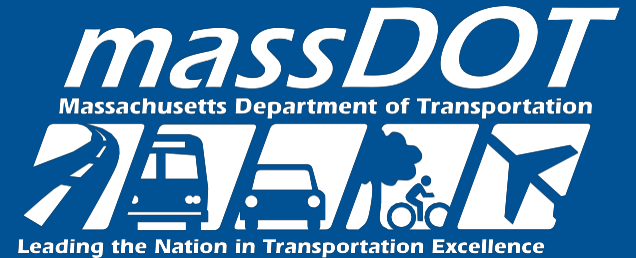


Special Commission on Micromobility

September 16, 2025



Today's Agenda

Meeting Theme:
Innovation & Expansion

1. **Call to Order & Agenda** (5 min)
2. **Summer Homework Review** (20min)
3. **E-Bike Subsidy Programs** (25 min)
4. **Bike Share Funding & Operations** (30 min)
5. **Small Group Exercise: 4x Growth** (30 min)
6. **Next Steps & Assignment** (10 min)

Summer Homework: Survey Results

3

What did you think?

We Provided...

Device Specs and Capabilities

- Maximum possible speed
- Size of device
- Weight of device
- Possibility for damage
- Battery specification

We asked...

What requirements should these devices have for safe operation?

- License
- Registration
- Insurance
- Helmet
- Age

Summer Homework: Survey Results

4

Should we require licensing, registration, and insurance?

ø License ø Registration ø Insurance

Electric Scooter

Max speed : 20 mph

Size : 44.4" x 18.5" x 48.3"

Weight : 37 lbs

Damage Potential : low

Intended use : roads



Summer Homework: Survey Results

5

Should we require licensing, registration, and insurance?

✓ **License** ✓ **Registration** ✓ **Insurance**

Electric Scooter

Max speed : 68 mph

Size : 57" x 28" x 52"

Weight : 127 lbs

Damage Potential : medium

Intended use : all terrain



Summer Homework: Survey Results

6

Should we require licensing, registration, and insurance?

✓ **License** ✓ **Registration** ✓ **Insurance**

'Class 3' Electric Bike

Max speed : 45 mph

Size : 73" x 30.7" x 41"

Weight : 103 lbs

Damage Potential : medium

Intended use : all terrain



Summer Homework: Survey Results

7

Should we require licensing, registration, and insurance?

∅ License ∅ Registration ∅ Insurance

'Class 2' Electric Bike

Max speed : 20 mph

Size : 68" x 27.5" x 42"

Weight : 62 lbs

Damage Potential : low-medium

Intended use : commuting



Summer Homework: Survey Results

8

Should we require licensing, registration, and insurance?

? License ? Registration ? Insurance

Smart Scooter

Max speed : 20 mph

Size : 68.5" x 27.7" x 41.4"

Weight : 165 lbs

Damage Potential : low-medium

Intended use : roads



Summer Homework: Survey Results

9

Things to consider future recommendations based on comments

Does the Bicycle Helmet Law apply to other devices?

What should be allowed on bike lanes?

What should be allowed on separated bike paths or trails?

Should we require UL certification for batteries?

How should we limit speed?

What should be the minimum age to operate an electric motorized device?

How complex should a licensing test be?

What registration fees should apply?

Are we creating barriers that discourage mode shift?

Would licensing, registration, and/or insurance requirements excluding dependent, low income, or non-English speaking users?

How do you identify a unique device?

Do we treat devices designed to haul cargo differently?

Should we treat devices capable of carrying passengers differently?

Summer Homework: Observation Reflection

10

Open share-out from Commission Members

1

Visit a bike shop near you.

Ask what (e)-micromobility devices they sell. Ask if you can test ride one or multiple, particularly if they have recumbent or adaptive devices. Ask them about servicing devices and finding mechanics to hire.

2

Observe micromobility usage in 2 contexts.

Spend 10 minutes watching for micromobility usage in two locations, ideally of different infrastructure types (i.e., on-street lane versus separated path). Note 3-5 observations.

Massachusetts E-Bike Subsidy Programs

*Elijah Sinclair, Senior Program Manager
Massachusetts Clean Energy Center*



Statewide E-Bike Voucher Program

September 2025



Pilot to Scale: ACT4All -> Statewide

ACT4All E-BIKE PILOTS

- In 2021, MassCEC launched 5 e-bike pilot programs across the state
 - City of Boston
 - Greater Boston – Metro Mobility
 - Worcester - MassBike
 - Springfield - PVPC
 - Cape Cod – CLC
- Pilots were intended to identify
 - How best to make a program accessible to Priority Populations
 - Determining quantified benefits of e-bikes in MA
- Learnings from the pilot programs informed the Statewide Program design
 - Point of sale incentives are convenient, scalable, and cost-effective
 - E-Bike education supports safety and long-term ridership
 - E-Bike demand is immense within MA (& other states)
 - Station-based e-bike usage is 2x-4x as high vs. traditional ownership



Charlie Knight, Springfield All-Star

Statewide E-Bike Voucher Program

PROGRAM GOALS

- **Affordability & access** to clean transportation among low- and moderate-income households
- **VMT reduction** for aging vehicles
- **Emissions reductions** in predominately environmental justice communities

PROGRAM OVERVIEW

- Provide **2,500 – 3,000 point-of-sale e-bike vouchers** for low- and moderate-income residents
- Educate riders through **15 safety and education sessions** focused on increasing ridership and safe riding practices
- \$5M Program funding (2024 Governor's Budget)
 - 77% of funding going towards vouchers
 - 3% of the budget going towards education & support



Program Eligibility

Standard Voucher - \$800

- **</= 400% of the Federal Poverty Line ("FPL")** adjusted for household size; **OR**
- Participate in an eligible income-certified program.

Enhanced Voucher - \$1,200

- **</=225% of the Federal Poverty Line ("FPL")** adjusted for household size; **OR**
- Participate in an eligible income-certified program; **OR**
- Submit a signed doctor's note that specifies a need for an adaptive e-bike.

Equipment Voucher - \$150

- Available to all participants
- Assists with the purchase of a helmet, lock, floor pump, bell, mirrors, phone mount, and/or lights.

Qualifying Income Levels

	1 Person Household	2 Person Household	3 Person Household	4 Person Household
Enhanced Voucher (\$1200)	\$35,212	\$47,587	\$59,962	\$72,337
Standard Voucher (\$800)	\$62,600	\$84,600	\$106,600	\$128,600



Affordability and Need

Average Cost of E-Bike After Incentive

\$645 Standard

\$250 Enhanced

Annual Income

<\$28,000

47% of selected applicants

<\$55,000

78% of selected applicants

% of Applicants by Income Level

75% Enhanced

25% Standard

10,000
applications

Expected over 6 months

=

3 – 4 X

incentive availability



Notable Design Elements

Currently included in program:

- Vouchers must be redeemed at brick-and-mortar shops in MA—meaning every dollar spent through this program benefits local economies.
 - Most vouchers are redeemed at small local businesses
- About 80 bike shops are participating in the program. All residents in MA are within a 45-minute drive of a bike shop.
 - Shops all provide maintenance & battery recycling
- Vouchers are distributed in proportion to population in each region of the state.
- Must meet UL 2849 and or EN15194 certifications
- MassCEC is working with MassBike to host 15 events with 12 different CBOs in each part of the state.
 - Focusing on safety and long-term ridership.








MassBike Event Plan

PROGRAM PLAN

- ▶ 15 total events, 3 in each EOHHS Region
 - Purpose: Increase e-bike ridership and safety. MassBike's ACT4All pilot inspired this.
- ▶ 1st Event: Aug-Early Sep
 - intro to bicycling safety, basic bicycle maintenance
- ▶ 2nd Event: Mid Sep-Nov
 - group rides, commuting basics
- ▶ 3rd Event: Nov - Dec
 - winter riding, ongoing maintenance

PARTNERS IDENTIFIED

- ▶ Region 1 
 - RAD Springfield/ Make-It Springfield & All Out Adventures
- ▶ Region 2 
 - WEAB & Norwottuck Network
- ▶ Region 3 
 - Lowell Bike Connector & Newburyport Livable Streets
- ▶ Region 4 and 6 
 - Boston Cyclists Union, Bike to the Sea, & Somerville Bike Kitchen:
- ▶ Region 5 
 - SouthCoast Bikeway Alliance & Brockton Bikes

Program Survey Data

MID-PROGRAM SURVEY QUESTIONS

- Preliminary findings (285 of 500 eligible participants responded)
 - **VMT Reduction:** 85% of respondents report that they use their e-bike for trips they would have previously made by car.
 - **Affordability:** 78% of respondents believe they are now saving money on transportation
 - **Health:** 73% of respondents reported improved physical health
- The most common use for the e-bike among respondents is **recreation**
 - Errands/shopping, work/school, community services, and healthcare appointments are also very common!

"It's really **helping me recover from lung surgery** and it's nice to **depend less on friends** helping me."

–Program Participant

"Having an e-bike has improved my overall quality of life. I also **no longer have to rely on rideshare or other people** to give me rides to the grocery store and to visit my children."

–Program Participant

"It allows me to **be self sufficient** as I do not drive or own a car."

–Program Participant

Future Directions

What's needed for long-term e-bike success?

