital pin		
	Beta	95% CI	p-value	Beta	95% CI	p-value
Treatment (vs Control)	-0.01	-0.10, 0.07	0.7	-0.03	-0.07, 0.02	0.2
After (vs Before)	-0.02	-0.09, 0.06	0.6	0.03	-0.02, 0.08	0.2
<b>Interaction term</b>	<b>-0.04</b>	<b>-0.15, 0.07</b>	<b>0.4</b>	<b>-0.03</b>	<b>-0.09, 0.04</b>	<b>0.4</b>
City						
Denver	-	-	-	-	-	-
Grand Junction	0.76	0.69, 0.83	<0.001	-	-	-
Washington DC	0.04	-0.03, 0.10	0.3	-	-	-
Day of the week						
Sunday	-	-	-	-	-	-
Monday	-0.11	-0.21, -0.01	0.035	0.03	-0.03, 0.09	0.3
Tuesday	-0.05	-0.15, 0.05	0.3	0.07	0.01, 0.13	0.018
Wednesday	-0.01	-0.10, 0.09	0.9	0.07	0.01, 0.13	0.031
Thursday	0.02	-0.08, 0.11	0.7	0.06	0.00, 0.12	0.042
Friday	-0.11	-0.20, -0.01	0.032	0.04	-0.02, 0.10	0.2
Saturday	-0.04	-0.13, 0.06	0.4	0.05	-0.01, 0.11	0.13

**Difference-in-difference model result for the effect of parking stall marking on parking parallel to other scooters**

<b>Characteristic</b>	<b>Beta</b>	<b>95% CI</b>	<b>p-value</b>
Treatment (vs Control)	-0.22	-0.54, 0.11	0.2
After (vs Before)	-0.14	-0.49, 0.22	0.4
<b>Interaction term</b>	<b>0.44</b>	<b>-0.05, 0.93</b>	<b>0.073</b>
Day of the week			
Friday	-	-	-
Saturday	0.15	-0.32, 0.61	0.5
Sunday	-0.06	-0.52, 0.41	0.8
Thursday	0.27	-0.19, 0.74	0.2
Wednesday	0.22	-0.24, 0.68	0.3