



Denver Dockless Mobility Program Pilot Interim Report

February 2019

Table of Contents

A. Introduction and Overview of Program to Date.....	1
B. Program Vision and Status	1
C. Current Deployment Status.....	3
D. Public Outreach Efforts.....	3
E. E-Scooter Permitted Ride Location Ordinance.....	3
F. Data Collection and Analysis.....	4
G. Next Steps.....	8
Attachment A: Opportunity Areas Map.....	9
Attachment B: Opportunity Area Deployment.....	10
Attachment C: Online Public Survey.....	11

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A. Introduction and Overview of Program to Date

The Denver Dockless Mobility Pilot Program began in June 2018. The pilot was developed in response to dockless electric scooter operators deploying dockless electronic scooters without prior authorization from the City and County of Denver in May 2018. During this period, DPW staff accelerated the development of policies related to dockless mobility and created a pilot permit program authorizing dockless vehicles (including, but not limited to, scooters, bicycles and electric-assist bicycles). DPW staff worked with Denver Parks & Recreation (DPR), the Denver Police Department (DPD), The Regional Transportation District (RTD), Business Improvement Districts, the general public as well as dockless operators to receive input for the requirements of this program.

The pilot program is an element of the existing Transit Amenities Program (TAP), which permits commercial activity on the right-of-way in exchange for amenities that support transit usage. The pilot program initially permitted a maximum of five dockless scooter operators with an initial maximum fleet size of 350 vehicles, and five dockless bicycle operators with a initial maximum of 500 vehicles. To incentivize a more equitable distribution of the vehicles, operators wishing to deploy the maximum number of vehicles are required to deploy at least 100 vehicles in “opportunity areas” outside the city core (see “Attachment A”). DPW staff selected these areas based on several factors, including income, access to transit and vehicle ownership statistics. A sample day of opportunity area deployments is shown in Attachment B.

In order to better integrate the dockless vehicles into the exiting transportation system, operators are required to rebalance vehicles to areas near transit stops at the beginning of each day. This element of the program is unique amongst comparative programs throughout the country.

B. Program Vision and Status

When developing the Dockless Mobility Pilot, the City developed vision elements to guide execution of the pilot. These elements are listed below with comments on how those points are materializing thus far in the pilot:

- **Test new innovations and their ability to meaningfully meet Citywide mobility goals**
Staff is assessing both survey data and data reporting from vehicle usage to understand the pilot’s potential impact on goals like single occupancy vehicle reduction and mode shift increases. To date, the pilot has demonstrated consistent utilization but it is unclear if the scooters are removing a substantial amount of vehicles from the road or simply replacing walking trips.
- **Implement programs that respect safety and infrastructure**
Safety concerns were regularly raised during the first six-months of the program when scooters were restricted to sidewalk use only due to the City and State’s regulatory guidance. Since then, the City adopted new ordinance language now allowing the

scooters to operate in bike lanes or roadways where speeds among users are more compatible. The City anticipates that the perception of user safety will continue to increase following this ordinance change. However, some behavior issues remain with users observed operating vehicles outside of use guidelines or against the flow of traffic. DPD has reported approximately 15 accidents since the beginning of the pilot.

- **Increase percentage of people who have access to and take public transit**
Survey data (Attachment C) indicates that 44% of respondents did not use the scooter in conjunction with public transit with only 37% occasionally using the two modes combined (less than once per week). Staff will continue to explore this question given the data available.
- **Provide accurate communication and guidance to users**
As a term of the permit, operators are required to provide education to users on how to operate the vehicles in Denver. Many operators entered the market with guidance that was consistent with their other national markets (i.e. instructing users to not ride on sidewalks). This was initially confusing but operators worked with the City to ensure language was updated to reflect Denver’s regulatory requirements. These messages have since changed with the adoption of Denver’s new Electric Mobility Scooter ordinance with all operators complying with the City’s request for updates to these directions.
- **Scale responsibly based on performance metrics**
As the City reviews the mid-point data generated by the pilot, we will be adjusting permitted fleet sizes. These increases will only be implemented if an operator is in compliance with all permit terms and has demonstrated utilization rates that demonstrate latent demand. The intention of the City is to minimize the storage of idle vehicles in the right of way.
- **Integrate new services seamlessly with City’s transportation system**
New Electric Mobility Scooter language in ordinance now allows for scooters to utilize designated bike lanes. This change now allows scooter riders to take advantage of our growing network of high ease of use, low stress facilities.
- **Serve the communities that are most vulnerable and increase their access to smart technology**
Operators taking advantage of the “Opportunity Area” fleet size incentive are required to place a certain percentage of their vehicles in designated areas so that they are made available to lower income areas. They are also encouraged to market their low income discount programs so that interested individuals can take advantage of more affordably integrating scooters into their travel patterns where desired.

