CITY OF BOULDER
TRANSPORTATION ADVISORY BOARD AGENDA ITEM

MEETING DATE: November 14, 2022

AGENDA ITEM:
Staff briefing regarding Draft E-scooter Evaluation Report

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EXECUTIVE SUMMARY

The City of Boulder's shared micromobility program was developed following the direction of City Council on September 15, 2020, to include e-scooters into the program in a limited-service area east of 28th Street as a pilot phase to inform future program formalization and possible service area expansion; and to conduct a competitive Request for Proposals (RFP) process to select a vendor to provide shared micromobility services for the Boulder community. As a result of the RFP process, Lime (e-scooters) was selected to provide e-scooter services, which officially began on August 17, 2021.

Lime has deployed 300 shared e-scooters in East Boulder and currently operates a "dockless" form of shared micromobility, which allows customers to locate and rent a device nearest to their location. During the pilot program timeframe (August 17, 2021—August 31, 2022), 115,000 trips were taken on e-scooters resulting in 117,700 miles traveled.

An array of metrics were collected during the pilot that have been analyzed and interpreted in a draft evaluation report. The intent of this memo is to share the draft evaluation report's key findings from the shared e-scooter one-year pilot program. The evaluation includes utilization statistics and public perceptions gleaned from city and Lime administered questionnaires.

The purpose of this memo is to update TAB on the program operations to date and provide a concise background and history of the program to contextualize the evaluation effort and next steps for the program.

Staff seeks input from members of the Transportation Advisory Board (TAB) regarding areas of opportunity and/or areas of concern. TAB's feedback and key findings from the shared e-scooter evaluation will be used to inform the development of a permanent shared e-scooter component as part of the city's shared micromobility program.

BACKGROUND

The City of Boulder's Shared Micromobility Program is comprised of shared electric bicycles (e-bikes) and shared electric scooters (e-scooters). Today, Bcycle is the selected provider for e-bikes and Lime is the selected provider for e-scooters. These providers operate under separate contractual agreements with the City of Boulder. Lime's agreement is consistent with the shared e-scooter ordinance (Title 4- Chapter 34) and provides the general requirements for e-scooter operations, such as, licensing and fees, operator responsibilities, e-scooter standards, and the parking of e-scooters. The focus of this memorandum is on the shared e-scooter component of the Shared Micromobility program.

At the September 15, 2020 City Council meeting, council provided direction to include shared e-scooter devices, along with shared, electric-assist bicycles, to comprise the city's Shared Micromobility Program. Council added the requirement that shared e-scooters should only be offered east of 28th Street (figure 1) as a pilot for future council consideration to potentially expand the service area citywide.

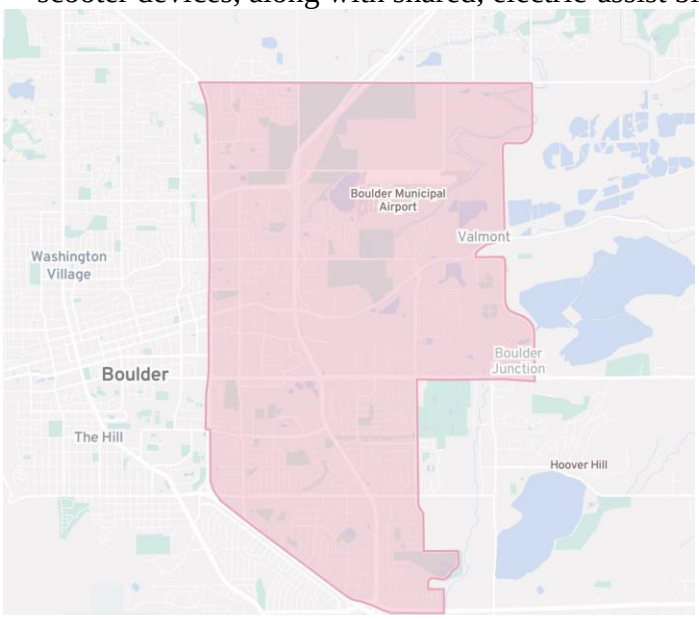

Figure 1 - East Boulder Pilot Program Service Area

At the October 27, 2020 City Council Study Session, council supported staff's recommendation to conduct a competitive Request for Proposal (RFP) process to receive and evaluate proposals from shared micromobility operators and to select an operator(s) to provide services for the Boulder community. Staff convened several community stakeholders to develop a vision for the Shared Micromobility Program goals, objectives, and scope of work. Stakeholders included members of the Transportation Advisory Board, CU Boulder, Boulder County, Boulder Chamber, Community Cycles, Shared Paths Boulder, Boulder Housing Partners, Boulder County's Mobility for All program, Boulder Transportation Connections and Commuting Solutions.