➤ Program Feedback

- Stakeholder feedback: Further prioritize applicants with disabilities
- Bike shop feedback: increase voucher amount for Enhanced Voucher &/or make affordable e-bikes more available

➤ Future Opportunities/Needs

- Expansion of station-based bikes
- Expansion of bike infrastructure
- Further efforts to expand e-bike culture, education, & safe riding practices
- Shifting delivery drivers to bikes/e-bikes
- Increase accessibility of e-bike maintenance

I'd like to commute by e-bike more, but the roads between my home and the nearest multi use trail are unsafe for bikes.

–Program Participant

There were huge price variations at stores and I spent a considerable amount of time comparison shopping. I knew nothing going into this and it was hard to know what to look for, who to trust. I'm terrified of getting a flat tire and I need to learn bike maintenance.

–Program Participant



Questions & Discussion

Appendix



Application and Voucher Redemption Data

Number of Pre-Applications Received by Month				
April	May	June	July	Total
4596	1044	927	1128	7695

Number of E-Bike Vouchers Issued				
	May	June	July	Total
Standard	212	72	110	394
Enhanced	362	355	198	915
Adaptive	24	20	13	57
Total	598	427	321	1366

Number of E-Bike Vouchers Redeemed			
May	June	July	Total
167	289	326	782

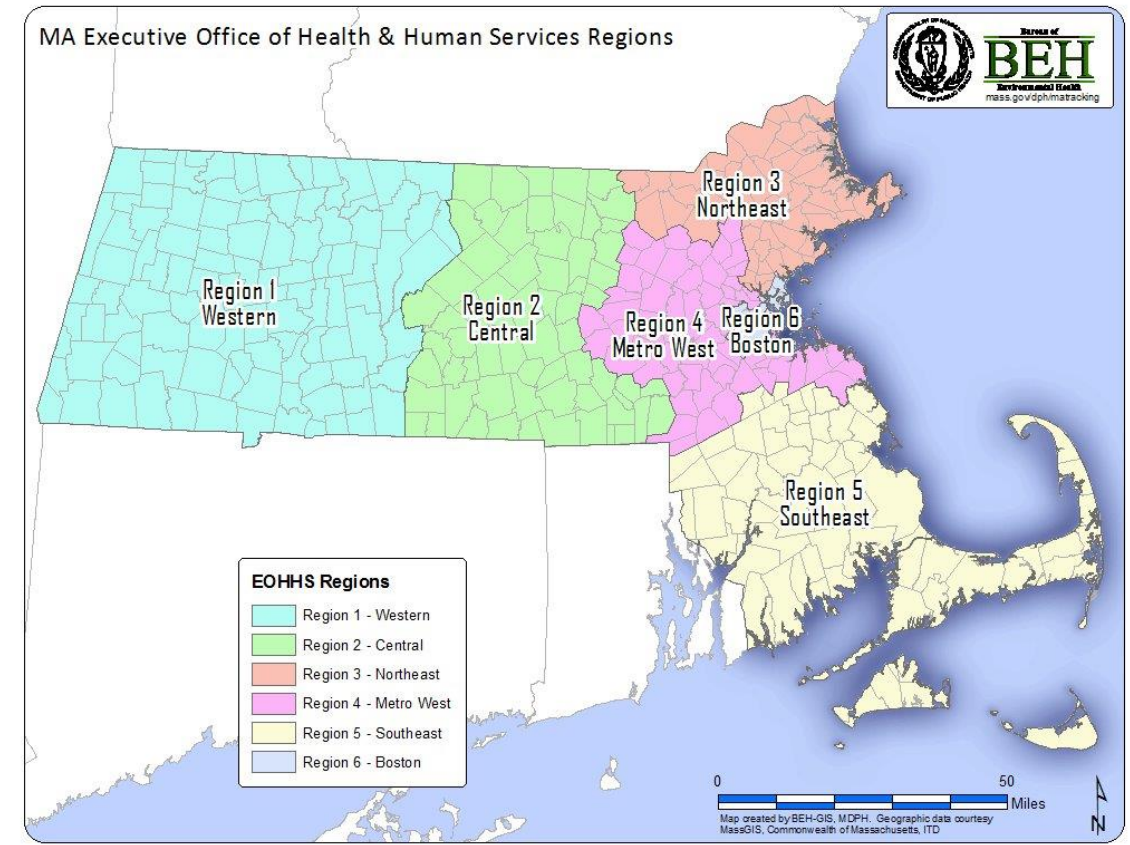


Program Eligibility

GEOGRAPHIC EQUITY

- Program is intended to distribute vouchers equitably across the state in proportion to population
 - Using Executive Office of Health and Human Services (EOHHS) regions
- Metro West and Boston regions have been combined for simplicity

Region	Percentage of Population	Approx. # of Monthly Vouchers
Western	13%	65
Central	14%	70
Northeast	23%	115
Metro West + Boston	29%	145
Southeast	21%	105