C. Current Deployment Status

As of January 31, 2019, DPW has issued five e-scooter permits and three bicycle/e-bicycle permits. This information is detailed in the tables below:

E-Scooter

Operator	Deployment Date	Current Fleet Size
Bird	August 2018	350
Lime	August 2018	350
Lyft	September 2018	350
Razor	October 2018	100
Spin	October 2018	115

Bicycle/E-Bicycle*

Operator	Deployment Date	Current Fleet Size
Jump	September 2018	250
Lime	November 2018	250

**Lyft has been approved for a Bicycle/E-Bicycle permit. Deployment dates are pending as of the writing of this report.*

D. Public Outreach Efforts

Throughout the pilot period, DPW staff has engaged in broad public outreach efforts to solicit comments and guidance on the pilot program and the potential development of a permanent program. Staff has met with the Denver City Council Land Use, Transportation & Infrastructure (LUTI) Committee, the Mayor’s Multimodal and Pedestrian Advisory Committees, the Downtown Denver Partnership, the Denver Streets Partnership, the Art’s and Venue Alliance Group, Cherry Creek North neighborhood groups and other smaller community meetings. Additionally, an information page and comment inbox have been created and publicized at www.denvergov.org/docklessmobility. Staff has also provided 311 with information that allows them to assist residents with questions or concerns about the program.

E. E-Scooter Permitted Ride Location Ordinance

At the outset of the pilot, Colorado law and Denver ordinance defined the scooters as “toy vehicles” which precluded them from being ridden in the street or in bike lanes. The near-universal consensus from the public was that e-scooters traveled at too high of a speed to be ridden safely on the sidewalk, and the vast majority of people providing comments felt that they were more appropriately operated in a bike lane. In response to this, DPW staff worked with Council Members Susman and Kashman and the City Attorney’s Office to draft an ordinance permitting e-scooters in the bike lanes and certain roadways, and applied speed limits for situations where sidewalk use is allowed.

The ordinance received final approval from City Council on January 7, 2019. The complete ordinance is available [here](#). The ordinance permits scooters to be ridden in bike lanes

or roads with speed limits of 30 mph or less, and in situations where no bike lane or a road of 30 mph or less is available, riders may ride on the sidewalk at a speed no greater than 6 mph.

F. Data Collection and Analysis

E-Scooters

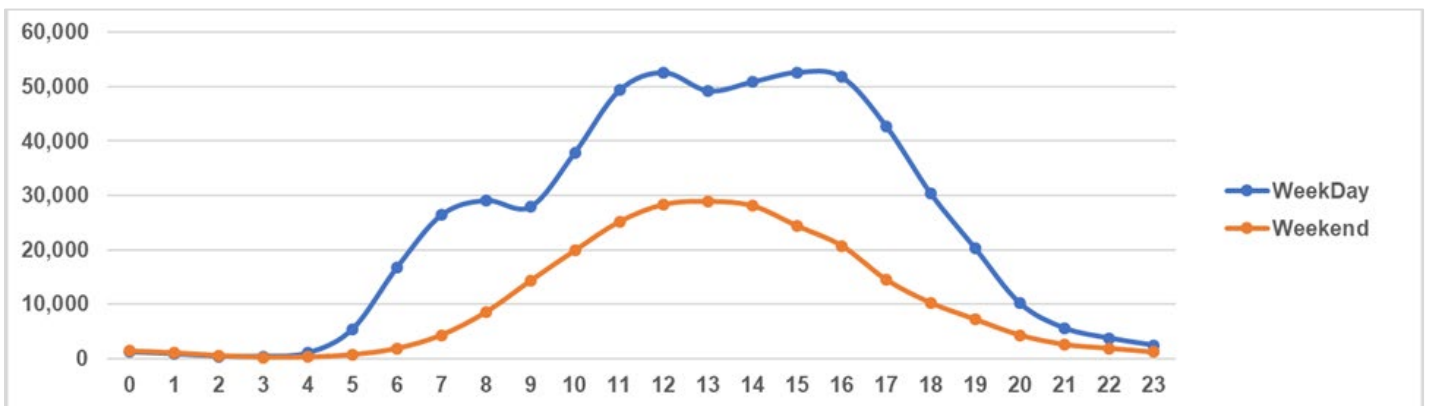
Operators are required to provide real-time application programming interface (API) data as a condition of their permits. DPW has worked with operators and other municipalities with dockless programs to refine the types of data collected.