The City of Boulder's goal for the Shared Micromobility Program is to:

Provide community members safe, equitable and sustainable forms of transportation to improve quality of life, provide connections to transit and key destinations; and replace motor vehicle trips to reduce traffic congestion and transportation-related greenhouse gas emissions.

To advance this goal, the following Shared Micromobility Program (SMP) objectives and performance measures were identified through the RFP development process (Figure 2). Findings from the evaluation report will inform near-term program decision making points to achieve optimization.

SMP Objectives	Baseline	2023 Performance Measure

1) Build upon the success of Boulder's previous bike share program	2020 – 110,000 trips	440,000 trips
2) Expand the quantity of available shared e-bikes and e-scooters by 2023	2020 – 300 bikes	500-700 devices (e-bikes and e-scooters) in service
3) Demonstrates on-going safety improvements for users of shared devices	Establish baseline number of severe crash reports in 2021-2022	Compare number of severe crashes in 2023 to 2022 – 0 is the goal.
4) Provides its services in an equitable manner by developing and promoting a program that is easily accessible and affordable for traditionally underserved community members.	Establish baseline use in 2021-2022	Compare use in 2023 to 2022
5) Expand city-wide accessibility to shared micromobility devices	2020 – 45 B-Cycle docking stations	Compare 2023 accessibility (areas of Boulder served) to 2020

Figure 2 – Shared Micromobility Program (SMP) Objectives and Performance Measures (2020)

Staff concluded the RFP process following the proposal review and interview process and selected two vendors to provide shared micromobility services:

- **Neutron Holdings, Inc. DBA Lime -** Formerly Lime Bike, Lime is a transportation company based in San Francisco, USA. It runs electric scooters, electric bikes, normal pedal bikes, electric mopeds, and car sharing systems in various cities around the world. Lime is currently authorized to operate electric e-scooters in a limited-service area in Boulder (east of 28th Street) per council direction.

An operating agreement between the City of Boulder and Lime was finalized in August 2021 and is valid for a period of one year with an option to extend up to four additional years.

An instrumental component of these agreements is the city collection of revenue from Lime through an annual license fee and a per ride fee of fifteen cents ($0.15). These fees are returned to the city's Shared Micromobility Program to pay for expenses related to the signing, striping, and marking of roadways, educational and promotional outreach, equity programs, and if needed, staff time.

The City of Boulder currently does not pay any subsidies to vendors to provide micromobility services. During the pilot program, the City of Boulder has assessed $20,550 in license and per trip fees.

Evaluation Criteria
Program evaluation strategies have been developed for Lime as part of the scope of work included in their agreement with the City of Boulder.

Vendors, along with key community stakeholders, participate in on-going meetings to discuss opportunities and challenges with the goal of continuous improvement and program optimization.

Staff has actively monitored and has collected operational data on the performance of the Lime e-scooter component of the Shared Micromobility Program. A draft evaluation report (Attachment A) summarizes utilization data and community and stakeholder input. The key findings from the evaluation report will be used to inform future changes to the shared e-scooter programmatic operations, status, and service area within Boulder.

ANALYSIS

The summary of key findings below follows the order of the evaluation criteria as described in the draft evaluation report.

Utilization

- E-scooter utilization is prevalent throughout the entire pilot program area. The 30th Street corridor sees the highest volume of shared e-scooter travel representing an average of 25 daily trips along the corridor over the course of the pilot program period.
- Trip start data indicates high e-scooter activity in four distinct areas of East Boulder:
    - Northeast Boulder- comprises high density residential neighborhoods, including five traditionally underserved communities
    - Central Boulder – 29th Street Mall shopping center (most common destination of all zones)
    - CU Boulder's East Campus (experiences frequent travel between East Campus and Williams Village)
    - CU Boulder's Williams Village (experiences frequent travel between Williams Village and edge of Main Campus along the east pilot boundary of 28th Street)
- By the numbers:

Measures – August 2021—August 2022	**Lime E-Scooters**
Number of trips	115,000
Total distance traveled (miles)	117,700
Average trips per device per day	1.5
Average trip duration (minutes)	11
Average trip distance (miles)	1
Approximate greenhouse gas savings (pounds)	26,058
Number of reported severe crashes	4

User Demographic and Trip Purpose

- Lime has registered 40,000 unique users in the City of Boulder market
- 88% of Lime's customers live, work, or go to school in the City of Boulder
- 85% of trips originated in the city right-of-way. The remaining 15% originated on a CU Boulder property

