



DESIGNING CITIES  
NACTO **DENVER** 2023



#NACTO2023

# Better Bike Share Partnership Shared Micromobility Roundtable

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Monday, May 15, 2023

9:00 AM - 12:30 PM

# Better Bike Share Partnership



Tangier  
Barnes Wright



Kiran Herbert



Aminah Ricks



Fielding Hong



Cary Bearn



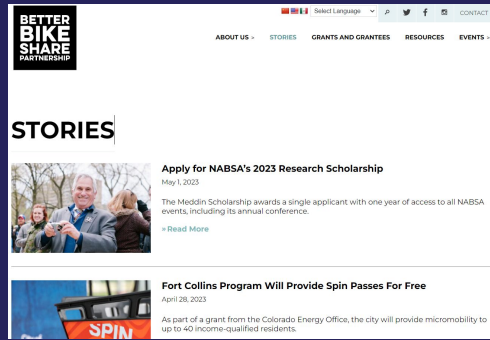
Camille Boggan



Waffiyah  
Murray



Meghan  
Alvarez



## GRANTS AND GRANTEES

The Better Bike Share Partnership has funded many initiatives to pilot, support and share strategies to increase the access to and use of shared micromobility in low-income and BIPOC communities since its inception. Opportunities have included:

- Research Grants:** Funding for academic institutions conducting studies to shed light on the barriers, incentives, practices, environment and other factors that increase or inhibit bike share ridership.
- Mini-Grants:** Small, focused awards to support modest programs or activities.
- Living Lab Cities:** New in 2020, this program will support four cities taking a deep dive into addressing a barrier or capitalizing on an opportunity to make the use of shared micromobility easier, safer, and more accessible in BIPOC communities.

## 2022-2023 Transportation Justice Fellowship

NACTO / BBSP

### 2022 - 2023 TRANSPORTATION JUSTICE FELLOWSHIP

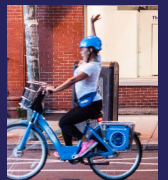
Mon May 15, 9:00 AM - 12:30 PM MDT  
 11:00 AM - 2:30 PM Your local time (3 Hours, 30 Min)

### BBSP Shared Micromobility Roundtable: Peer to Peer Learning [Cities Only]

Hyatt Regency Denver Convention Center, 3rd Fl, Silver

The BBSP Shared Micromobility Roundtable is an annual convening that brings together practitioners working to make shared micromobility more equitable. This year, NACTO is hosting the BBSP Shared Micromobility Roundtable as a component of the May 2023 Designing Cities Conference in Denver, Colorado. Join us to discuss topics like the

[View More](#)




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# NACTO in 2022

#NACTO2023



**HALF A BILLION TRIPS**  
On Shared Micromobility Since 2010

SHARED MICROMOBILITY IN THE U.S. 2020-2021





Urban Bikeway Design Guide  
**WORKING PAPER**





**Shared Micromobility Permitting, Process, and Participation**  
December 2022

Urban Bikeway Design Guide  
**WORKING PAPER**



**Moving Together**  
Collaborating with Communities for More Equitable Outcomes | January 2023

Urban Bikeway Design Guide  
**WORKING PAPER**



**Breaking the Cycle**  
Reevaluating the Laws that Prevent Safe & Inclusive Biking | June 2022

# Agenda

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- Part 1: Welcome  
State of the State
- Part 2: Peer-to-Peer Discussions  
*Break*
- Part 3: Industry remarks  
*Break*  
City led panel discussion  
Closing

# Later today

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12:30 PM	Lunch
1:30 - 2:30 PM	Opening Plenary
3 PM - 4:15 PM	Recommended Breakout Session: Shared Bikes, Shared Ideas <u>Centennial G</u>
4:25 PM - 6 PM	Group ride - meet in <u>Centennial G</u> <i>advanced RSVP required</i>
6 - 8 PM	Opening Reception at Improper City



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**DENVER** 2023

# Spectrum Stands

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Shared Micromobility  
Roundtable

# State of the State



**Rachel Ruhlen**

Transportation Planner  
Fort Collins, CO



**Chris Hagelin**

Acting Transportation  
Planning Manager  
Boulder, CO



**Stephen Rijo**

Principal City Planner  
Denver, CO





May 15, 2023

## Fort Collins Spin Program

Rachel Ruhlen

Transportation Planner, FC Moves

# SPIN



City of  
**Fort Collins**



500 e-scooters      30,348 unique riders  
 200 e-bikes      271,114 trips  
 1 mile average trip length      409,795 miles traveled