The tables and charts below contains data points from the time period of 8/1/2018 to 1/31/2019 for deployed E-Scooters.

Table 1 - E-Scooter Usage

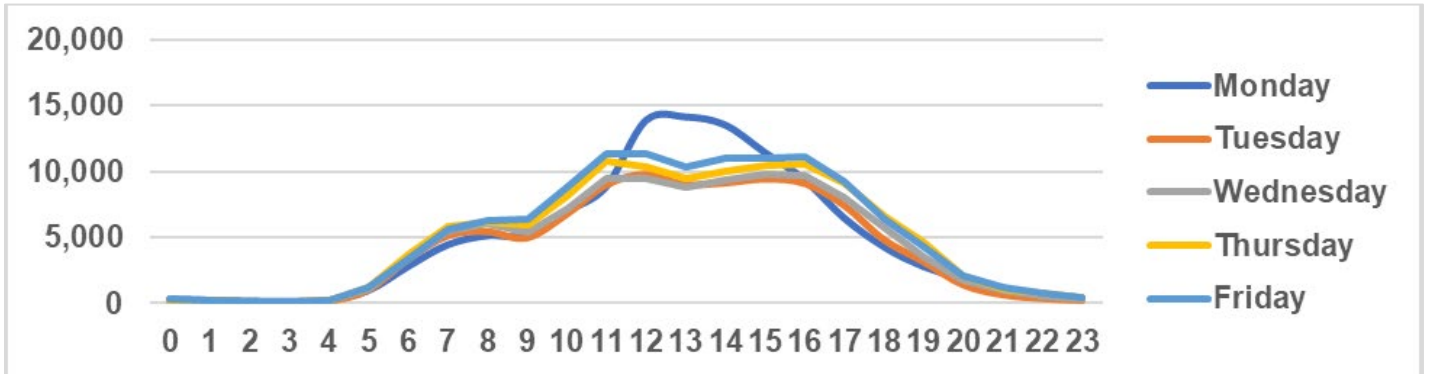
Average Number of Rides Per Operating Day	4,832
Average Number of Rides Per Day Weekday	4,693
Average Number of Rides Per Day Weekend	4,993
Total Number of Rides	819,927
Total Miles Traveled	952,898
Average Length of Ride per Day Weekday (Miles)	0.90
Average Length of Ride per Day Weekend (Miles)	0.98
Average Length of Ride (Miles)	0.92

Chart 1 – E-Scooter Total Rides Per Hour



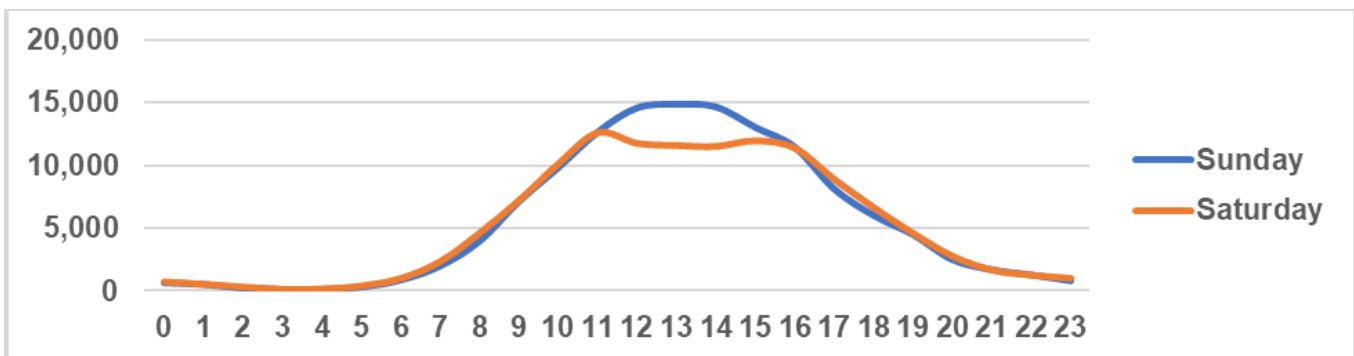
- This chart illustrates average usage by time of day for weekdays and weekend days since the beginning of the pilot.
- On weekdays, scooter ridership spikes during the morning commute, mid-day/lunchtime period and evening commute, though ridership remains relatively constant between noon and 5:00 pm.