- 61% of Lime's customers live in households earning less than the median income level
- The average age of their customer is 31 years old and 25% of Lime riders are 36 or older
- 37% of people use e-scooters for fun and recreation
- 34% of people use e-scooters for shopping and running errands

Mode Shift Analysis

- Nearly half (47%) of the respondents to the city's questionnaire reported that they would have taken a car if an e-scooter wasn't available for their trip
    - Nearly 30% would have walked
    - 13% would have biked
    - 3.5% would have taken the bus

Environmental and Material Sustainability: Greenhouse Gas Savings and E-scooter Lifespan

- 26,058 pounds of CO2 were saved within the span of the pilot program timeframe. This is equivalent to consuming 1,330 gallons of gasoline or the carbon sequestration rate of 13 acres of U.S. forests in one year
- It is estimated e-scooters have a lifespan of five years
- 13 out of 300 e-scooter were decommissioned and recycled during the pilot program timeframe due to vandalism beyond repair or the e-scooter was submerged in water for a long period
- Lime's e-scooters are 96% recyclable
- The Life Cycle Assessment of Lime's e-scooter found an estimated greenhouse gas impact of 46.5grams of CO2 emissions (seven times less than a typical motor vehicle)

Safety: Equipment, Technology, Reported Crashes, Travel Preferences, Parking Considerations

- The durability of e-scooters has improved greatly over the past three years, including thicker steer tubes, larger wheel diameter, longer wheelbase, front and rear brakes, and front suspension
- New user safety programs through the mobile app have been developed to improve safety, for example, "Training Ride" and a sobriety test
- Boulder's crash rate is .01% and a total of 17 shared e-scooter crashes were reported to the city and/or Lime during the pilot program
    - Four moderate to severe injury crashes were reported in which the victim was transported to the hospital via ambulance. Two of those crashes occurred in the city right-of-way, the other two crashes occurred on CU Boulder property. One of the crashes involved a motor vehicle
    - The remaining 13 crashes were reported with minor injuries to the victims
- 147 out of 343 respondents to the city's questionnaire reported a preference to travel on sidewalks due to feeling unsafe in the street or in conventional bike lanes due to motor vehicle speeds and volume
- Improperly parked or fallen shared e-scooters present a significant mobility issue for people with disabilities

- Mandatory, designated shared e-scooter parking has been proven to mitigate many issues associated with blocking sidewalks and multi-use paths where this has been implemented during the pilot on CU Boulder property

Safety Education Outreach

- The Shared Micromobility Program webpage offers information on the program and methods for community members to report issues directly to staff and to the shared micromobility vendors, including vendor and staff contacts and a link to the city's Inquire Boulder reporting platform. Outreach through City of Boulder social media is frequently conducted to provide information pertaining to parking the devices responsibly, customer safety, including the use of helmets

Addressing Racial Equity

- Community members living in or near traditionally underserved communities have access to shared e-scooters due to requirements set forth in Lime's operating agreement
- 15% of total fleet must be allocated to these locations at all times
- There were 8,170 trip starts stemming from the racial equity zone
- Lime's affordability program (Lime Access) has experienced low participation

Transportation and Parks Maintenance Impacts

- Transportation Maintenance staff have occasionally needed to remove individual e-scooters from right-of-way to perform their duties, such as, to remove snow from sidewalks and/or multi-use paths.
- No negative impacts to Parks and Recreation Department maintenance practices have been reported.

Community Feedback Summary

Community feedback for the shared e-scooter program has been mixed. Many community members have shared that they are grateful for the e-scooters to help with daily errands and travel to work and school. They are also considered fun and convenient and provide an alternative to driving a car. People have also expressed frustration over the inability to travel west of 28th Street.

Community members have also voiced concerns regarding the e-scooters being parked on sidewalks and on multi-use paths. Comments range from expressing a general annoyance of the e-scooters being seen everywhere, e-scooters laying down on the sidewalks and multi-use paths, and general safety concerns for the users of the devices and those who share space on the sidewalks and multiuse paths, especially people with disabilities.

Staff has presented the preliminary findings of the report to several community stakeholder organizations, as well as several boards and commissions. Staff has received some general feedback on the program which has helped to inform staff's preliminary ideas to optimize programmatic operations.

PROPOSED NEXT STEPS

Staff has developed initial concepts to explore as we consider changes that improve utilization and program sustainability while reducing risk and conflicts with other users of Boulder's transportation infrastructure.