Spin Program Year One Numbers



Source: Marketa Jancar





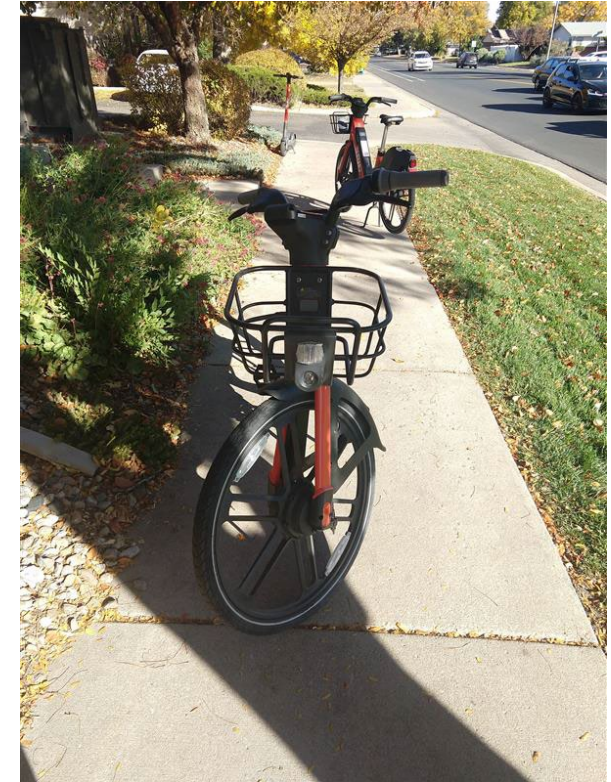
**Impedes no one**



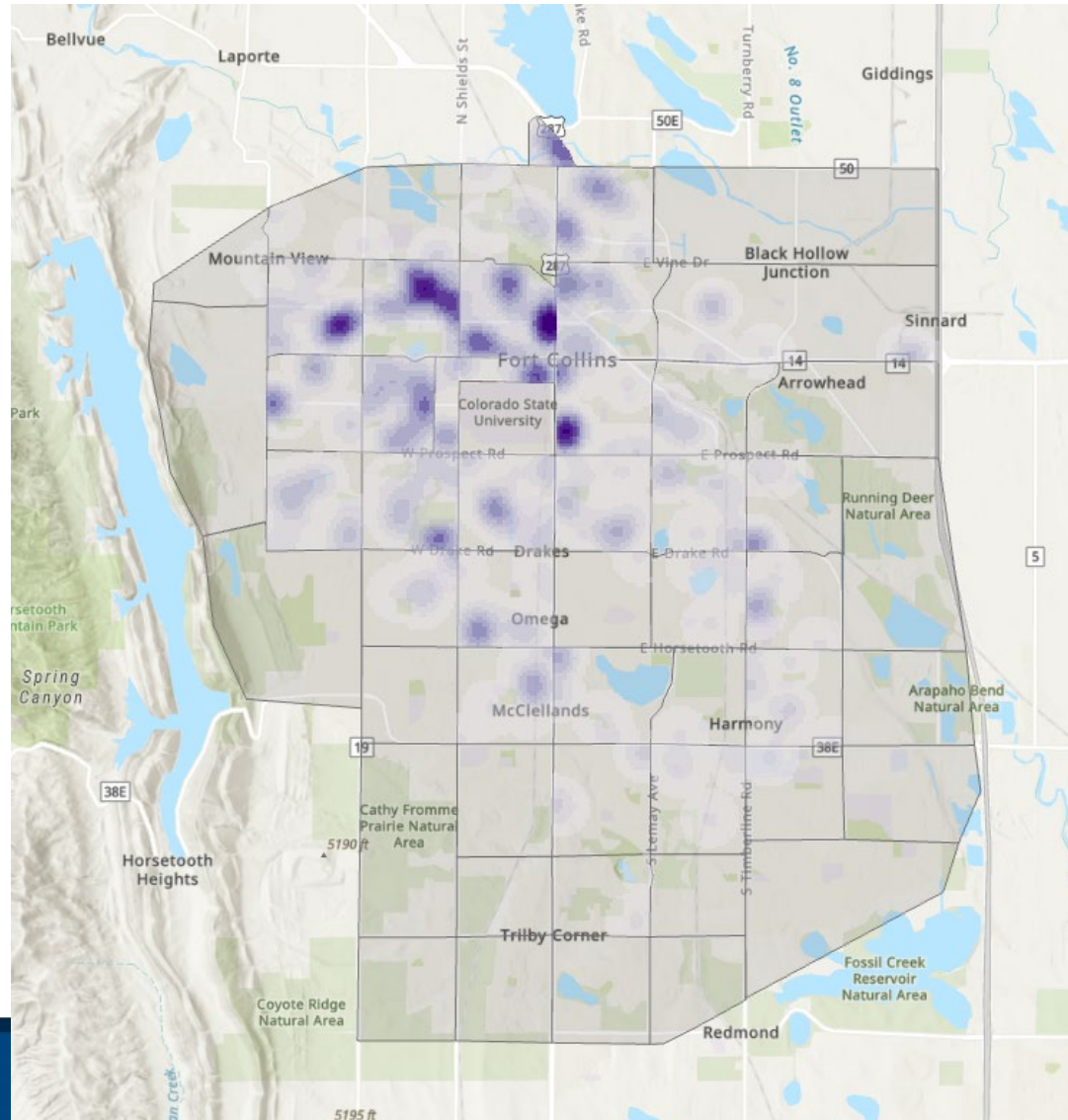
**Impedes people with a disability**



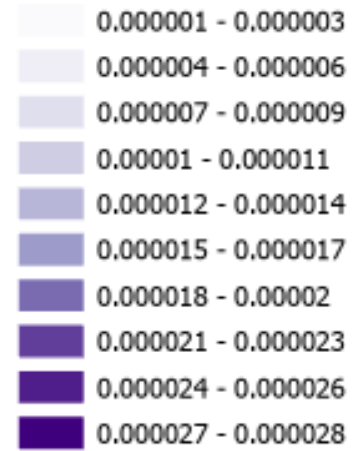
**Impedes everyone**



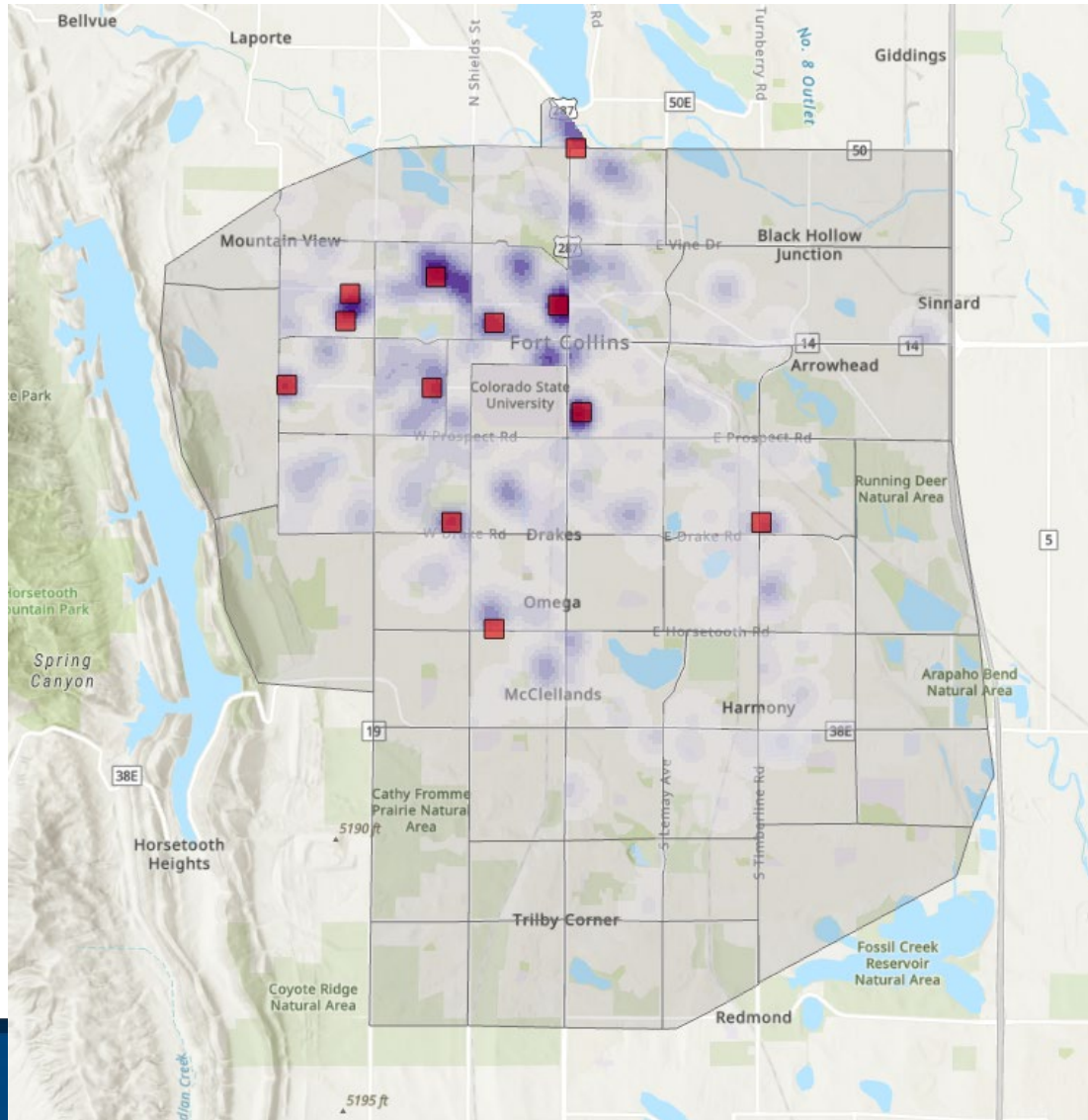
65% relocation requests are for vehicles that aren't blocking anything



### Kernel Density







## Legend

### Kernel Density

- 0.000001 - 0.000003
- 0.000004 - 0.000006
- 0.000007 - 0.000009
- 0.00001 - 0.000011
- 0.000012 - 0.000014
- 0.000015 - 0.000017
- 0.000018 - 0.00002
- 0.000021 - 0.000023
- 0.000024 - 0.000026
- 0.000027 - 0.000028

### Parking Box Locations

- Suggested Location



### Potential effect of installing 12 parking boxes

- Average 6 vehicles per box (ranged from 4-8)
- 9.8% vehicles blocking access would have a parking box within 500 feet
- 11.6% vehicles blocking ADA access would have a parking box within 500 feet

### Potential effect of policy change: Revise ordinance to allow shared micromobility to be parked on streets

- 37.6% illegally parked vehicles would have a legal place to park
- 56.1% vehicles blocking access would have a legal place to park
- 54.8% vehicles blocking ADA access would have a legal place to park

- Encourage reporting
- User penalties
- Parking boxes
- Revise ordinance
- Quiz

**Tier 1:** 1st offense – warning (25 issued in the first two months)

**Tier 2:** 2nd offense – 1-day suspension (4 users suspend in the first two months)

**Tier 3:** 3rd offense – permanent suspension, can be appealed; minimum 15-day suspension (2 users banned in the first two months)

**To contact Spin**

**Email:**

**[fortcollinsops@spinteam.pm](mailto:fortcollinsops@spinteam.pm)**

**Text: 970-387-2799**



Is this vehicle parked correctly?





Fall 2022

Collect before data

Spring 2023

Analyze data

Implement countermeasures

Summer 2023

Fall 2023

Collect & analyze  
after data



For Questions or Comments, Please Contact:

Rachel Ruhlen

[rrehlen@fcgov.com](mailto:rrehlen@fcgov.com)



# Shared Micromobility in Boulder

**NACTO Denver**

**Shared Micromobility Roundtable**

**May 15, 2023**

Chris Hagelin, Principal Planner  
City of Boulder





*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.*



# Program Objectives



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 equitable services through accessibility and affordability for traditionally for 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





# 2022 by the Numbers



Measures	Lime E-scooters	BCycle E-bikes	Total
# of devices currently deployed	240	300	540
Number of trips	115,00	467,315	582,315
Total Distance Traveled (miles)	117,700	817,800	935,500
Average Trips per device per day	1.5	4.25	3.0
Number of reported crashes*	4	3	7

\* Includes reports to police, bicycle/e-scooter vendor, and staff



# Program Highlights



- Station refurbishing
  - Modular rack design
  - Growth in fleet size
  - New stations in E. Boulder
  - Regional expansion - feasibility study
  - Equity program status
  - CU Student Program
- Increased Safety
  - Expand Geographic area
  - Lime Groves
  - Expansion to CU main campus
  - Lime Access program
  - Open data portal

\*City of Boulder collects annual license and per trip fees





# Which Wheels Go Where?

## Where can different mobility devices be used in Boulder?



### HOW TO USE AN E-SCOOTER SAFELY



- |                               |   |
|-------------------------------|---|
| <b>1</b> Always wear a helmet | <b>4</b> Yield to pedestrians             |
| <b>2</b> Follow traffic laws  | <b>5</b> Ride predictably and defensively |
| <b>3</b> Use bell for warning | <b>6</b> Ride solo and sober              |

	Streets/Bike Lanes	Sidewalks (except dismount zones)	Multi-use Paths
<p>Bikes/e-Bikes</p>	✓	✓	✓
<p>Skateboards / Rollerblades (non-electric)</p>	✓ <small>*Can ride in the street on residential streets and only in the bike lane on all other streets</small>	✓	✓
<p>Electric scooters/ skateboards</p>	✓ <small>*Can ride in the street on residential streets and only in the bike lane on all other streets</small>	✗ <small>*Can only ride on sidewalk (outside dismount zones) if no bike lane is present</small>	✓
<p>Motorized Scooters</p>	✓ <small>*Can only ride in the street, not in bike lanes</small>	✗	✗