Chart 2 - E-Scooter Rides Per Day and Time – Weekday



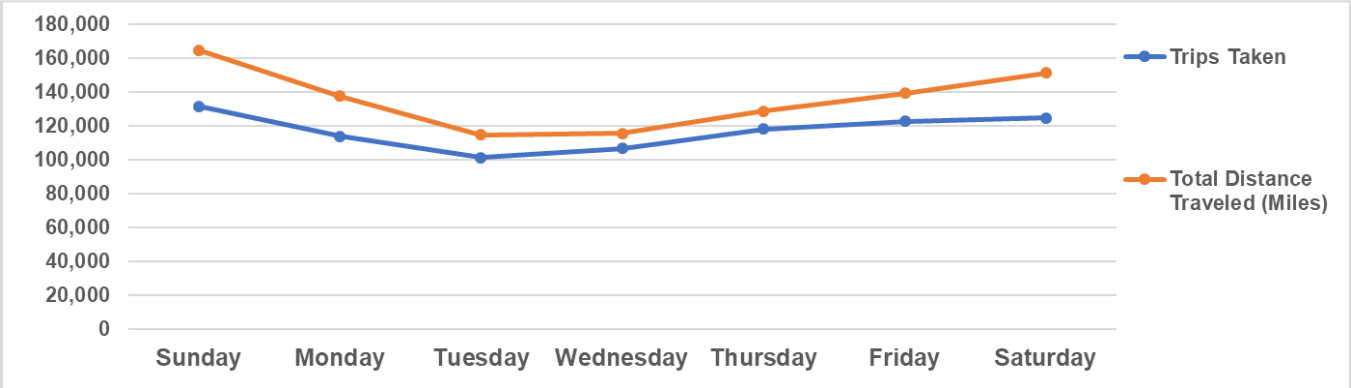
- This chart illustrates average scooter rides per day, by hour for individual weekdays since the beginning of the pilot.
- Riders use scooters during the mid-day/lunchtime period at a significantly higher rate on Mondays as opposed to any other weekday.

Chart 3 - E-Scooter Rides Per Day and Time – Weekend



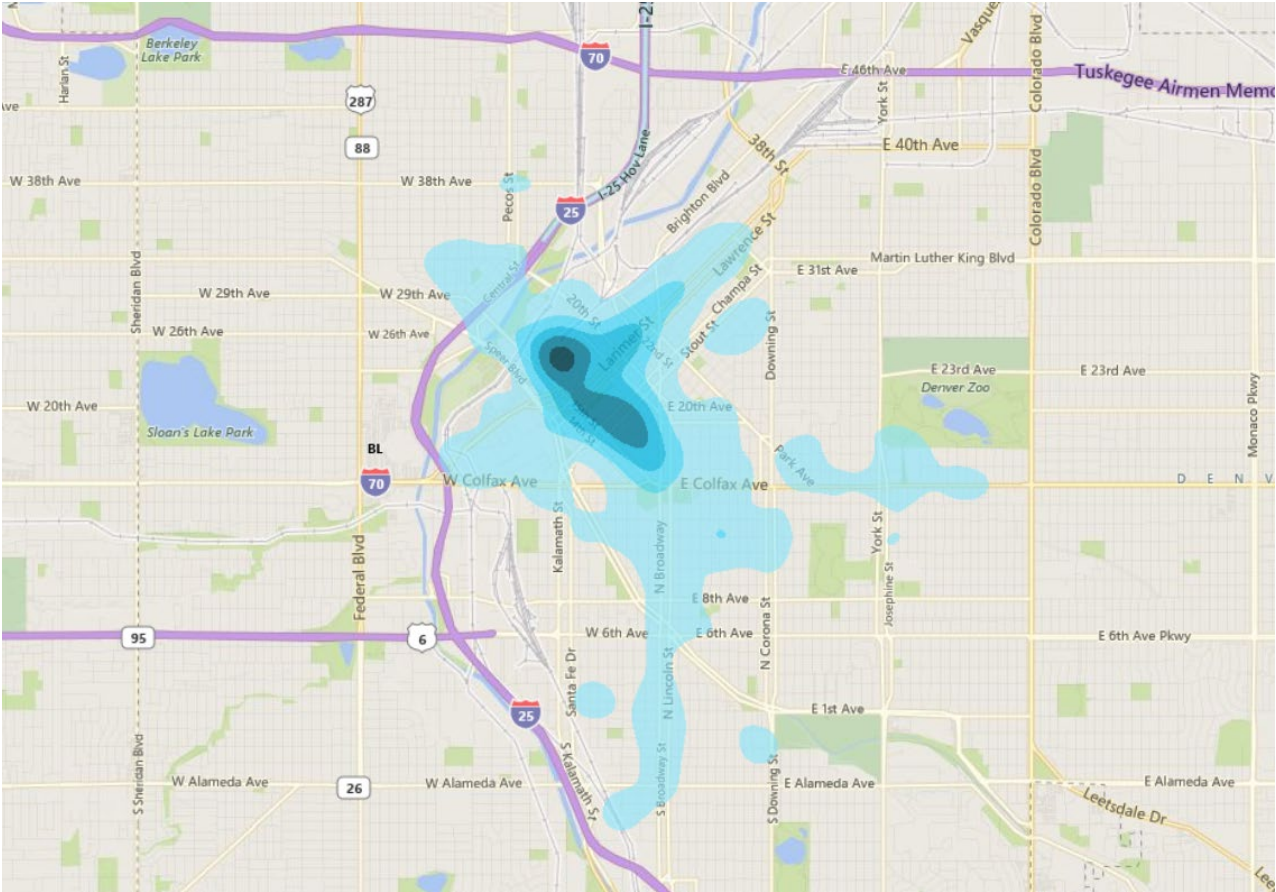
- This chart illustrates average scooter rides per day, by hour for individual weekend days since the beginning of the pilot.