Staff is seeking feedback from TAB and council on these preliminary ideas, as well as other ideas that will optimize the program. Following TAB and Council input, staff will perform any modifications to the program in spring 2023.
Possible next steps for program formalization in 2023 will relate to operational components of the program, including, but not limited to:

Service Area Expansion

- Expand service west of 28th Street making access to shared e-scooters city-wide
    - Employ geofencing to prohibit scooters in sensitive areas such as Pearl Street Mall. Specific areas will be defined in early 2023 based on feedback from TAB, Council and other stakeholders
    - Continue coordination with CU Boulder to determine appropriate expansion efforts on CU properties

Mandatory, Designated Parking Zones

- Explore transition of the shared e-scooter model from primarily a dockless system to a hybrid docked system by developing criteria to identify candidate areas for designated parking zones city-wide. Designated parking zones should consist of a combination of on-street and off-street parking facilities
    - Begin transition in current service area east of 28th Street
    - Coordinate with HOA's and neighbors to determine appropriate designated parking area locations
    - Continue to allow dockless capability at major shopping centers and in Boulder Junction
    - Create mandatory e-scooter parking zones on the periphery of downtown Boulder and University Hill
        - Geofence restricted riding areas that mirror the current dismount zones for both areas
        - Investigate options to allow north-south travel on streets through downtown (7th – 19th Streets)

Safety

- Continue tracking shared e-scooter related crashes and continue coordination with Boulder Police Department and CU Boulder Police Department regarding the reporting of crash details and possible crash trends
- Eliminate impacts to people with disabilities due to improperly parked e-scooters on sidewalks and multi-use paths
- Partner with shared micromobility venders and CU Boulder to create a culture of safety and courtesy on Boulder's multi-use path system through signing, marking, and corresponding safety education efforts

- Continue City of Boulder and CU Boulder safety education messaging through special events and social media campaigns
- Reinforce and encourage helmet use including the distribution of free helmets to registered shared e-scooter riders

Transportation Demand Management

- Explore opportunities to extend TDM benefits to include a micromobility membership program to employees of general improvement districts (Downtown Boulder, University Hill, and Boulder Junction)
    - In the Downtown and University Hill, explore expanding TDM benefits to include both Lime and BCycle memberships to employees
    - In Boulder Junction, explore expanding TDM Access District to include Lime memberships to employees and residents. Boulder Junction's TDM Access District currently provides BCycle memberships to all residents and employees.
    - Allow access to shared e-scooters past current hours of operation (6:00am-11:00 p.m.) for people who work in the service industry or whose work shifts extend beyond current hours of operation
- Explore the concept of a "mobility card" that houses micromobility access, transit access, and other transportation options for users in one location
- Explore Lime student membership program for CU Boulder and Naropa University
- As workers continue to return to Boulder's employment centers on East Walnut, East Airport Road and Flatirons Business Park, coordinate with Lime, BCycle, the Boulder Chamber/Boulder Transportation Connections to promote and encourage corporate micromobility membership programs for employees

Policy and Accessibility

- Revisit restrictions for riding shared e-scooters on sidewalks along specific corridors without high pedestrian volumes until on-street, protected facilities can be established
- Continue to encourage the use of shared micromobility to community members living in traditionally underserved neighborhoods. Remove barriers to affordability programs. Coordinate with the City of Boulder Community Connectors-in-Residence program to optimize the program
- Explore feasibility and test installation of e-scooter electrical charging infrastructure in which docked e-scooters can be charged in the field, thereby minimizing provider trips to replace batteries
- Improve first and final mile mobility options and coordination between transit agencies and Lime

Program Support

- Create an expenditure plan for collected license and per trip fees to bolster the shared micromobility program in 2023 and beyond. Potential expenditure categories include:
    - expenses related to the signing, striping, and marking of roadways
    - educational and promotional outreach
    - equity programs
    - staff time

TAB ACTION REQUESTED

Offer feedback on areas of opportunity and/or areas of concern, particularly regarding the draft evaluation report's findings and proposed next steps outlined in this memorandum. TAB feedback will be synthesized with the findings of the shared e-scooter evaluation to inform formalization of the shared e-scooter component of the city's shared micromobility program. The draft evaluation report will be finalized following TAB and Council input and other stakeholder feedback staff receives through the end of the year.

ATTACHMENTS

A: Draft E-scooter Evaluation Report
B: East Boulder Pilot Program Service Area
C: City of Boulder Questionnaire Results
D: Lime Questionnaire Results
E: Lime Global Utilization Survey
F: Utilization Analysis (Sub Areas)