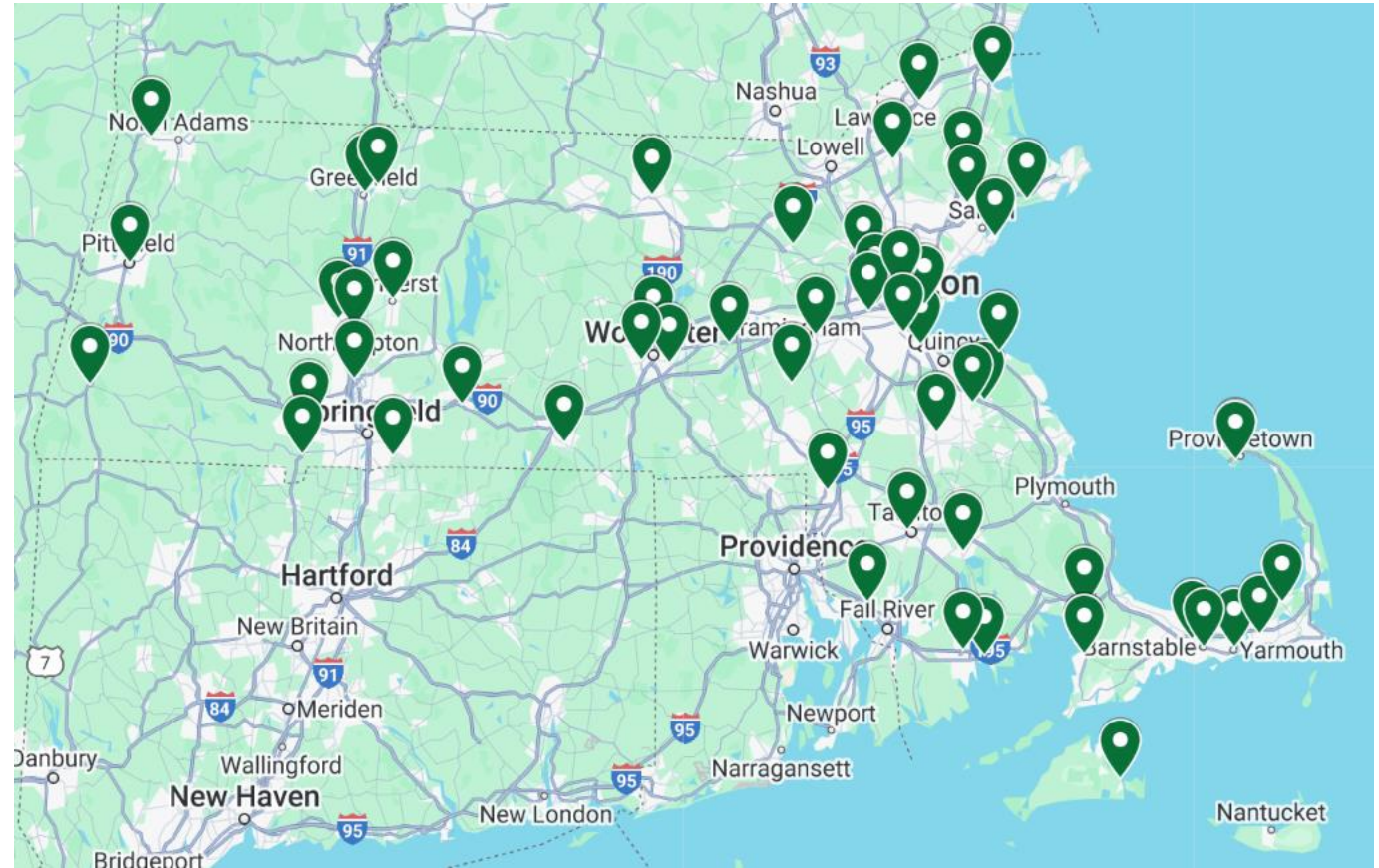


Program Eligibility

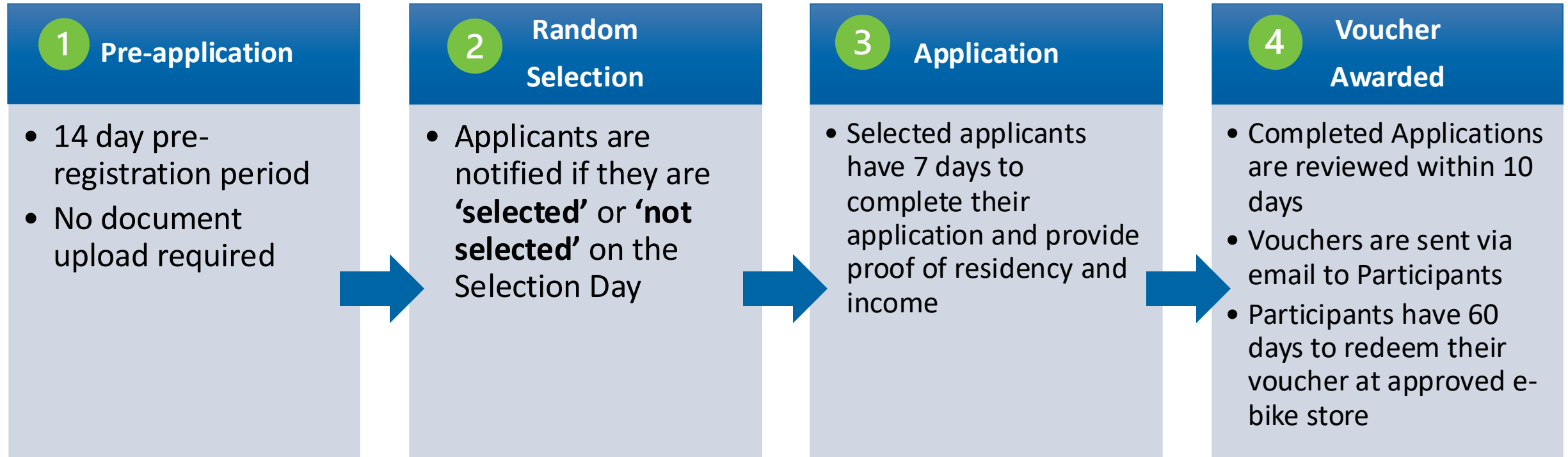
E-BIKES AND RETAILERS

- All e-bikes purchased with a voucher must be:
 - Class 1 or 2
 - UL 2849 or EN 15194 certified
- E-bike must be purchased from a physical retailer
 - Must offer repair and battery recycling services
- E-bike retailers are eligible to sign up at any time
- At program launch, all residents were no more than a 45-minute drive of a participating e-bike retailer

Map of Eligible E-Bike Retailers



Program Process



- Applications that were not selected for a voucher will rollover into the next application cycle
 - Applicants do not need to fill out another application form

- **Award Amount:** \$492,286
- **Overview:** The City of Boston contracted with a private operator to provide an e-cargo bike delivery service.
 - Delivery costs were subsidized for businesses participating in the program.
 - Neighborhood includes multiple EJ populations that are disproportionately impacted by commercial delivery emissions.
- **Unique Design Elements**
 - Replacing local deliveries with e-cargo bikes
 - Using an indoor staging location in Allston
- **Notable Data Points/Learnings**
 - 18,375 deliveries completed (largely replacing light duty ICE deliveries)
 - Challenging to integrate with food service platforms (Uber Eats)
 - Need a dedicated consumer base to scale program
 - Need to balance small business support with larger, high-volume clients to maximize operational efficiency and impact
 - E-cargo bikes can carry large loads– but not all loads!



Cape Light Compact (CLC)



- **Award Amount:** \$837,282
- **Overview:** The Compact issued two types of vouchers at participating bike shops:
 - Standard: cover 75% of the cost of an e-bike up to \$1,200 + accessories
 - Enhanced: cover 90% of the cost of an e-bike up to \$1,500 + accessories
- **Unique Design Elements**
 - Ran by a small utility company
 - Largely rural community with high income disparities (avg. commute is 9mi/14.5 km)
 - Focused on deployment
 - Data collected via logger and survey
- **Notable data points**
 - 446 e-bikes distributed
 - 70% of e-bike trips replaced personal vehicle trips (based on follow-up survey data)
 - 68% have access to a vehicle
 - Survey data suggests participants travel between 9 & 22 miles per week (seasonal variation)
 - >32,000 trips estimated, likely >100,000 miles ridden
 - Very few maintenance events

STANDARD VOUCHER

Household Size	Income Must Be Below
1	\$45,392
2	\$59,359
3	\$73,326
4	\$87,294

ENHANCED VOUCHER




You must currently receive benefits through an eligible means-tested program such as LIHEAP/Fuel Assistance, WIC, SNAP/Food Stamps, SSI, or others- see our website for a full list of eligible programs.

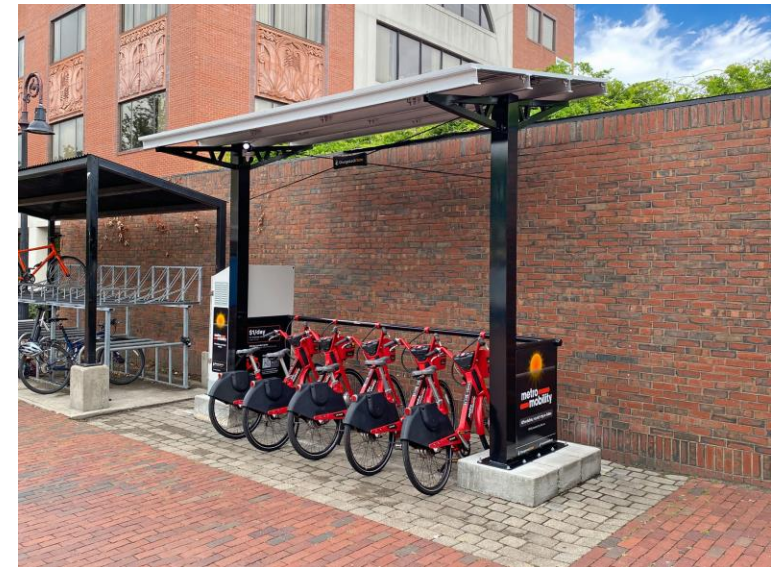


- **Award Amount:** \$776,795
- **Overview:** MassBike leads a team to distribute e-bikes at no cost and with co-pays to participants in Worcester. The CBOs, CMRPC, and Chamber of Commerce will assist in outreach to low-income residents likely to use e-bikes to replace car trips and/or lacking in transportation access.
- **Unique Design Elements**
 - MassBike is a non-profit advocacy organization
 - Worcester is a low-income city with relatively poor biking infrastructure
 - Focused on participant engagement & rider training (Over 35 events in Phase 1)
 - Events include winter riding training, maintenance workshops, group rides and more!
- **Notable Data Points**
 - 205 bikes deployed
 - >1200 applicants for the first 98 bikes
 - 74% of participants reporting in May 2024 (2 years post deployment)
 - Over 60,000 miles ridden (38% recreation, 28% work, 20% shopping)
 - Avg. 8 maintenance events per month, 35% brought bikes to annual check ups



- **Award Amount:** \$1,337,500
- **Overview:** Metro Mobility deploys e-bikes across Greater Boston using three pilot incentive models. These include individual ownership, individual ownership with shared charging, and shared e-bike stations. NREL supports Metro Mobility in monitoring, assessing, and comparing results across the incentive models.
- **Unique Design Elements**
 - Metro Mobility is an e-bike manufacturer
 - Program in Greater Boston— largely at or near affordable housing
 - 3 ownership models
 - All bikes GPS tracked, NREL gathers lots of info (trip destination, mode replaced, + more!)
- **Notable Data Points**
 - 215 e-bikes to be deployed across program
 - Includes e-bikes at MBTA stations and rental bikes focused on delivery drivers

MOR E-BIKES (in-home storage/charging)	MOR + CHARGE (station based)	E-BIKE LIBRARY (station based)
Traditional Ownership 	Personally owned e-bike kept at a ground-level ChargeLock station 	Shared e-bikes at ChargeLock stations + low-cost rentals 



► Notable Data Points (Continued)

- On average, a library shared e-bike is ridden 4 times as many miles as a personal e-bike.
- On average, a MOR + Charge (station-based personal e-bike) is ridden 2.5 times as many miles as a personal e-bike.
- On average, MOR + Charge e-bikes are used more frequently, but for shorter trips.
- Personal (MOR) e-bikes get ridden the least, both in number of trips and miles.
- Time savings per participant calculated (15 hours per quarter/MOR-E-Bike participant)
- Lots of maintenance for library and personal bikes
 - Easy in-app request process makes this common

Trip Miles by Replaced Mode

In-App Reported

Reported Mode Replaced by E-Bike Trip	Miles
Gas Car, drove alone	7,228
Gas Car, with others	834
Taxi / Uber / Lyft	3,304
Walk	4,334
Public Transit	6,958
Regular Bike or Bikeshare	1,422
No Travel	594
Other / Unspecified	878

- **Award Amount:** \$824,143
- **Overview:** PVPC will distribute e-bikes for ownership at no cost to participants across seven communities in Western MA, including three Gateway cities, areas with large Environmental Justice populations, and poor air quality.
- **Unique Design Elements:**
 - PVPC is a regional planning agency in Western MA
 - Springfield is one of the lowest income cities in the USA
 - 7 Community Based Organizations (CBOs) select participants
 - Participants include people experiencing homelessness, people of color, incarcerated youth, & others!
 - Every bike has a logger
- **Notable Data Points**
 - Distributed 135 bikes
 - Bike loggers didn't work so well in phase 1...
 - But they are working better for phase 2!
 - CBOs are often spread thin– even if they are well compensated!