Chart 4 - E-Scooter Total Distance Traveled and Rides/Day



- This chart illustrates the average total distance traveled on scooters by day since the beginning of the pilot
- Scooters are ridden approximately 6% more frequently on weekend days as compared to weekdays. Average ride lengths are approximately 6% longer on weekends as well.

Scooter Usage Heatmap



- This heat map shows the greatest dockless vehicle activity around the downtown core with a focus around the Denver Union Station Area.
- Other notable locations with high utilization are around the Broadway/Lincoln corridors, the Lower Highlands, Colfax and Josephine, and near Downing and Bayaud.

Bicycles/E-Bicycles

Dockless bicycles use a different data standard than scooters (General Bikeshare Feed Standard or GBFS). DPW staff is currently analyzing the standard and expects to have more detailed reports prior to the conclusion of the pilot. The table below contains data points from the time period of 8/1/2018 to 1/31/2019 for deployed E-Bicycles.

Table 2 – E-Bike Usage

Average Number of Rides Per Operating Day	319
Total Number of Rides	58,330
Total Miles Traveled	88,822
Average Length of Ride (Miles)	1.52

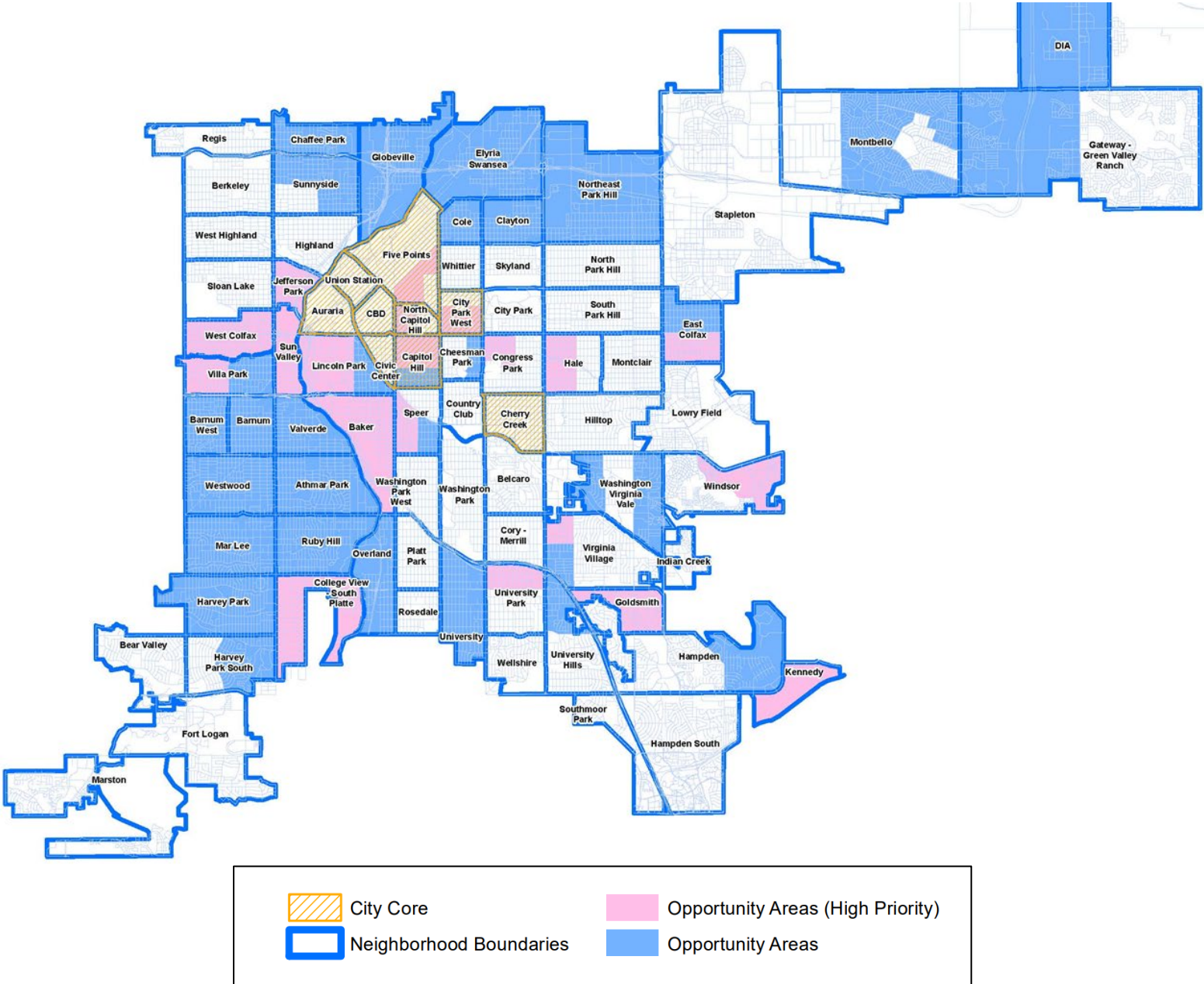
- Scooters have proved to be a much more popular dockless vehicle option when compared to dockless e-bikes, as illustrated by the average number of rides per operating day. Additionally, only two of the five available permitted operators have deployed vehicles and neither operator has deployed the maximum number of vehicles.
 - Currently, there are 2.5 times the number of scooters deployed as e-bikes, but there are more than 15 times as many scooter rides per day.
- While scooters are ridden more frequently, e-bicycles are ridden on average a 52% greater distance per ride (1.52 miles vs. 0.92 miles).
- As expected, usage varies greatly depending on weather:
 - Usage per deployed scooter ranges from as high as 12 rides/vehicle/day during the warmer months (August – November) to fewer than 4 rides/vehicle/day in the winter months (December – current)
 - Usage per deployed bicycle ranges from two rides/vehicle/day during the warmer months, to fewer than one ride/vehicle/day during the winter months