ALL device types must dismount when they see this symbol:





# Denver DOTI's Shared Micromobility Program

Stephen Rijo – Principal Multimodal Planner  
NACTO Designing Cities 2023 – BBSP Roundtable

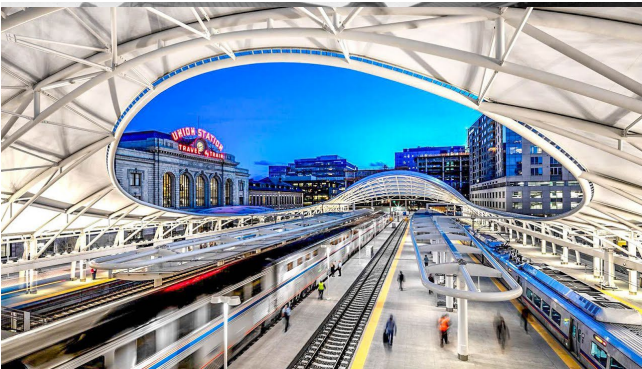


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# Same Modes Different Way



# Denver's Shared Micromobility History

Denver B-Cycle  
(2010 - 2020)



First Bikeshare Program in US

Dockless Pilot Program (2018-2021)



Transit Amenity Program  
First and Last Mile

Shared Micromobility Licensed Program (May 2021 - Present)

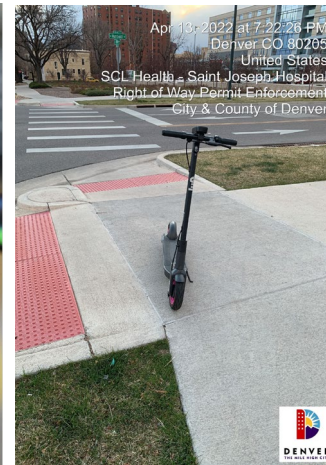
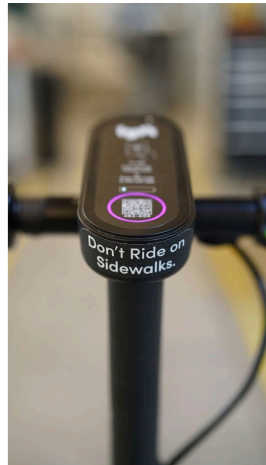
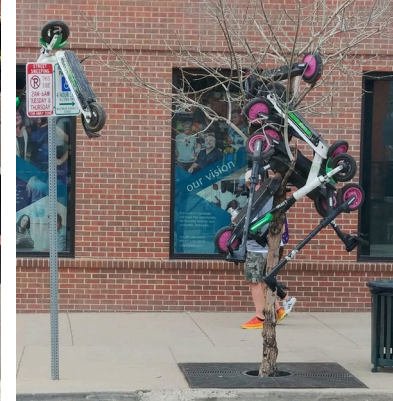


Starting Fleet (1500 S & 300 B)  
Current Fleet (2930 S & ~586 B)



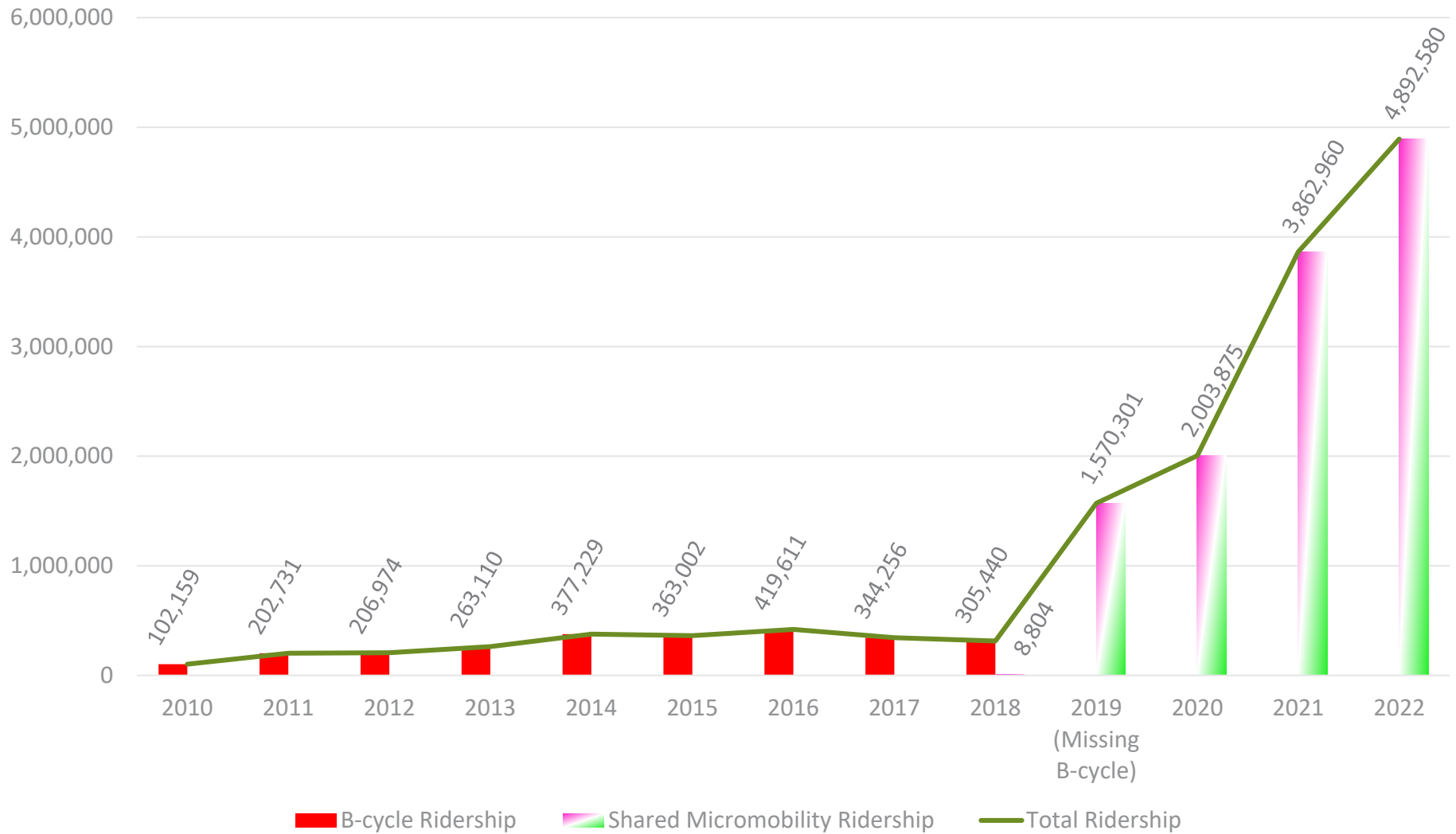
# DOTI's SM Program Management

- Goal = Mode Shift
- License Requirements
  - Data Sharing → Ride Report & Public Dash
  - 2-Hr Parking Response
  - Opportunity Areas: 30%
  - Bikes: 20%
  - 5,280 Free Pass Programs
  - Equity Programs: Need and Geography Based
  - Utilization Based Fleets
  - Corrals & Stations
- Equity Focus
- Actual vs. Perceived Issues
- Mode vs. Operators vs. Rider Responsibility





# Denver's Annual Bike and Scooter Share Ridership



# June 2019 → 2020 → 2021 → 2022

June  
2019:

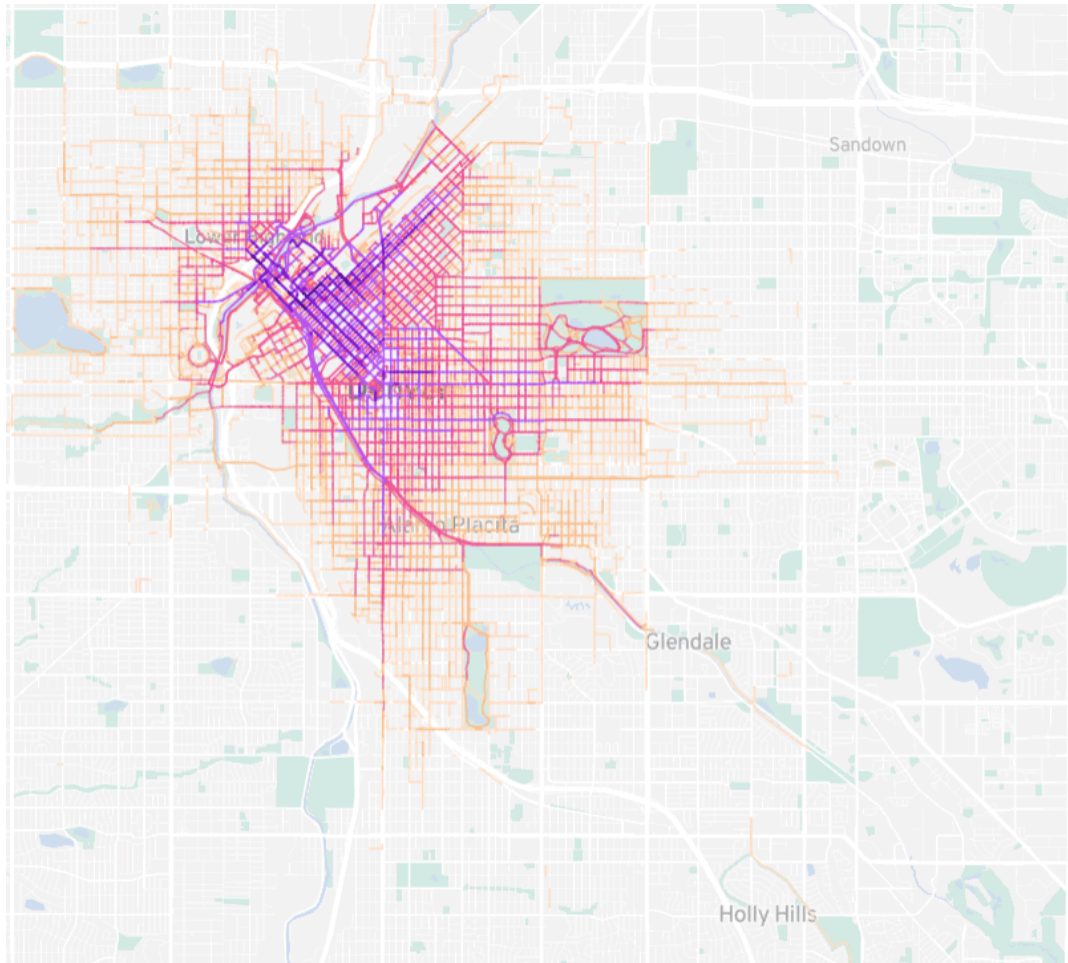
Trips: 124,188

Max Single  
Day:  
7,990

Median Daily  
Trips:  
3,823

Average Daily  
Fleet:  
723

TVD: ~3.9



June  
2022:

Trips: 604,675

Max Single Day:  
36,227

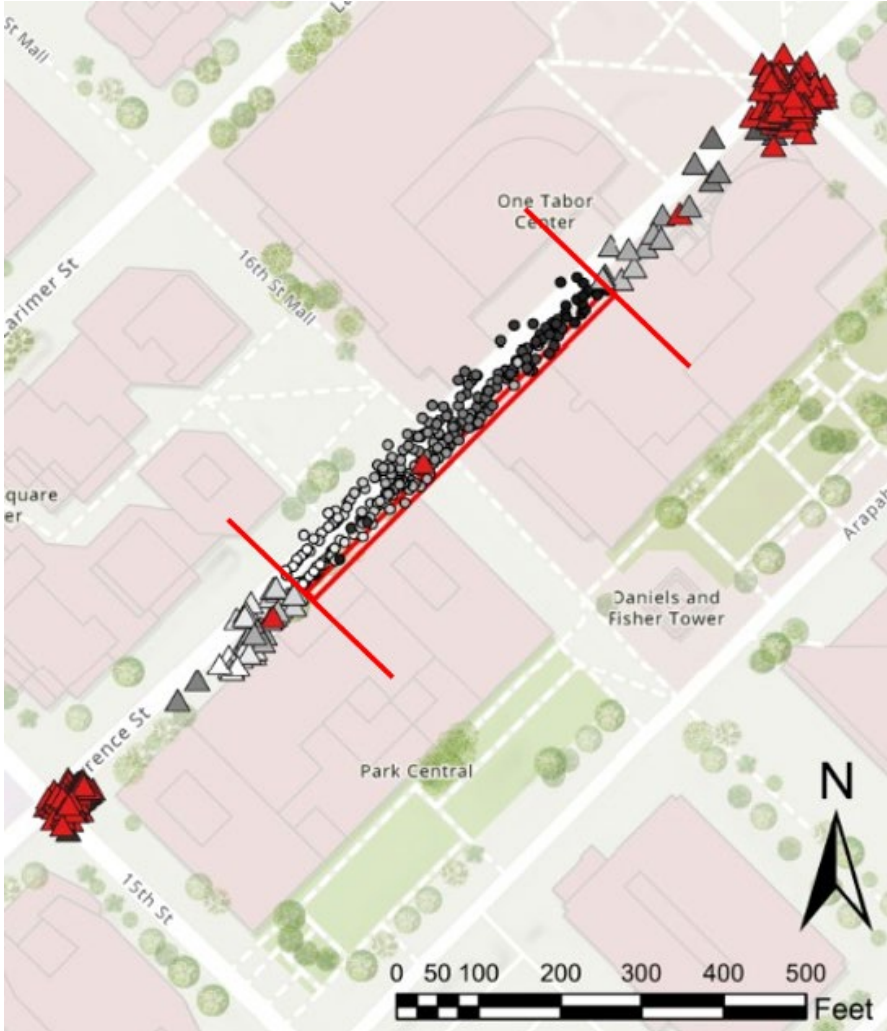
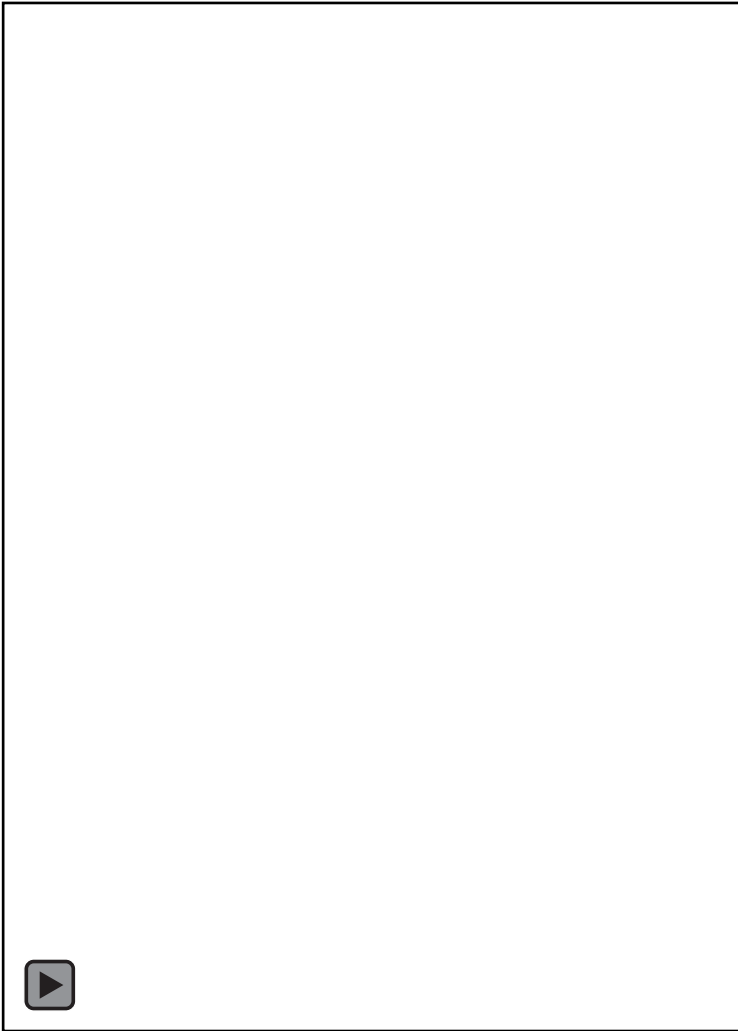
Median Daily  
Trips:  
18,401