Bike Share Funding and Operation

Miller Nuttle, Micromobility Policy Director

Tejus Shankar, Senior Policy Development

Lyft Urban Solutions

BLUEbikesSM

MA Micromobility Commission

September 2025

lyft urban solutions



Agenda

**Introduction to Lyft Urban
Solutions & Bluebikes**

**Industry Overview & System
Design Models**

Bikeshare Funding Examples



Introduction to Lyft Urban Solutions & Bluebikes

Lyft Urban Solutions Global Footprint



185K+

Bikes & Scooters



280K+

Docks



13K+

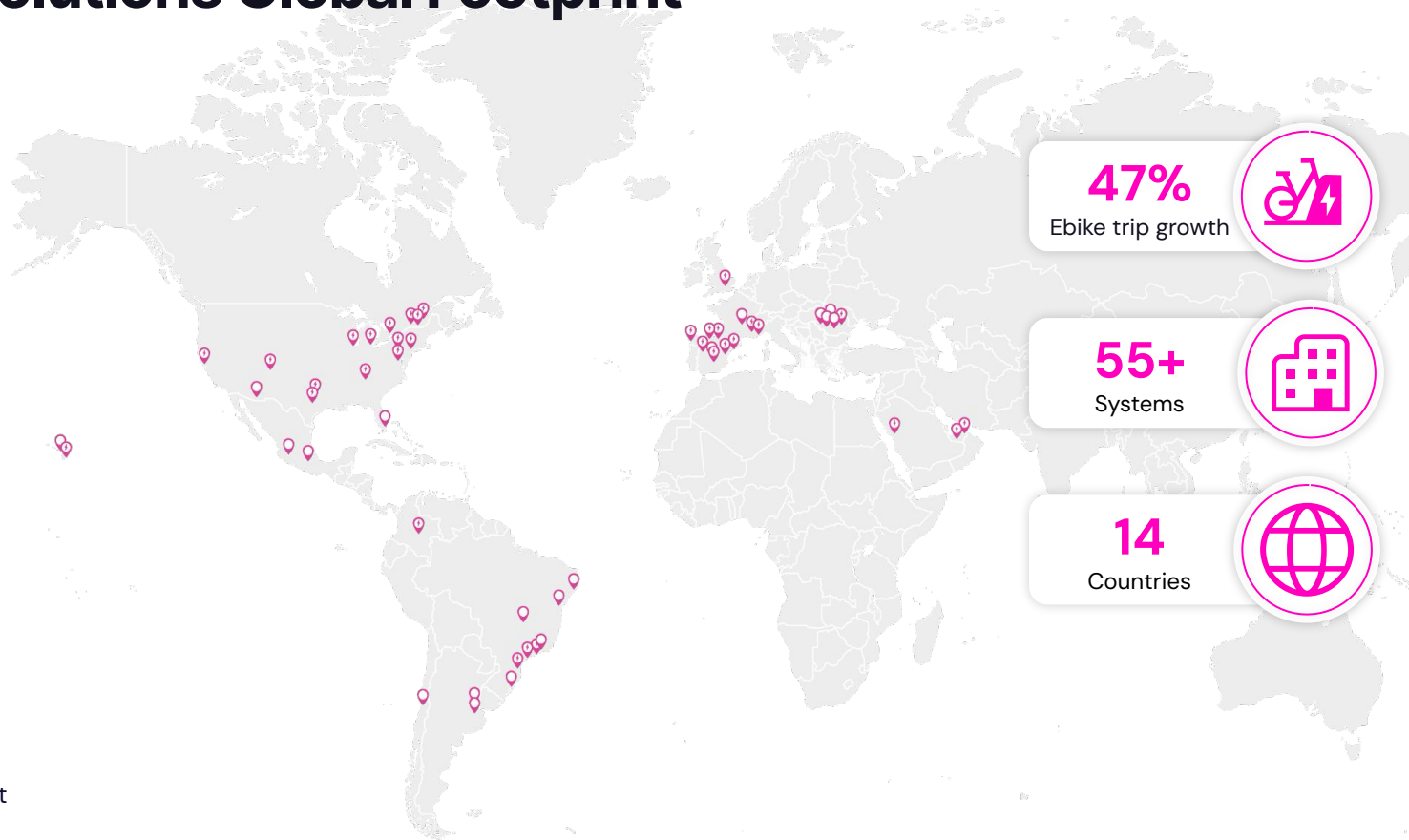
Stations



Pedal bikeshare fleet



Mixed or fully-electric fleet



47%

Ebike trip growth



55+

Systems



14

Countries



US-Operated Systems, including Bluebikes



1.9M

New rides in 2024



41M

Ebike rides taken in 2024



63%

Growth in ebike trips YoY

 **BIKETOWN** 

 **baywheels**

DI  **Y.** 

BLUEbikes.

 **capital bikes**  **share**

Our Hardware Ecosystem

Pillar charging dock: can charge ebikes (and scooters) in the dock.

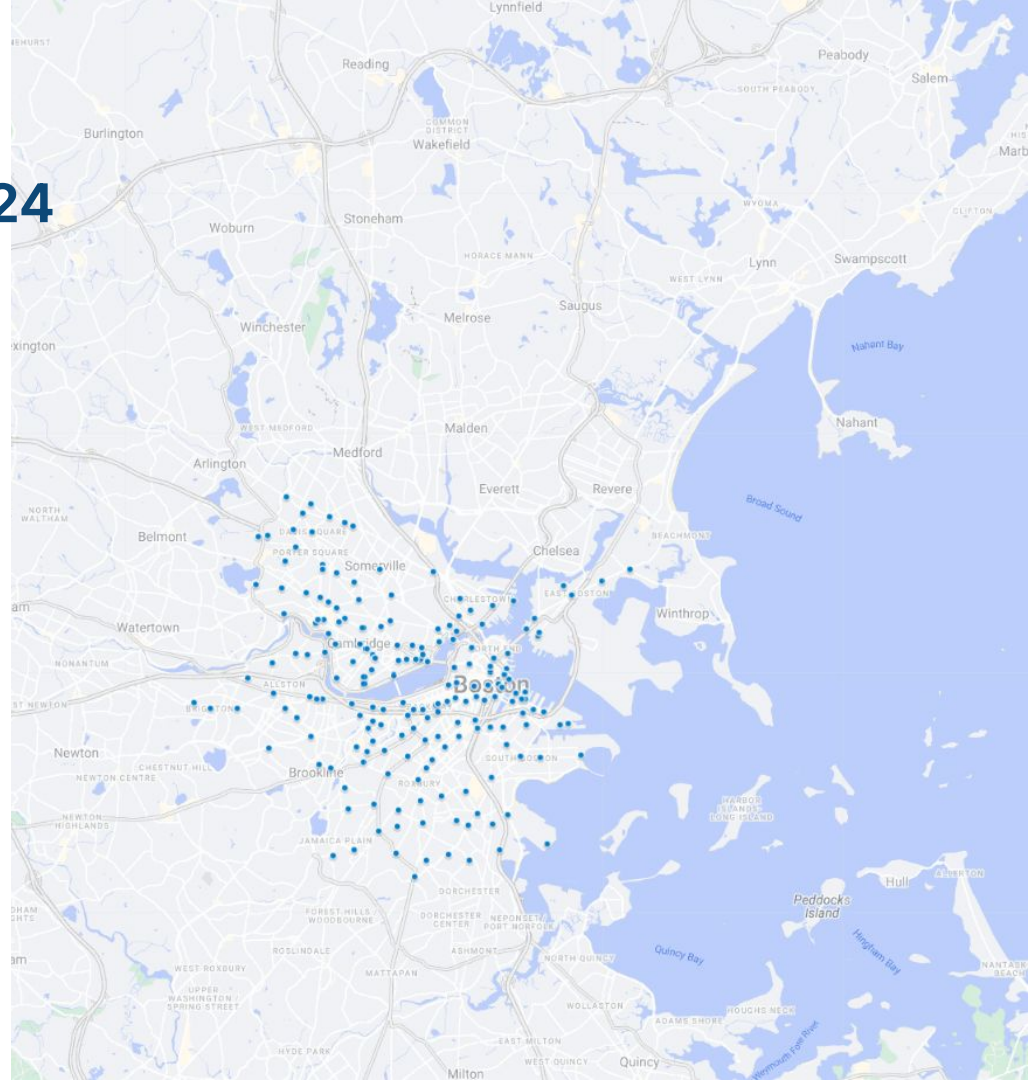
Charging kiosk: powers the station, allows for digital ad panels, and supports riders.

Dock locking mechanism:
Keeps the fleet organized,
safe & secure.