G. Next Steps

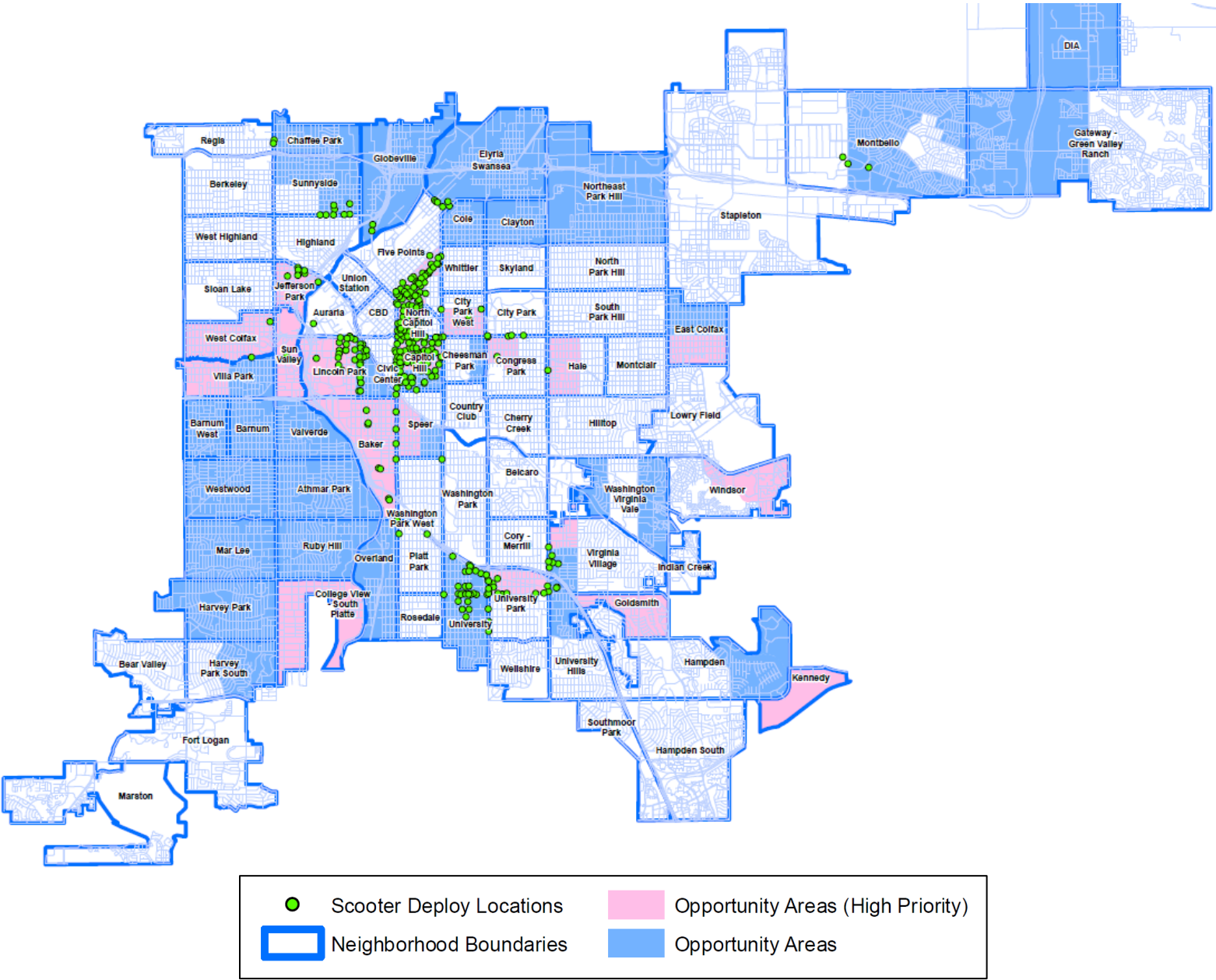
The pilot program will conclude July 31, 2019. If public input and collected data show that dockless mobility warrants an ongoing program, it is anticipated that such a program would begin immediately following the pilot avoiding a gap in access for users. Programmatic requirements would be created through DPW Rules & Regulations. Prior to the end of the pilot, the following activities are expected to occur