Average Daily  
Fleet:  
4,356

TVD: ~4.5

Growing Pains: SW Riding, Parking, Fleets, Safety & Infrastructure Inadequacies

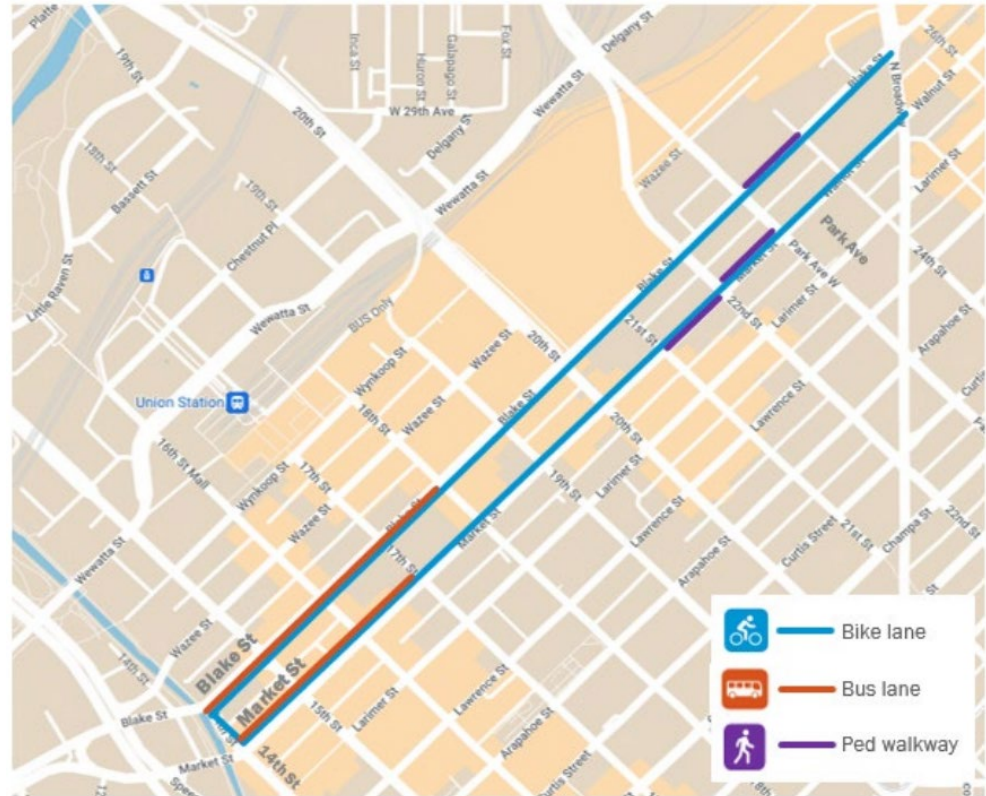
# Geofence Technology & LoDo Pilot





# Blake & Market Streets: Bus & Bike Priority

- 23 Blocks (2mi) of Protected Bike Lanes
- 6 Blocks of Bus Lanes
- 3 Blocks to Pedestrian Walkways
- Shared Micromobility Data, Public Complaints & Safety Concerns
- ~6 Months from Idea to Implementation!
- Infrastructure is the Way to Improve Safety & Reduce Sidewalk Riding!



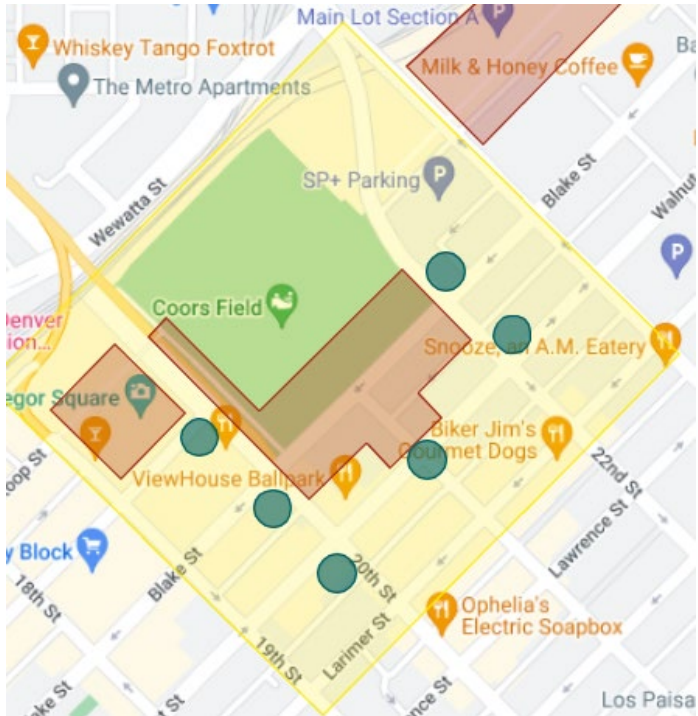
# Event Mgmt. – Rockies Gameday Opps

- Stakeholders
  - City & Safety (DPD & DFD)
  - Operators
  - Rockies Mgmt. and Staff
  - McGregor Square Mgmt. and Staff
  - Local Businesses
  - Riders & Attendees
- Needs
  - Maintain Clear ROW
  - Provide Safe, Convenient & Intuitive Parking for Riders
- Approach
  - Geofencing: Slow, No-Ride, & Preferred Parking Zones
  - Staffing & Signage
  - 101 Videos on Jumbotron
  - Push Notifications