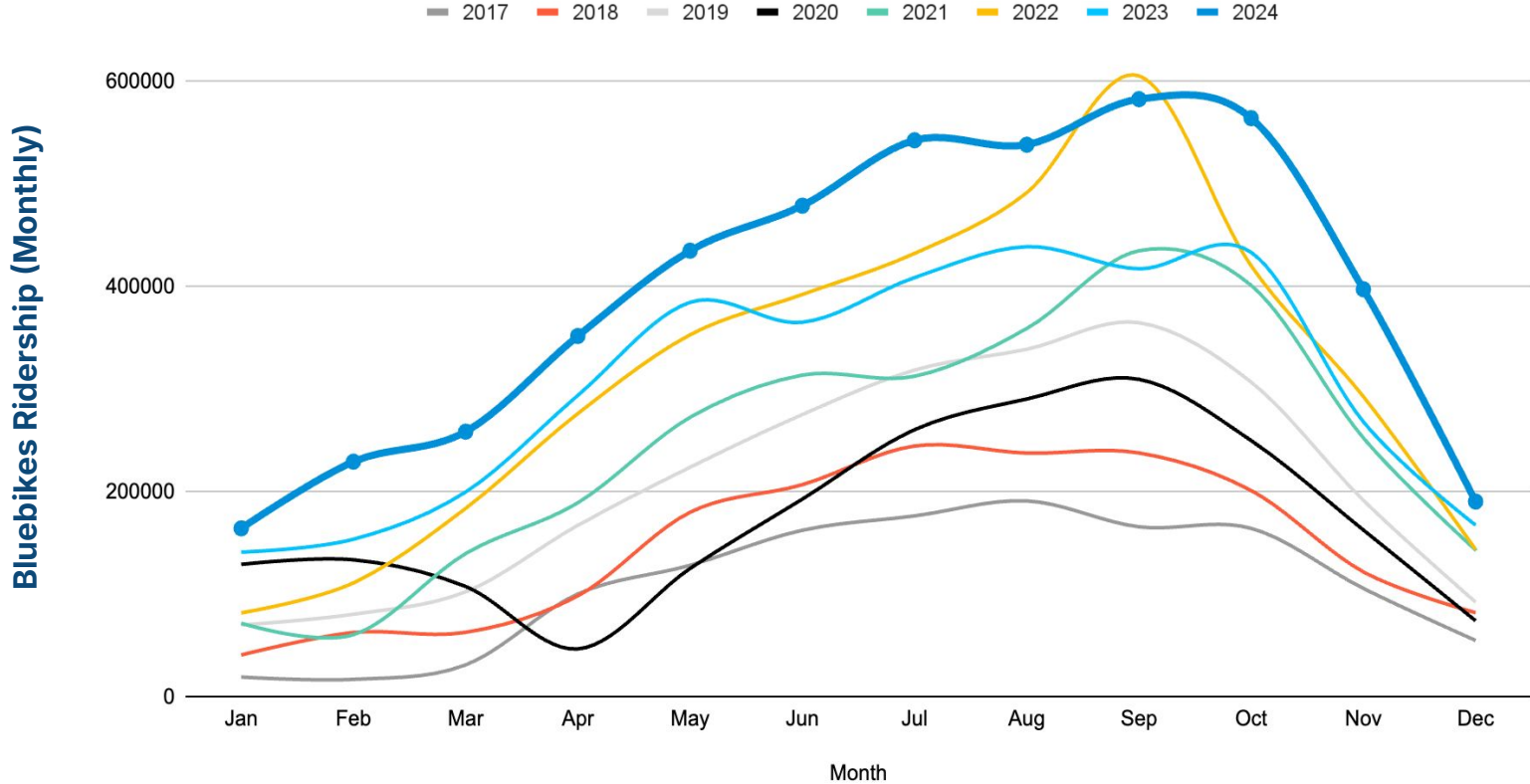
Bluebikes Program

System Growth from 2017 to 2024

	2017		2024	Growth
Total Municipalities	4	→	13	225%
Peak Active Stations	190	→	520	174%
Fleet Size	1,800	→	5,500	206%
Rides	1,319,557	→	4,734,153	259%
Peak Active Memberships	17,142	→	32,471	89%



YoY Record Ridership Growth



Ebike Growth & Success

709

Bikes Deployed

13% of total fleet

1,211,850

Trips Taken

25% of total trips

6.5

Trips per Bike per Day

vs 2.7 for Classics

10

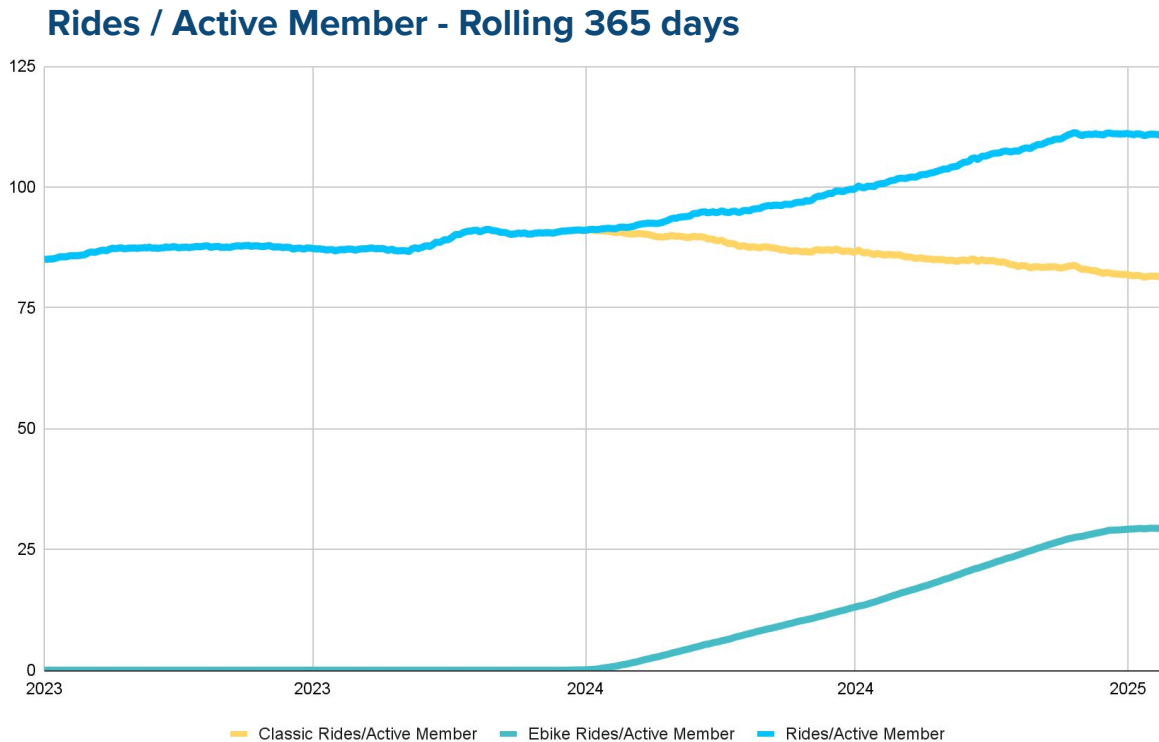
Ebikes Lost to Date

1.4% of ebike fleet



Ebikes Grow Overall Member Rides

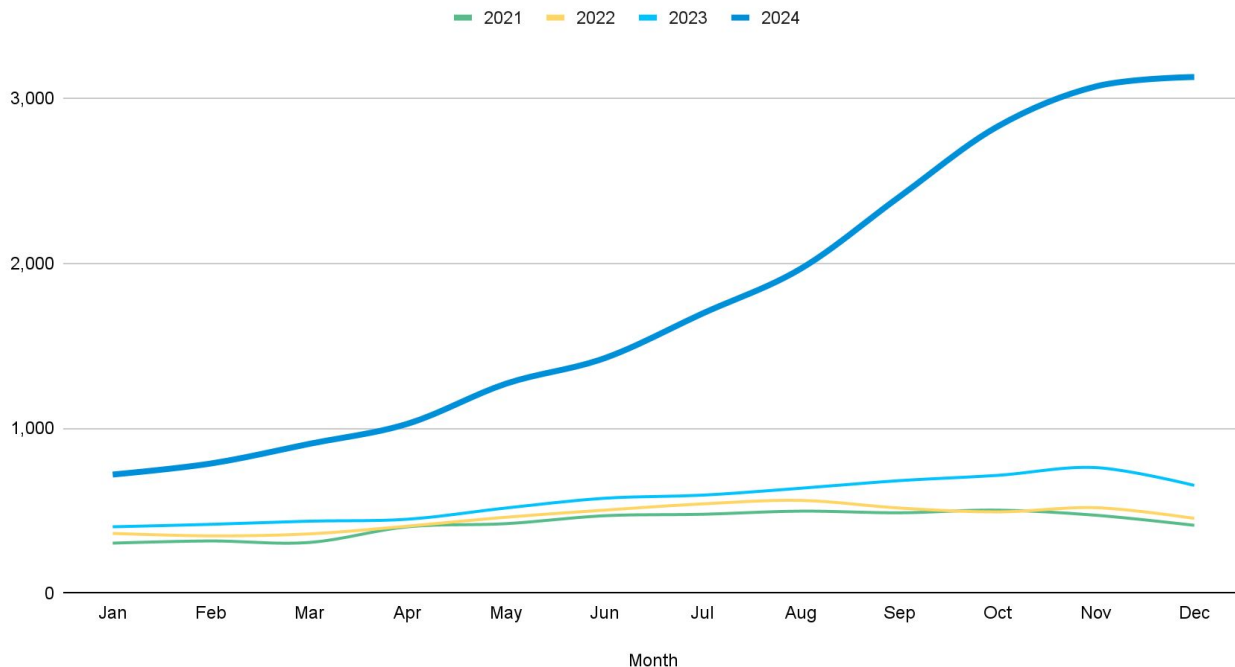
- Prior to 2024, Bluebikes averaged **87 rides per active member**
- Since launching Cosmo, we have seen this increase **26% to 110 rides per active member**



Bluebikes Income-Eligible Program Growth

IE Membership **grew by 300%** in 2024, driven in large part by the Boston Bikes Pass, a more concerted outreach effort by our Bluebikes ambassadors, and affordable ebikes.