- Safety will continue to be a primary focus throughout the pilot. DPW staff will continue to work with the Denver Police Department to educate the public, monitor rider behavior and conduct any necessary enforcement activities.
- DPW staff is also exploring methods to collect additional outside data, such as crash and injury reports and other relevant data
- DPW staff will continue to refine the collection and usage of real-time data feeds. Detailed data-focused reports will be released throughout the remainder of the pilot, and will continue to examine ways to utilize the data beyond program administration (e.g. general transportation trends).
- DPW is working with a consultant to conduct on-street interviews and observations of dockless vehicle usage and opinions. The results of these activities will be shared in a subsequent report.
- Prior to the pilot's conclusion, a brief survey will be pushed out to users by the operators to provide additional input on usage.
- DPW staff will continue to meet with Denver Parks & Recreation, Denver Police, RTD and other community stakeholders to make adjustments to the pilot program.
- At the conclusion of the pilot program, DPW staff will release a final report which will include recommendations for an ongoing dockless mobility program if warranted.

ATTACHEMENT A Opportunity Areas Map



ATTACHMENT B Opportunity Area Deployment



ATTACHMENT C Online Public Survey

In mid-January, DPW staff conducted a non-scientific, online survey to better understand public perception and opinions of dockless mobility. A snapshot of the initial results below reflect 2,084 responses collected between January 15, 2019 and January 25, 2019. The survey will remain open to the public throughout the pilot, and more detailed reports of the results will be released in subsequent reports.

Survey Respondents:

Non-rider	50%
Scooter Riders	46%
E-bike Riders	4%

What is your overall impression of the scooters in Denver?

Love them	32%
Do not like them, with some changes I may like them	26%
Like them, need a few changes	23%
Hate them, nothing will make me like them	16%
Do not have an opinion, neutral	3%

What is your overall impression of the electric/pedal assist bikes in Denver?

Do not have an opinion, neutral	27%
Love them	24%
Like them, need a few changes	22%
Do not like them, with some changes I may like them	19%
Hate them, nothing will make me like them	8%

Safety*

I have been hit or almost hit by a scooter while walking	34%
I have been hit or almost hit by a scooter while driving a car	19%
I have been hit or almost hit by a scooter while riding a bicycle	8%
While riding a scooter, I have hit or almost hit someone driving a car	1%
I have ridden a scooter while under the influence of drugs and/or alcohol	1%
While riding a scooter, I have hit or almost hit someone walking	1%
None of the above	37%

**Note - Survey responses were collected beginning approximately one week after City Council approved an ordinance permitting scooters to ride in bike lanes and the road and curtailling speed in the few instances where riders are permitted to ride on the sidewalk. It is likely that feedback regarding safety reflects the original condition of dockless vehicles operating on sidewalks. Subsequent reports will compare these responses to a survey sample reflecting the time period after the ordinance change.*

What are the top three trip types for which you ride a scooter?