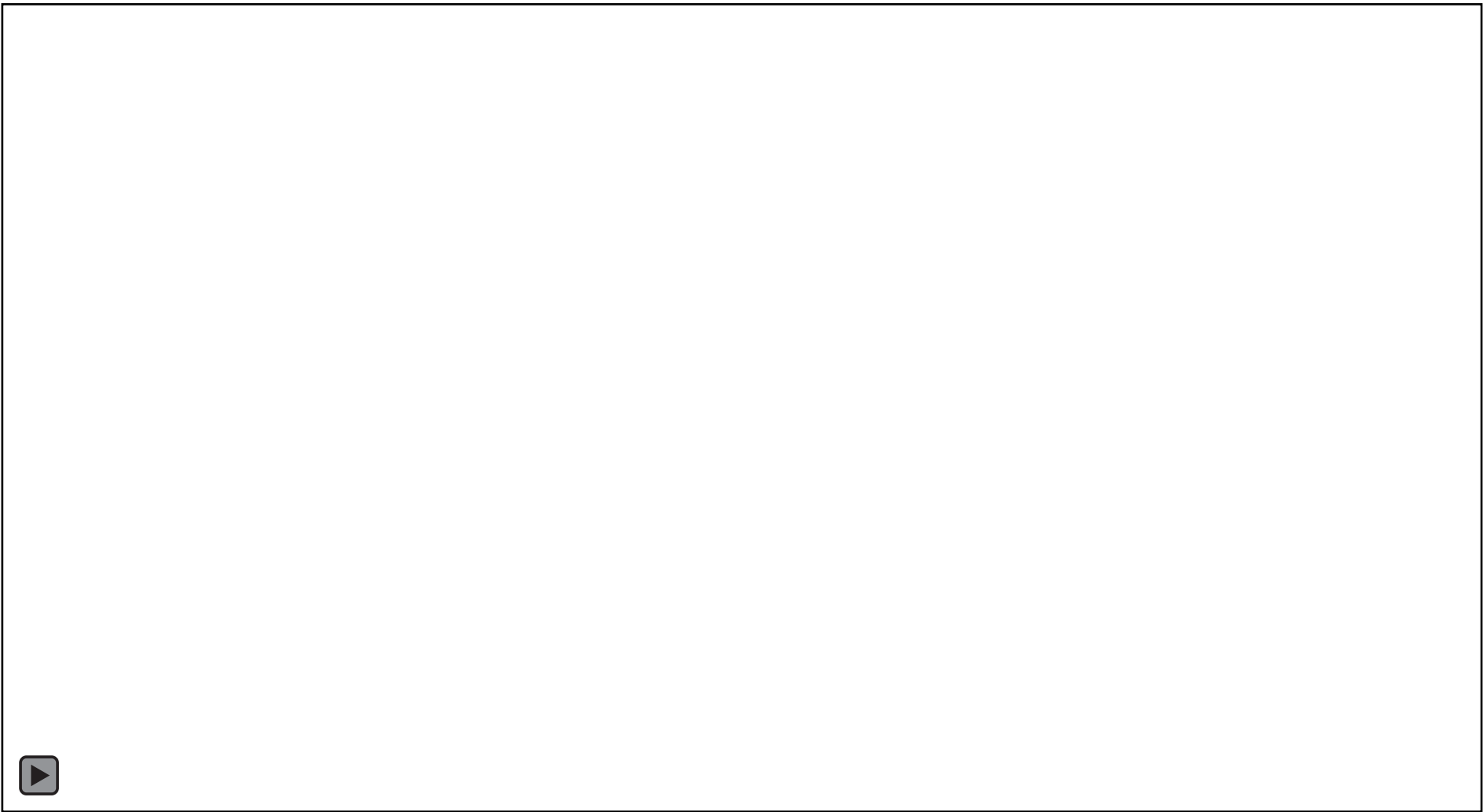


# Event Mgmt. – Rockies Opening Day 2023

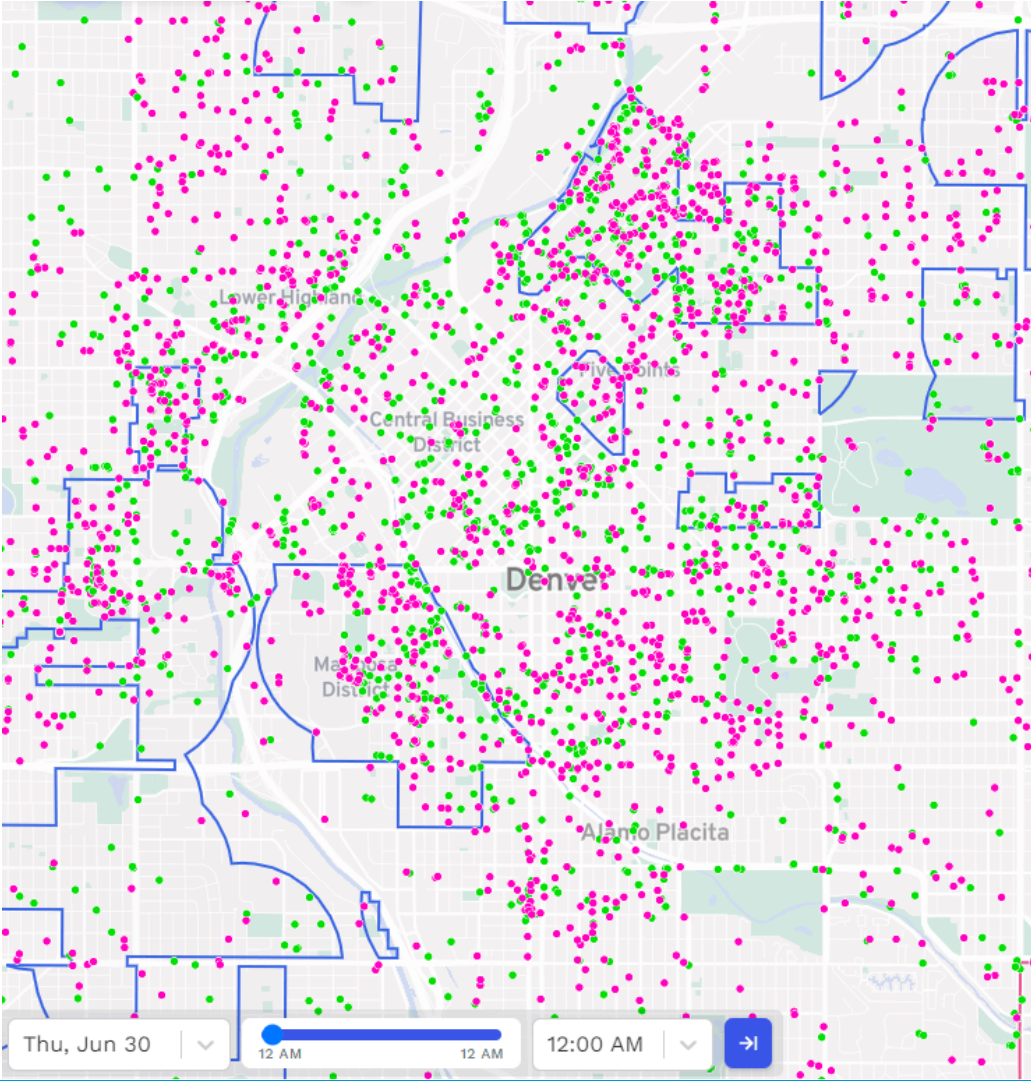




# Rockies Opening Day 2023



# Avalanche Stanley Cup Parade 2022



# ¿Questions?



[Stephen.Rijo@DenverGov.org](mailto:Stephen.Rijo@DenverGov.org)



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# Peer-to-Peer Discussions

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Shared Micromobility  
Roundtable

# Industry Remarks



**Alison Griswold**

Journalist  
[oversharing.substack.com](https://oversharing.substack.com)

[Link to remarks](#)



**Shari Shapiro**

Global Head of Policy  
Lime



**Josh Johnson**

Senior Manager, Transit,  
Bikes & Scooters Policy  
Lyft

A woman with blonde hair, wearing a black helmet and sunglasses, is riding a green shared bicycle. She is wearing a white t-shirt and dark pants. The bicycle has a large green basket in the front containing a bouquet of white and purple flowers. The background is a blurred outdoor setting with buildings and trees.

# Shared Micromobility Regulatory Best Practices

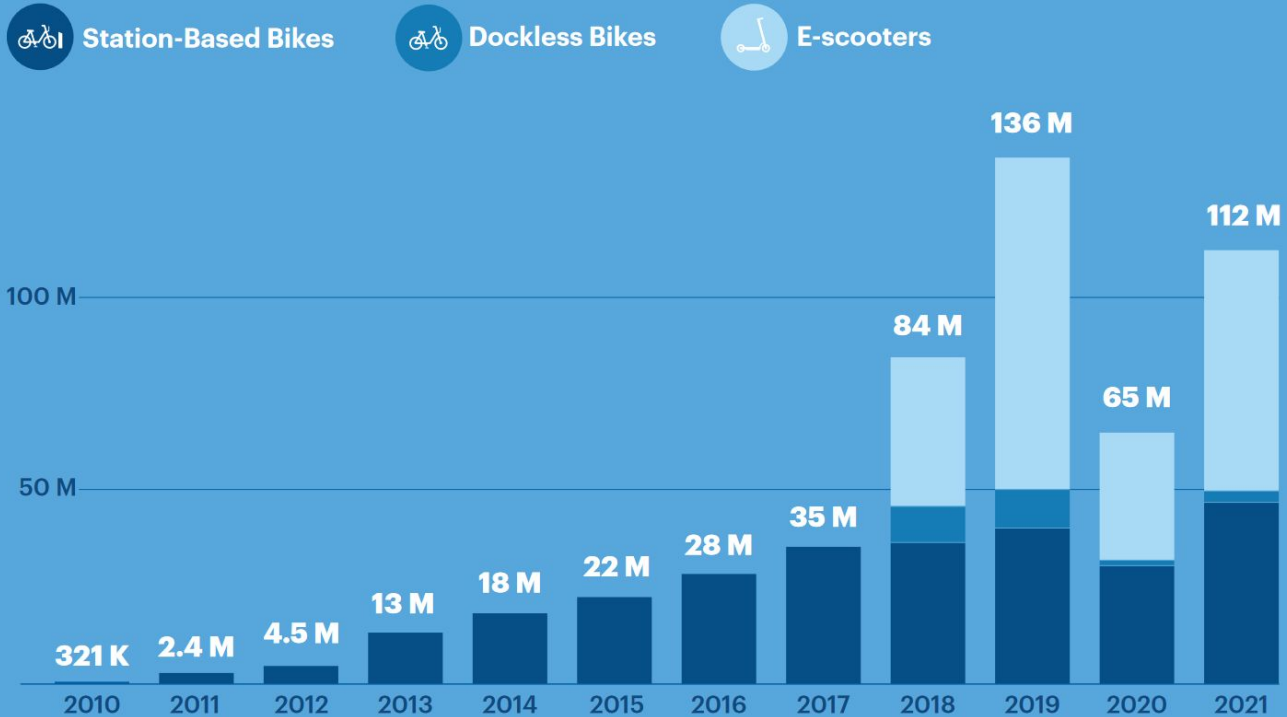
NACTO Designing Cities 2023





# Shared Micromobility Ridership in the U.S. from 2010-2021

IN MILLIONS OF TRIPS



Source: NACTO



Since the introduction of the country's first bike share system in 2010, people in the U.S. have taken **half a billion** trips total on shared micromobility.

# North America Micromobility Industry Best Practices



**What regulations lead to a  
successful shared  
micromobility program?**





# Success from... *reliability*

Best Practices:

2

7

## Fleet size

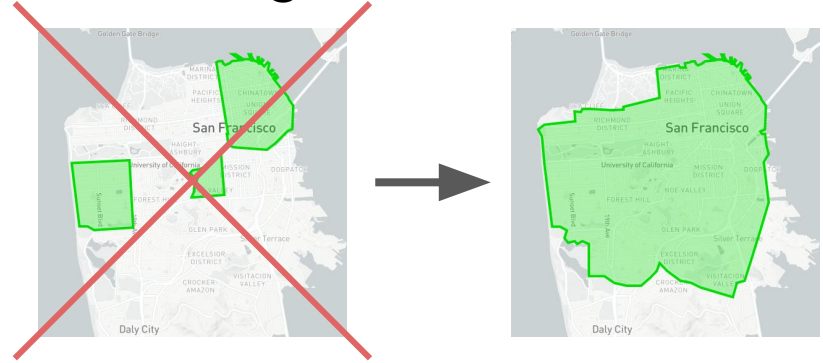
1



per 500



## Contiguous service area



## 24/7 service

[Georgia Tech research](#) showed that Atlanta's scooter curfew increased congestion by 325,000 to 780,000 additional hours of travel for drivers per year






## Multiple vehicle options



# Success from... *financial sustainability*

Best Practices:

4

Mode	Carbon footprint (g CO <sub>2</sub> e / p-km) <sup>1</sup>	Taxes vs Subsidies	Parking Fines (example from San Francisco) <sup>5</sup>
	251	(Many cities unable to assess fees)  10¢ - 25¢/Trip <sup>2</sup> <b>~4¢/Mile</b>	\$108
	161	<b>~2¢/Mile<sup>3</sup></b> (gas tax/mileage fees)	\$108
	27	<b>~22¢/Mile<sup>3</sup></b>	\$150
	49	<b>+70%<sup>4</sup></b> (30% farebox recovery)	\$150
	35	<b>+80%<sup>4</sup></b> (20% farebox recovery)	-

<sup>1</sup> Fraunhofer ISI: “The Net Sustainability Impact of Shared Micromobility in Six Global Cities”

<sup>2</sup> University of Illinois Chicago: “Taxing New Mobility Providers”

<sup>3</sup> City Observatory: “Scooter Lessons: Success, but a stark double standard”

<sup>4</sup> North American Bikeshare and Scootershare Association: “2021 Shared Micromobility State of the Industry Report”

<sup>5</sup> San Francisco Chronicle: “Another company leaves S.F., blaming ‘the most onerous regulations’ in the world”

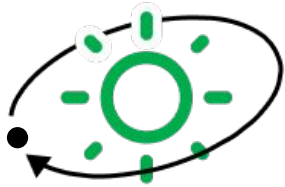
# Success from... *joint commitment*

Best Practices:

3

6

## Permit duration



### Pilots:

2 years

### Permanent programs:

3-4 years

## Selection process & criteria



## Equity programs

Monash University research found that

### **Lime Access riders are:**

- 5x more likely to ride daily
- 2x more likely to ride for utilitarian trips

## Infrastructure investments

University of Southern California research shows that COVID-era **Slow Streets led to**

**50% - 75% increases in Lime ridership** compared to similar nearby streets.





Thank you.