Income-Eligible Active Members (Monthly)

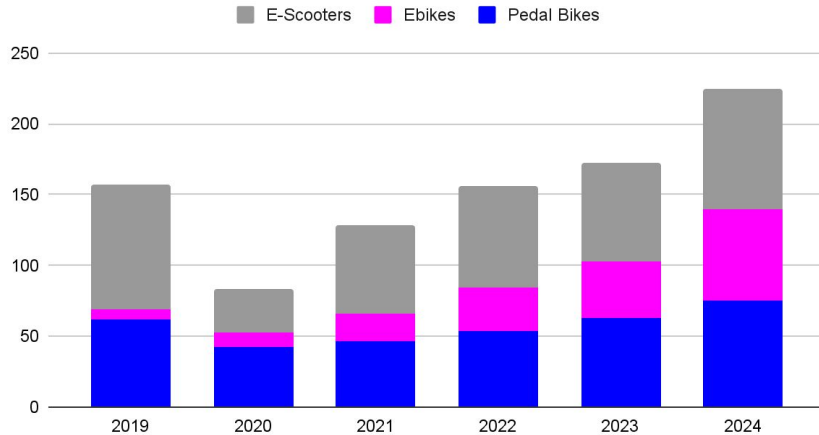


Industry Overview & System Design Models

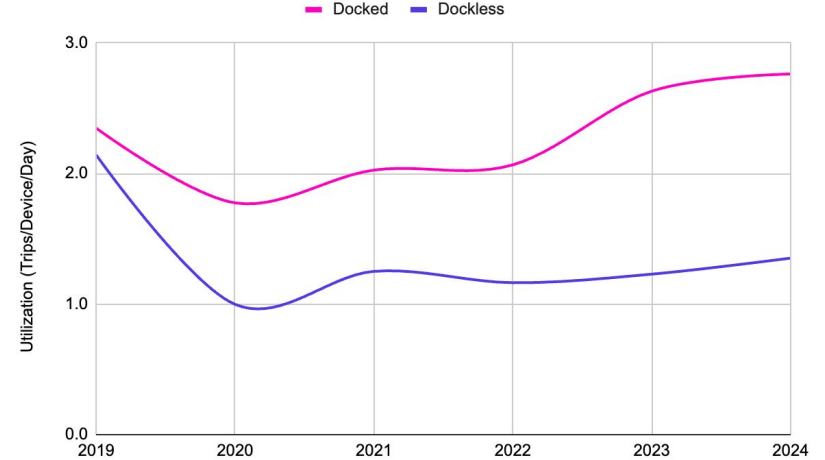
Shared Micromobility Industry Snapshot

YoY Growth Across Industry

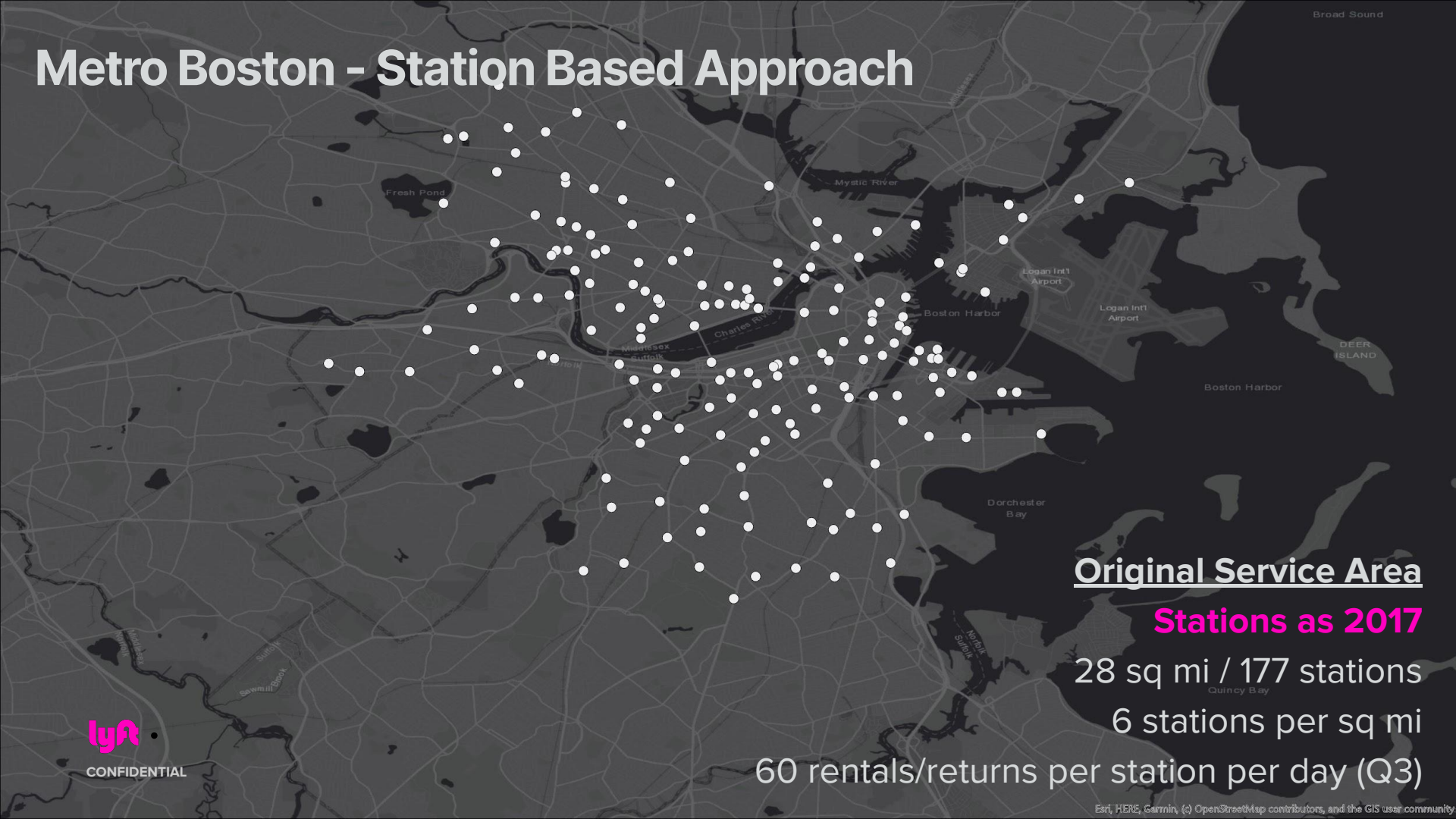
Growth of Shared Micromobility Ridership in North America