To/from Work	32%
To/from Entertainment	20%
To/from a work-related meeting or appointment	11%
To/from Dining out	11%
To/from Transit	9%
To/from Shopping or running errands	7%
For Fun/Recreation	7%
To/from School	3%

Think about your last dockless vehicle ride in Denver. If a dockless vehicle had not been available, what is the most likely way you would have traveled instead?

Walked	43%
Taken a taxi, Lyft, or Uber rideshare	22%
Driven a motor vehicle/car (person vehicle, carshare vehicle, rented vehicle, other)	10%
Ridden a personal bike	8%
Taken Transit (Bus or light/commuter rail)	7%
Ridden a Bike Shar	6%
Not have Taken	2%
Auto Passenger	1%

How often do you ride a dockless vehicle in connection with transit (bus or light/commuter rail) in Denver?

Occasionally, but less than once a week	37%
1 – 3 times a week	12%
3 – 6 times a week	4%
Daily	2%
More than once a day	1%
Never	44%

What changes would encourage you to use scooters more often?

More scooters available where you need them	46%
More designated places to ride (e.g. bike lanes)	28%
Lower cost	7%
None of these changes would encourage me to use more	4%
Scooters in surrounding cities	4%
Longer battery life	4%
Different vehicle types or designs	1%
Scooters with seats	1%
Other	5%

Demographics of Respondents

Age - All Respondents

15-19 years old	1%
20-24 years old	5%
25-29 years old	14%
30-34 years old	19%
35-39 years old	14%
40-44 years old	12%
45- 49 years old	8%
50-54 years old	8%
55-59 years old	5%
60-64 years old	6%
65-69 years old	4%
70-74 years old	3%
75-79 years old	1%
80-84 years old	0%
85 years and over	0%

Age - Dockless Scooter Riders Only

15-19 years old	1%
20-24 years old	8%
25-29 years old	18%
30-34 years old	20%
35-39 years old	11%
40-44 years old	8%
45- 49 years old	4%
50-54 years old	5%
55-59 years old	2%
60-64 years old	1%
65-69 years old	1%
Prefer not to say	0%

Age - Electric/Pedal Assist Bike Only

15-19 years old	29%
20-24 years old	2%
25-29 years old	11%
30-34 years old	18%
35-39 years old	16%
40-44 years old	9%
45- 49 years old	7%
50-54 years old	2%
55-59 years old	1%
60-64 years old	2%
65-69 years old	3%
Prefer not to say	1%

Age - Non-Riders Only

15-19 years old	17%
20-24 years old	2%
25-29 years old	5%
30-34 years old	11%
35-39 years old	10%
40-44 years old	10%
45- 49 years old	8%
50-54 years old	8%
55-59 years old	6%
60-64 years old	8%
65-69 years old	5%
70-74 years old	5%
75-79 years old	2%
Prefer not to say	2%

Gender - All Respondents

Male	56%
Non-binary, or prefer to self-describe	1%
Prefer not to say	3%
Female	40%

Gender - Scooter Riders Only

Male	69%
Female	31%

Gender - Non-Riders Only

Man	47%
Woman	53%

Income Level - All Respondents

Less than \$10,000	1%
\$10,000 - \$14,999	1%
\$15,000 - \$24,999	2%
\$25,000 - \$34,999	3%
\$35,000 - \$49,999	8%
\$50,000 - \$74,999	12%
\$75,000 - \$99,000	13%
\$100,000 - \$149,999	21%
\$150,000 - \$199,999	14%
\$200,000 or more	12%
Prefer not to say	12%

Income Level - Scooter Riders Only

Less than \$10,000	2%
\$10,000 - \$14,999	1%
\$15,000 - \$24,999	2%
\$25,000 - \$34,999	4%
\$35,000 - \$49,999	9%
\$50,000 - \$74,999	13%
\$75,000 - \$99,000	14%
\$100,000 - \$149,999	22%
\$150,000 - \$199,999	14%
\$200,000 or more	14%
Prefer not to say	4%

Income Level - Non-Riders Only

Less than \$10,000	0%
\$10,000 - \$14,999	1%
\$15,000 - \$24,999	3%
\$25,000 - \$34,999	2%
\$35,000 - \$49,999	6%
\$50,000 - \$74,999	12%
\$75,000 - \$99,000	13%
\$100,000 - \$149,999	20%
\$150,000 - \$199,999	14%
\$200,000 or more	11%
Prefer not to say	18%