Reach out with any Qs!  
[evan.catlett@li.me](mailto:evan.catlett@li.me)

# Extra slides



## Lime's Mission

**To build a future where  
transportation is **shared,**  
**affordable** and **carbon-free.****

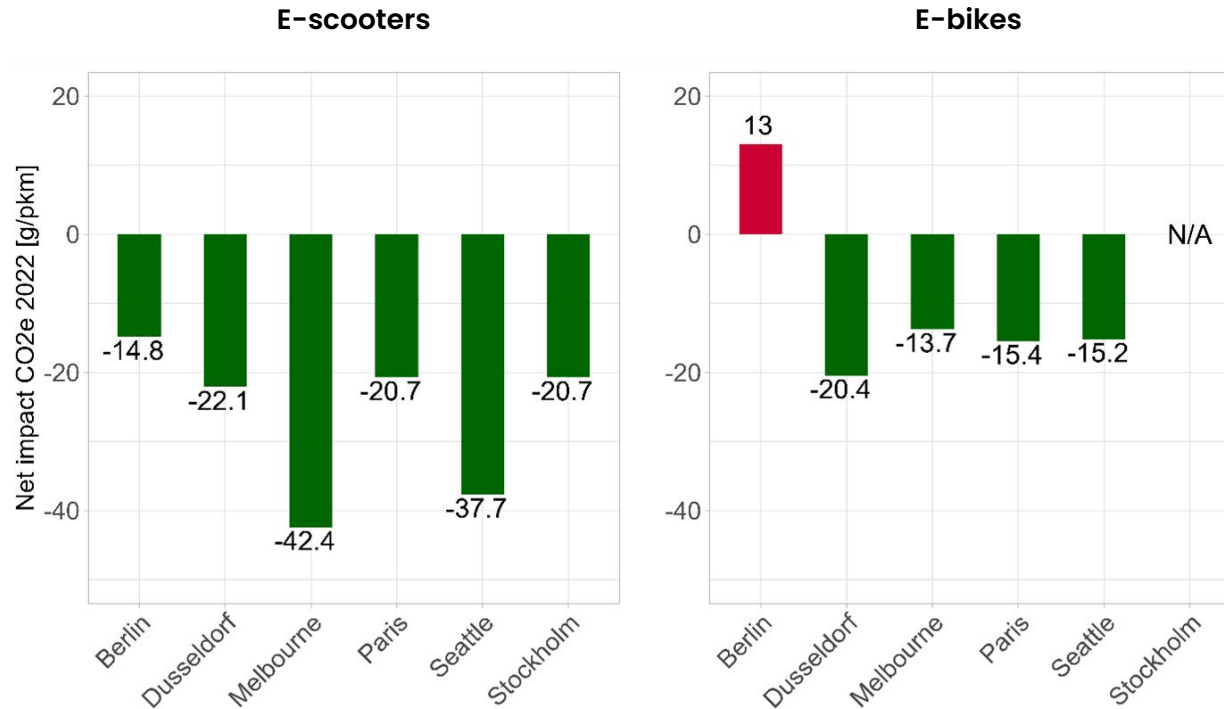




# Sustainability

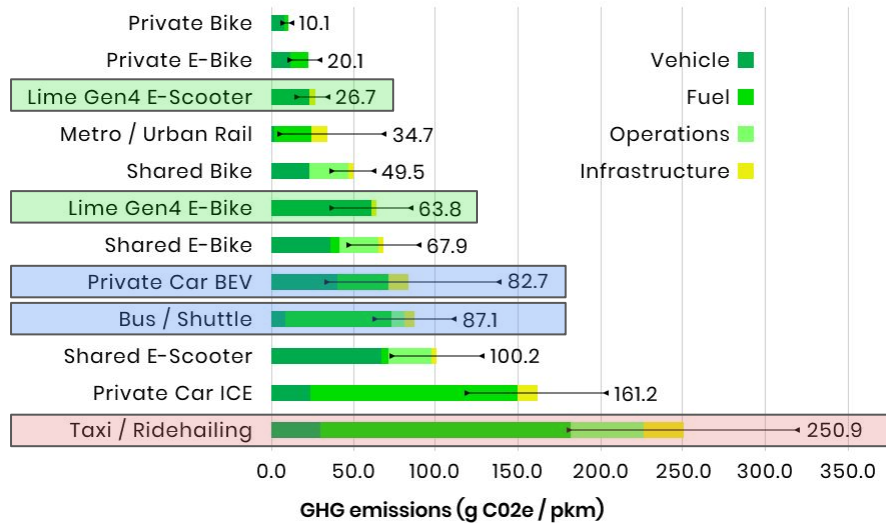


# Lime's e-scooters & e-bikes reduce carbon emissions





## Lime Gen4 e-bikes and e-scooters are less carbon intensive than public buses and electric vehicles.



Error bars indicate (a) variations between cities due to electricity grid emissions or congestion and (b) a general uncertainty of +/- 25% across all LCA estimates.

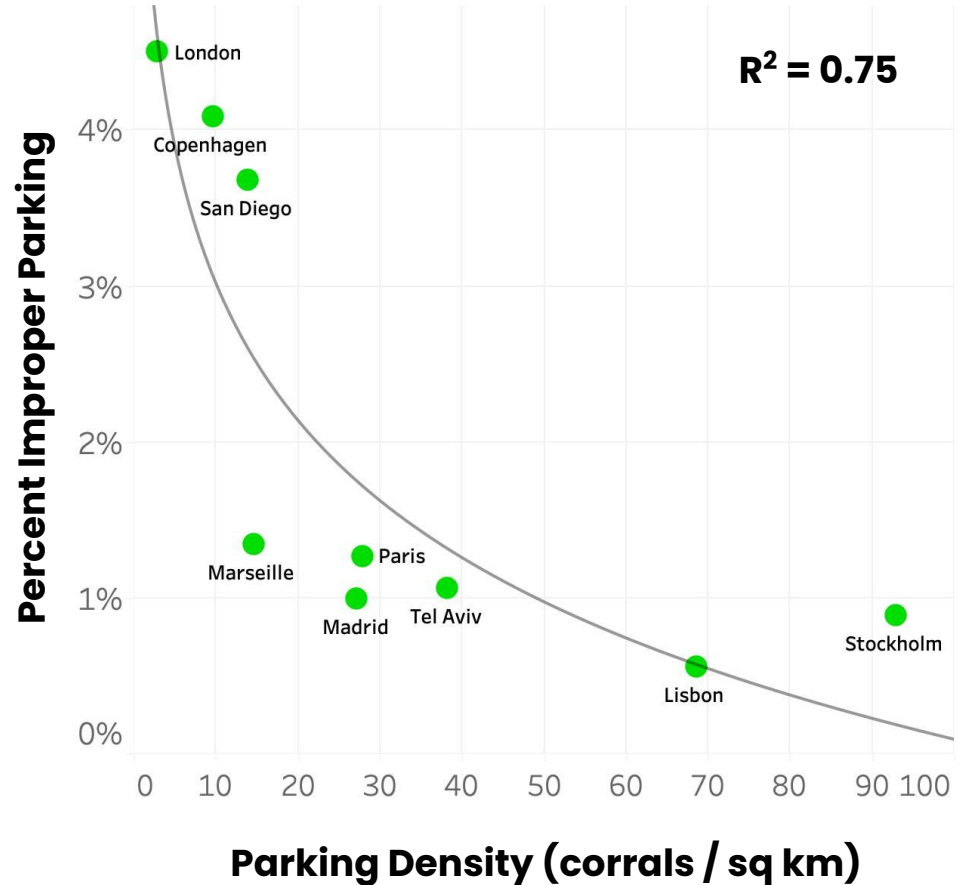
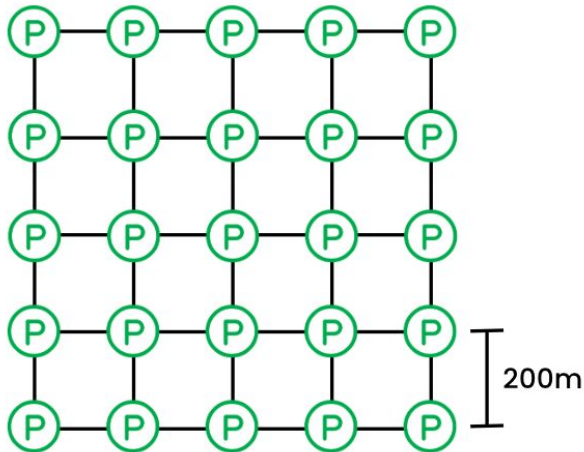


# Parking



# Provide a dense parking network

Provide **1 corral on every block** (every 200 meters, and *at least* 25 corrals/sq km)



# Safety





## Safety is improving as more people and communities adopt micromobility

**12%**

Increase in trips taken  
in North America over  
2021

**99.99%**

Of all trips were  
incident free

**23.4%**

decrease in the rate  
of injuries requiring  
medical attention

# Lime is committed to being a partner that cities can count on to achieve Vision Zero

- Lime vehicles are **designed in-house to prioritize safety** by incorporating insights from over 400 million rides.
- Lime makes **safe riding easy** by providing intuitive instructions and thoughtfully educating our riders on how to ride and park responsibly..
- Lime is **constantly innovating and testing new technologies** to improve safety for our riders and community members.
- Lime is uniquely positioned to help inform cities on **critical policy and planning decisions** through research and data sharing.
- Lime is a **proud supporter** of the Vision Zero Network, National Complete Streets Coalition and many other local initiatives to achieve safety for all.