Greater Utilization on Docked Systems



Metro Boston - Station Based Approach



Original Service Area

Stations as 2017

28 sq mi / 177 stations

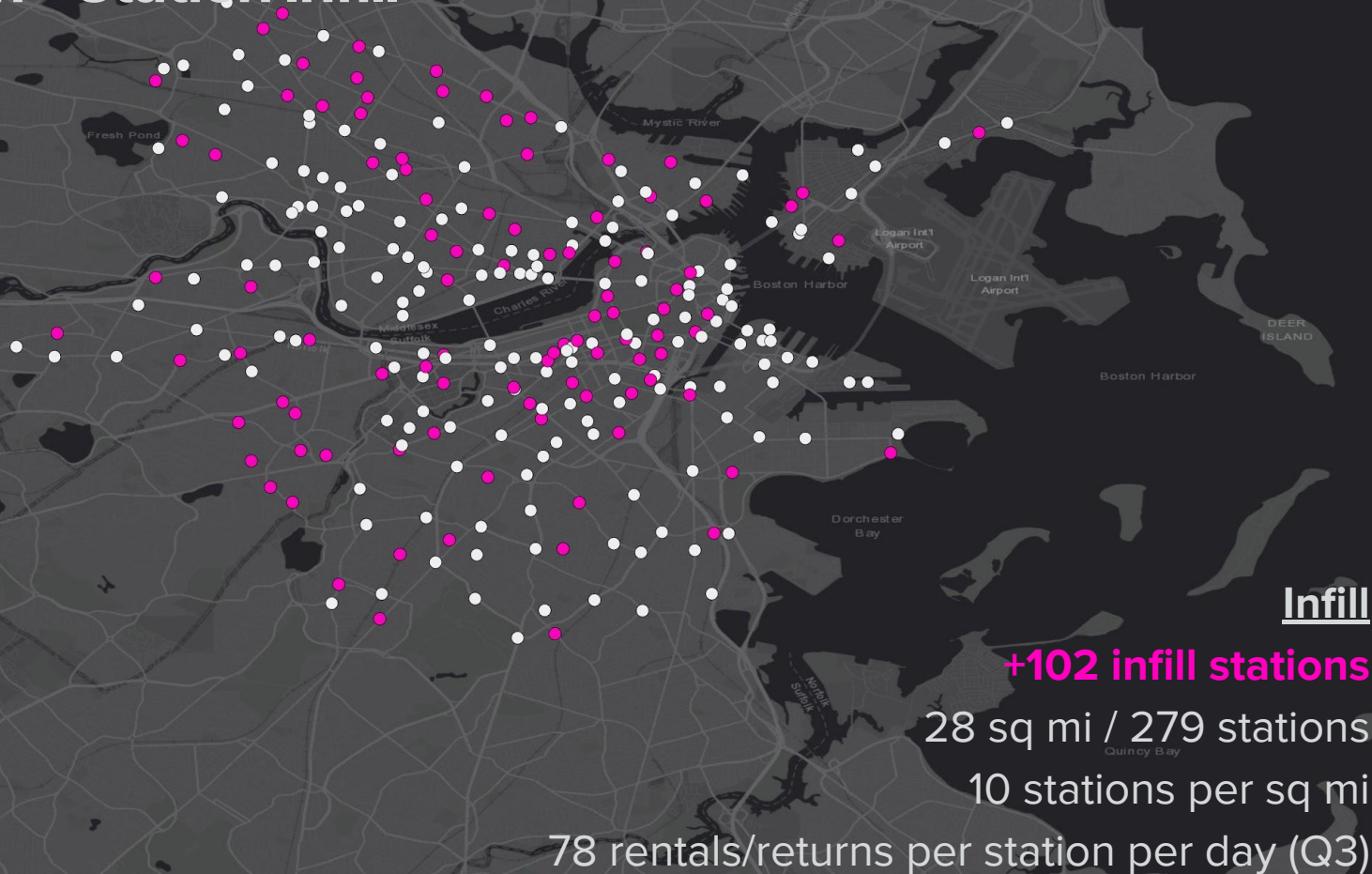
6 stations per sq mi

60 rentals/returns per station per day (Q3)



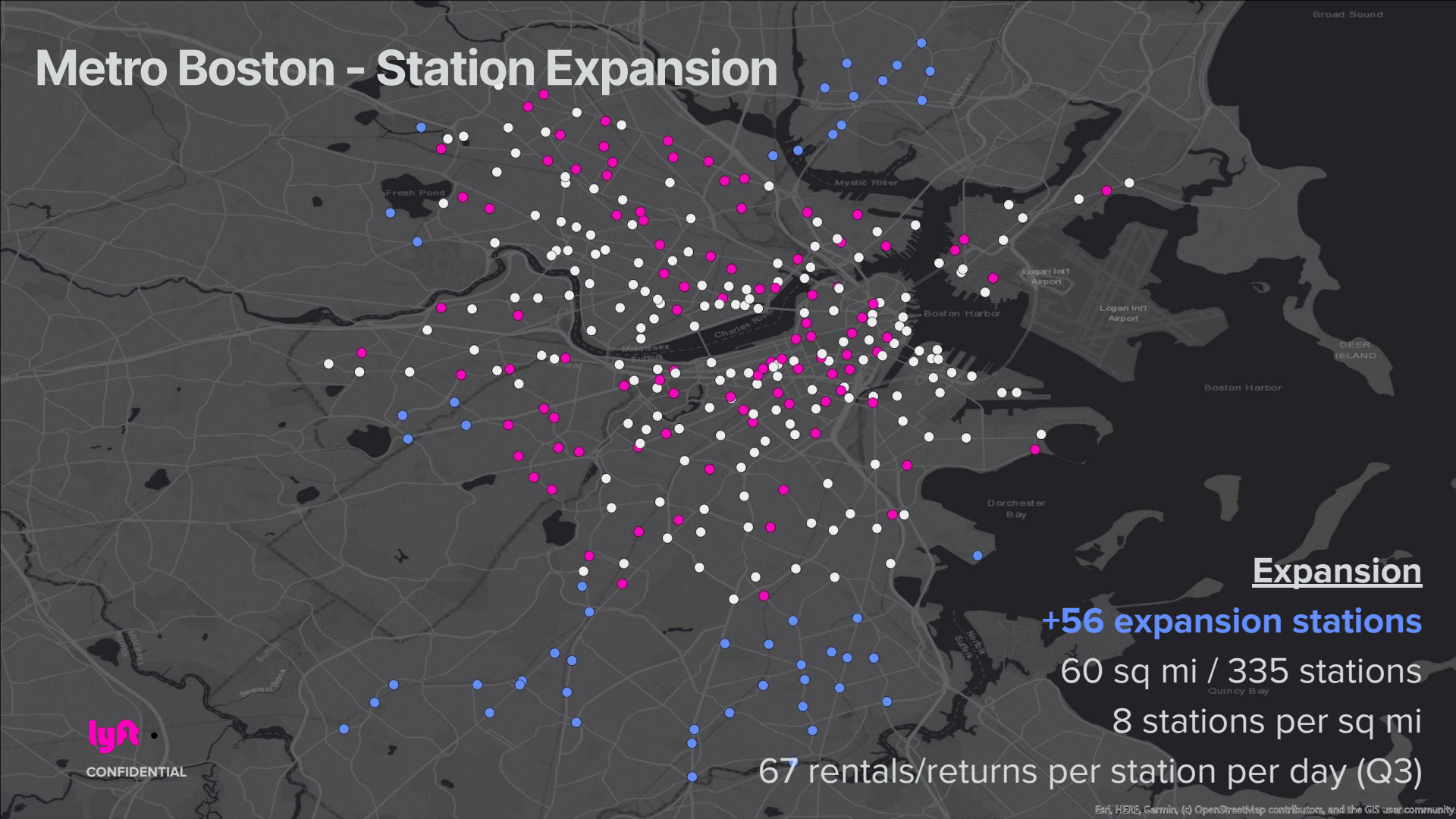
CONFIDENTIAL

Metro Boston - Station Infill



CONFIDENTIAL

Metro Boston - Station Expansion



Expansion

+56 expansion stations

60 sq mi / 335 stations

8 stations per sq mi

67 rentals/returns per station per day (Q3)



CONFIDENTIAL

In-Dock charging enables Ebikes at scale

In Dock Charging eliminates the need for battery swapping, which in turn:

- **Improves E-Bike Availability:** Cities with IDC have higher e-bike availability rates, ensuring e-bikes are available when riders need them.
- **Reduces Operations Costs:** In systems that don't yet have in-dock charging at scale, >25% of the ebike operations costs are battery swapping.
- **Reduces Service Vehicle Mileage:** By eliminating battery swapping tasks, IDC takes vans off the road and reduces VMT and congestion from operations



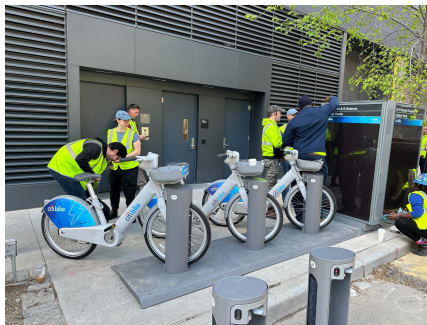
Charging Implementation To-Date

Our Experience

- **20 cities** with in-dock charging installed
- **2,100+** In-dock charging stations deployed worldwide
- **43,000+** charging docking points installed globally

Charging Mechanisms

- Trenching / Underground Connection
- Overhead Connection
- Above ground conduit
- Solar Canopy



Bikeshare Funding Examples

Public Funding Opportunities

Federal Formula Funding

Federally-funded programs appropriated to the MPO that funds implementation of local transportation plans.

Eligible programs that support shared micromobility include:

- CMAQ
- STBQ-TA
- Carbon Reduction Program

Federal Discretionary Programs

Competitive programs that cities apply for to fund specific goals within transportation programs.

Eligible programs that support shared micromobility include:

- RAISE
- Congestion Relief Program
- CFI Program

State/Local Funding

Bikeshare programs have been funded through local funding from city budgets or state grant programs. These vary by state and municipality and typically have been used for incremental CapEx or to support ongoing OpEx.

Funding Case Studies



Capital Bikeshare Greater Washington D.C. Area

- **Ownership:** Publicly owned by the DDOT and surrounding jurisdictions
- **Funding:** Capex and opex funded through Mayor's Office budget, State and County level local budget
- **Farebox:** City owns farebox revenue, pays Lyft an operating fee
- **Fed Programs:** Utilizes federal funding such as CMAQ program and RAISE to support hardware purchases.



Bluebikes Greater Boston Area

- **Ownership:** Publicly owned by 13 municipalities in Greater Boston
- **Funding:** City capital budget for CapEx and O&M fees for outlying municipalities, local sponsor
- **Farebox:** Lyft owns farebox given revenue risk on operations
- **Fed Programs:** Has been awarded federal funding such as Congestion Relief Program



Citi Bike Greater New York City Area

- **Ownership:** Owned by Lyft and managed through a joint partnership with NYCDOT
- **Funding:** Funded through farebox revenue and title sponsor investment + utility funding for electrification
- **Farebox:** Lyft owns farebox revenue given no public funding
- **Fed Programs:** N/A to-date

Thank you



Small Group Exercise: *4x Growth*

4x Growth Scenario: A possible future

14

1. Solo: Initial brainstorm (3 min)
2. Groups of 3ish: Discuss (10 min)
3. Full Group share-out (15 min)

4x Growth Scenario: Current state

15

- **BlueBikes** had over 1 million casual passes sold and 4.7 million trips taken, averaging over **12,000 trips a day** in 2024
- **ValleyBike** supported 116,860 rides in 2022, averaging **500 trips a day** in the month of October
- MAPC estimated there were over **270,000 rapid food deliveries** in MA **each day** in 2021. Increasingly smaller vehicles are being used to deliver food in dense urban areas
- MA residents have redeemed **1,200+ e-bike vouchers** from MassCEC's program **thus far**

4x Growth Scenario: A possible future

16

What would happen if ***each day*** there were **50,000 BlueBike trips**, **2,000 ValleyBike trips** and **1 million food deliveries in Massachusetts**, many made by people using mopeds or electric bicycle?