LYFT TRANSIT, BIKES & SCOOTERS

# Our Future Is Micromobility

2023 NACTO Designing Cities Conference



# Providing the **most reliable, sustainable, and loved** urban transportation options

## Operations

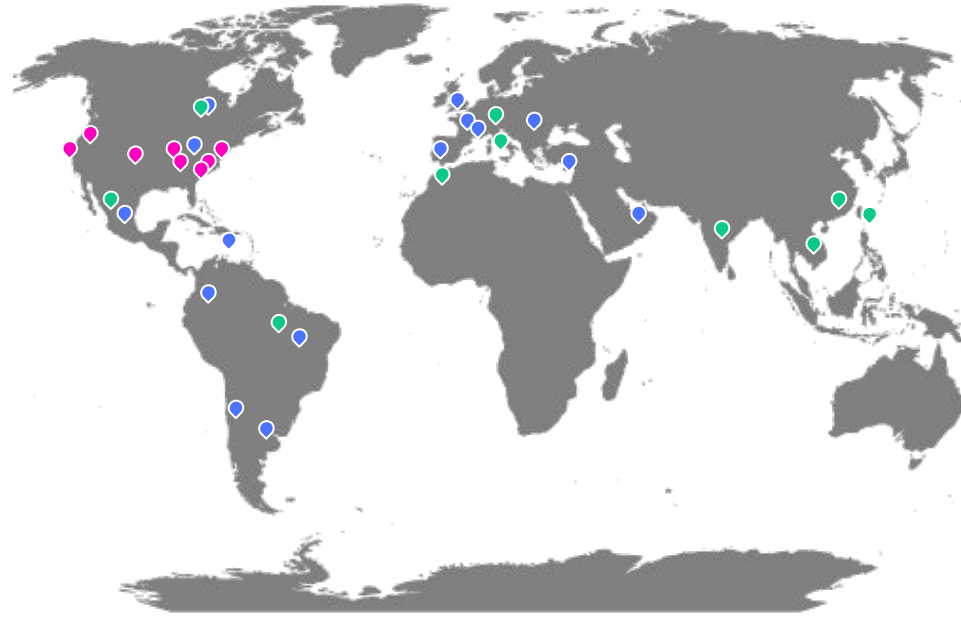
Lyft operates connected network of shared lightweight vehicles for urban areas

## Technology

Vehicles and software for riders to plan, optimize, and take a journey  
Stations and charging systems for warehouse and in-field use  
Tools for operators to efficiently manage and service a fleet

## Sales

We sell and deliver hardware and software to 15 countries



 Operations  Sales  Supply Chain

Select Partners & Brands



160K+ bikes | 10K+ stations



# We believe in **station-based, city-led micromobility systems**

- Strong city partnerships which achieve **symbiotic, strategic growth** of ridership and infrastructure
- Unified micromobility systems offering both bikes and scooters to **grow active travel** and serve a wide variety of use cases, from **commuting to recreation**
- Station-based systems providing **predictability, reliability, economic benefits, and community-building** as a place of gathering and interaction
- Sustainability initiatives focused on **reducing lifecycle emissions**, including pursuit of **station electrification**



# Micromobility station electrification



Support the growth in ebikes popularity



Ebikes have increased in popularity and are seen as a more prominent car replacement for riders. **36% of Lyft's ebike riders stated that they would have used a car-based form of travel** if not for our ebikes.



Increase efficiency, decrease operational VMT and emissions



Our models show that electrifying ~20% of stations can **reduce the need for battery swapping by up to 90%** while reducing VMT significantly from operations.



Improve ebike fleet availability



Immediate, regular charging of ebikes in stations ensures **far fewer ebikes ever reach low battery levels** in the field resulting in higher fleet availability and increased usage.



Electrifying the curb



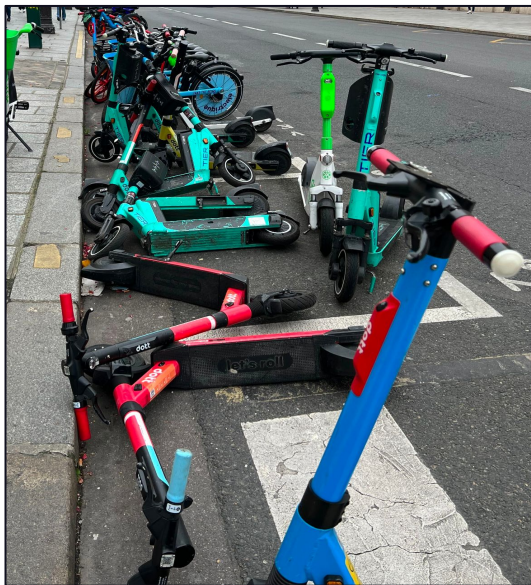
The curbside grid connections established would be **electric mobility charging assets the city can use in perpetuity** for bikeshare systems and/or other modes.

# Where we've been & where we're going

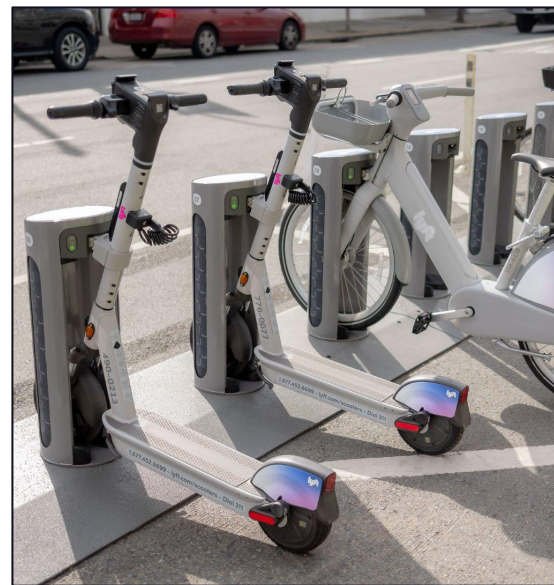
Docked Bikeshare



Dockless Bikes/Scooters



Docked Bikes and Scooters with Electrified Stations





# Public investment supporting shared goals

## Divvy for the Entire City: Divvy Service Hits All 50 Wards

May 2, 2023

Service area is now 234 square miles - the largest by area in North America. And as part of expanding operations citywide, Divvy will grow its fleet of classic bikes and add new stations on the Northwest, Southwest and Far South Sides



TransForm

@TransForm\_Alert

...

MTC's Operations Committee approved a \$16 million expansion of the Bay Wheels #bikeshare contract, which will add 2700 new e-bikes to the system and expand service areas, lower fees, and reduce per-minute e-bike charges. @seamlessbayarea



[seamlessbayarea.org](https://seamlessbayarea.org)

Progress made towards regional, public micro-mobility — ...

A \$16M expansion of the Bay Wheels bike-share contract was approved by the MTC Operations Committee at their ...



# Public private partnership

## Regulatory Framework

- 5 year term length
- Two operators
- No fees to operate
- Utilization based fleet increases

## Lyft Investment

- Next gen scooter
- 60+ stations/corrals
- Front line staffing program
- Electric fleet van pilot



# Thank you!

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# Panel of Cities



**Camille Boggan**  
Associate  
NACTO



**Kim Lucas**  
Director of Mobility and  
Infrastructure  
Pittsburgh, PA



**Stefanie Seskin**  
Active Transportation  
Director  
Boston, MA



**Lily Gordon-Koven**  
Director of Policy &  
Dockless Programs  
New York City, NY

#NACTO2023

# Reminders

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## Today

3 - 4:15 PM

Shared Bikes, Shared Ideas Centennial G

4:25 - 6 PM

Group ride - meet in Centennial G  
*Advanced RSVP required*

## Tomorrow morning

8 - 9 AM

BIPOC-only Breakfast Meet & Greet

Register: [www.tinyurl.com/NACTO2023](http://www.tinyurl.com/NACTO2023)



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**DENVER** 2023

**Complete the  
feedback survey!**

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**BBSP Shared Micromobility  
Roundtable**