4x Growth Scenario: **Individual**

17

Review the context and questions, jot down a few ideas (3 min)

- What habits or societal norms would have shifted to result in this change in use?
- How was this micromobility growth funded and supported?



*handout at
your seat with
this information*

4x Growth Scenario: **Groups of 3ish People**

18

Discuss with your group the questions below (*10 min*)

A) How is this increase in micromobility use sustained?

- What potential policies, regulations, or laws would you recommend for this to happen safely?

B) What type of funding and from where is it needed to achieve usage like this?

- Which levels of government should be responsible for supporting the growth?
- What is the role of private companies?
- What are the barriers to this type of growth?

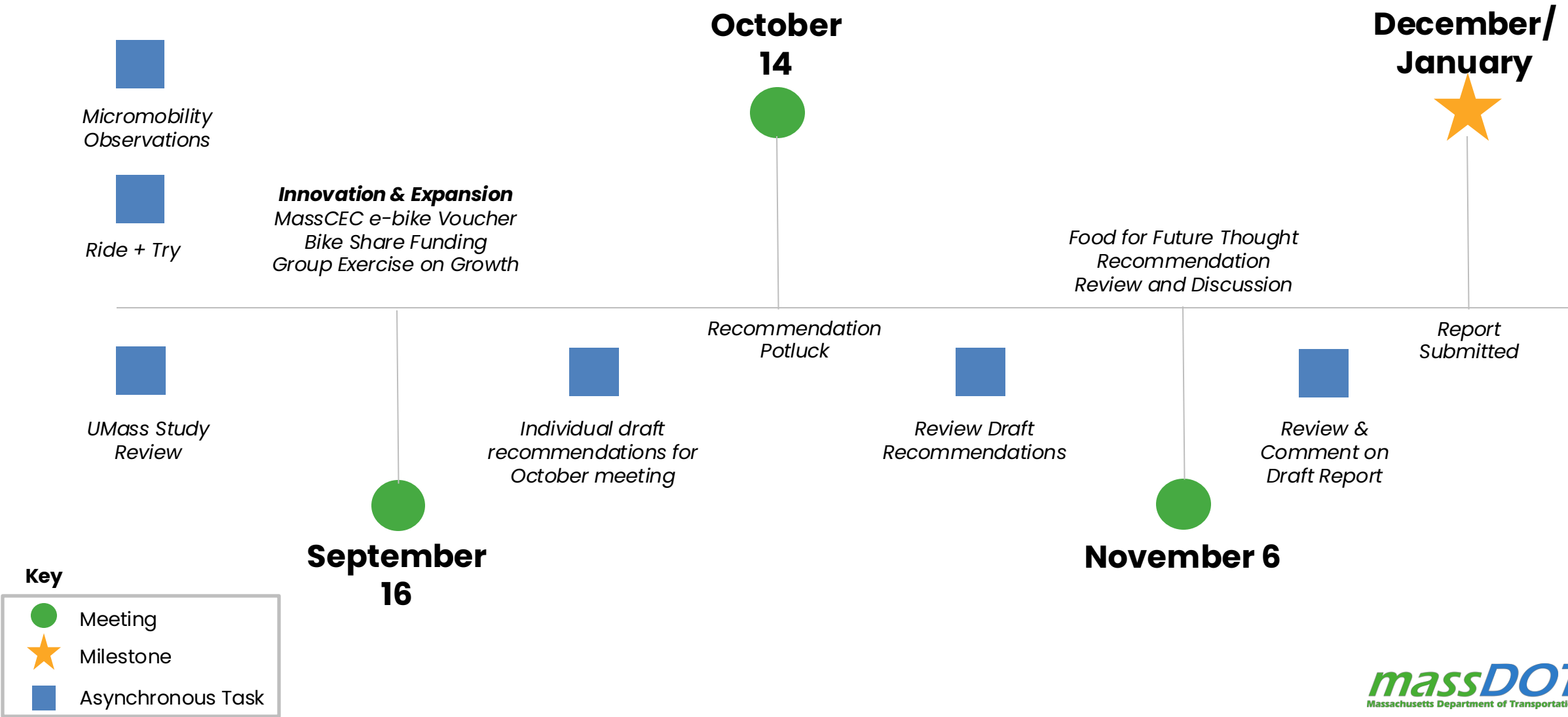
4x Growth Scenario: **Full Group Share & Discussion** ¹⁹

Discuss as a whole group (*15 min*)

1. Share out what your group discussed
2. Respond to each other's comments
3. Contemplate other elements that impact growth

Next Steps & Assignments

Next Steps



Commission Member Assignments

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1

Draft your recommendation ideas

Review the charge of this Commission and prepare a set of recommendations to share with the full group. Each one should be no more than 2-3 sentences in length. They can be suggestions for actions to be taken by the Legislature, a state agency, or another entity. They can also be suggestions for future work or study.

2

Place them in the supplied form

Kris will e-mail you a form to populate with your recommendations. Doing this by **Friday, October 3rd** will help us have a productive “potluck” at our next meeting.

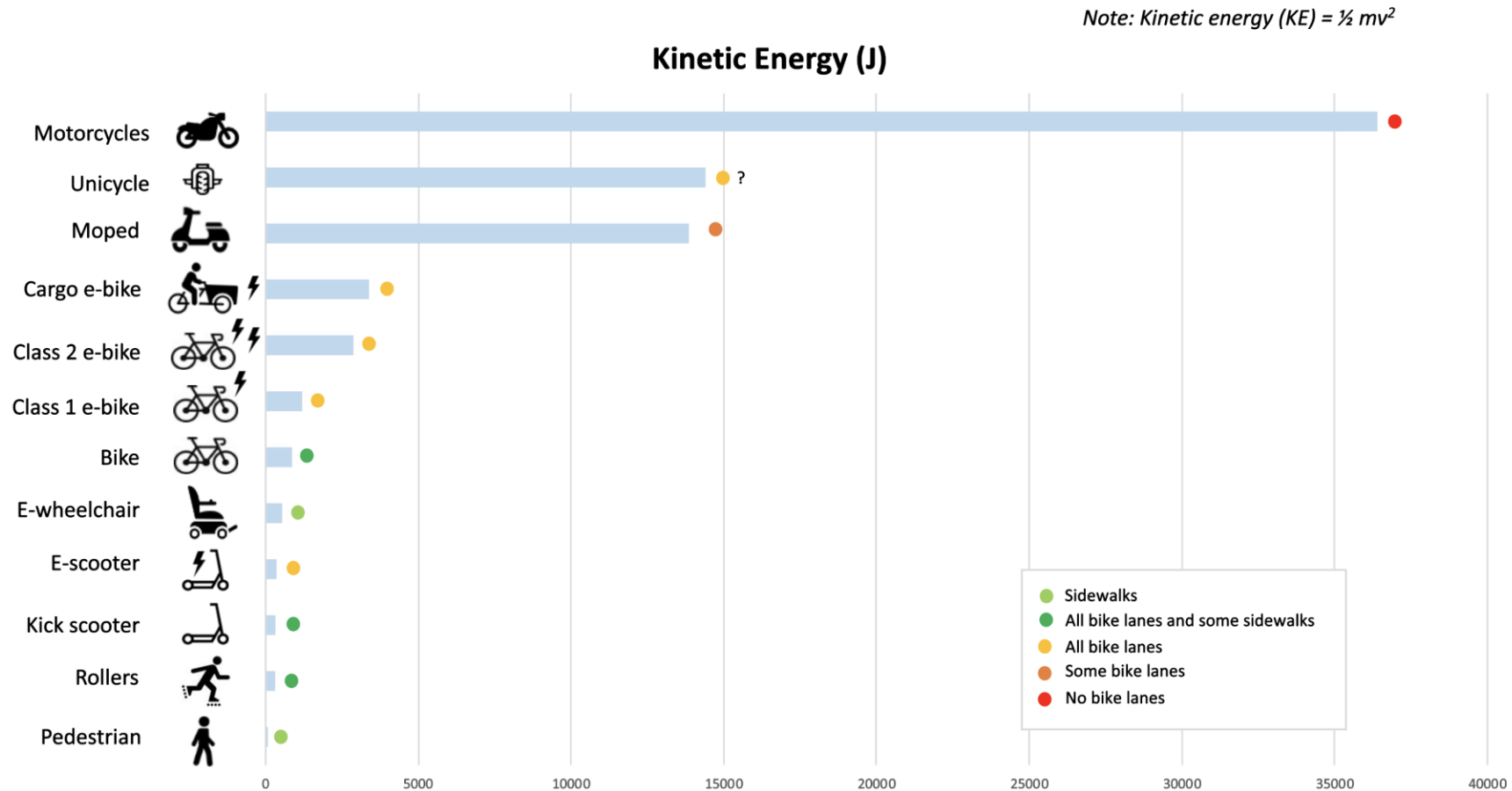
MassDOT will share **a draft vehicle classification concept** in advance of the next meeting for discussion and feedback from Commission Members

Appendix

Example of how framework can be used

Vehicle Characteristics inform Operational Restrictions

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Source: The Lab, MassDOT