Advisory Group Meeting Number
City of Cambridge
New Mobility Blueprint

July 10, 2019
<table>
<thead>
<tr>
<th></th>
<th>Agenda</th>
<th>Time</th>
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<tbody>
<tr>
<td>1</td>
<td>Welcome and Introductions</td>
<td>5:30-5:45</td>
</tr>
<tr>
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<tr>
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<td>6:20-6:30</td>
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New Mobility Headlines in the Past 30 Days...

Uber Rolls Out In-App Boston Transit Info

Signals Uber’s intent to become more like an all-inclusive “Mobility as a Service” platform
New Mobility Headlines in the Past 30 Days...

Scooter Breakdowns Weigh on Lime

By Cory Weinberg  |  Jun 10, 2019 11:02 AM PDT  |  Comment by Matthew Swain

At the CES trade show in Las Vegas in January, Lime showed off a new model of its electric scooter with thicker tires, color display screens between the handlebars and stronger aluminum to help the vehicles last longer. But months later, the custom-designed scooter, called Gen 3, is having problems of its own. The screens frequently crack or malfunction, and repairing brakes and other parts has proven complicated. Even the tougher metal has caused trouble—the additional weight makes it harder for workers to cart home scooters to charge overnight.

Scooter companies had pinned their hopes on sturdier hardware to help them slow their cash burn and demonstrate that the business can be profitable. But Lime’s experience shows how challenging that can be. Lime ended up slowing the rollout of...
New Mobility Headlines in the Past 30 Days...

**The New York Times**

How Uber Hopes to Profit From Public Transit

Ride-hailing companies see a “massive market opportunity” in replacing bus and subway rides.

By E. Tammy Kim

Contributing Opinion Writer

One of their strategies is to replace public transportation — an ambition that affects all of us and the environment, not just passengers and drivers.

Uber and Lyft have been clear about their intentions. At Uber’s apex of candor, in documents *filed with the Securities and Exchange Commission*, it identifies a “massive market opportunity” in the estimated 4.4 trillion miles traveled by people on public transit in 175 countries in 2017.

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**CITYLAB**

Can Minnesota Get Dockless Bikesharing to Play Nice?

Over the last year, dockless bikesharing has galloped into cities across the United States, swiftly doubling the number of shared bikes available on city streets. The GPS- and app-based technology these services use allows bikes to float around cities, into neighborhoods where bikeshare had never gone before, or where docked systems have failed to catch on. But the venture capital-backed bike invasions have also stoked anxiety over vandalism, bike clutter, and city regulations.

Cities and dockless bike companies struggle to reconcile business models with city priorities
The global market for ride-hailing and robo-taxis could be worth $2 trillion by 2030, UBS has estimated.

As autonomy makes the services even cheaper to provide, fares could shrink by 80% or more.

That will put even more strain on public transportation systems, which are already losing passengers to ride-hailing.

New Mobility Headlines in the Past 30 Days...

Forecasts showing the reduction of Uber fares (when they become AV fleets), if true, could place greater strain on transit systems all across the US are struggling to retain ridership.
New Mobility Headlines in the Past 30 Days...

**Whim Urban 30**

Mature MaaS platforms are gaining ridership (and funding) in Europe.

**Uber Elevate**

Uber Elevate is advancing a vision of sub-400 feet air travel, piloting the concept in cities like Dallas and LA.

**Waymo and Tesla**

Waymo and Tesla continue to build towards their vision of autonomous fleets for cities.
New Mobility Headlines in the Past 30 Days...

Toyota Goes Electric Starting In 2020: Announces Massive EV Offensive

Waymo partners with Renault, Nissan to bring self-driving cars around the world

Companies are forecasting significant use of drones and robots to deliver goods and services

Traditional car makers are rapidly switching to electric car models

…and partnering with technology companies to form partnerships and scale
City of Cambridge Goals

**Equity and Accessibility**: Ensure a diverse set of travel options that meet the access and mobility needs of people of all ages, abilities, and incomes.

**Reliability and Efficiency**: Ensure people and goods can reliably move within Cambridge and around the region, and encourage space-efficient transportation choices like walking, biking, transit, and carpooling.

**Safe and Active Transportation**: Eliminate traffic fatalities and serious injuries while encouraging active living and improving comfort for people of all ages and abilities.

**Connectedness and User-Friendliness**: Create an easy-to-understand, integrated, continuous, and comfortable transportation network for all people.

**Community Character and Vitality**: Ensure that the city’s transportation system supports shared community spaces and enhances neighborhood streets.

**Climate Mitigation and Resilience**: Achieve a carbon-neutral transportation system and adapt to climate change.

**Climate Action**: Achieve carbon neutrality by 2050.

**Climate Change Preparedness**: Protect the lives and livelihoods of the Cambridge community from the impacts of climate change.
**New Mobility Blueprint Purpose**

Our goal is to develop actionable recommendations for policy, programs, and regulations that will help the City implement new mobility options in a way that aligns with and advances existing values and policies.
New Mobility Blueprint (is not)

• A visioning exercise
• The creation of new goals
• Making changes to existing transportation plans or current planning processes, except to preserve or strengthen an existing transportation mode in the face of pressure from new mobility
• A static document
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Mobility Modes

How people commute to work in Cambridge

- 1990 Census: 51%
- 2000 Census: 51%
- 2006-2010: 45%
- 2011-2013: 45%
- 2014-2016: 42%
- 2015-2017: 42%

- SOV
- Carpool
- Transit
- Bike
- Walk
- Other
- Work at Home

Data Source: ACS Data
Cambridge New Mobility Blueprint

How residents in Cambridge commute to work

- 1990 Census: 51%
- 2000 Census: 51%
- 2006-2010: 45%
- 2011-2013: 45%
- 2014-2016: 42%
- 2015-2017: 42%

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Data Source: ACS Data
Cambridge New Mobility Blueprint
Mobility Modes

Commute Time by Mode - 2015-2017 ACS Average

Data Sources: 2015, 2016 and 2017 ACS Data
Bicycling Trends
**Bicycling Activity**

The color of each cell shows the daily average of bicycle trips distributed across the city.

The blue circles in the map show the bike counts collected manually in 2016.

*Data Source: Anonymized Cellular Data, 2016 Cambridge Biennial Manual Bike Counts*
Bluebikes Trips

Monthly Bluebikes Ridership

Data Source: Bluebikes Data
Bluebikes Trips

Bluebikes Trip Duration in Cambridge in 2018

Percentage of Bluebikes Trips in Cambridge

Data Source: Bluebikes Data

Cambridge New Mobility Blueprint
Subway Trends
### Bus Trends

**Daily Bus Ridership in Cambridge**

- **2014**
  - Weekday On: 42,000
  - Weekday Off: 38,000
  - Sat On: 20,000
  - Sat Off: 15,000
  - Sun On: 12,000
  - Sun Off: 9,000

- **2015**
  - Weekday On: 40,000
  - Weekday Off: 36,000
  - Sat On: 19,000
  - Sat Off: 14,000
  - Sun On: 11,000
  - Sun Off: 8,000

- **2016**
  - Weekday On: 38,000
  - Weekday Off: 34,000
  - Sat On: 18,000
  - Sat Off: 13,000
  - Sun On: 10,000
  - Sun Off: 7,000

- **2017**
  - Weekday On: 36,000
  - Weekday Off: 32,000
  - Sat On: 17,000
  - Sat Off: 12,000
  - Sun On: 9,000
  - Sun Off: 6,000

*Data Source: MBTA*
**Car Trends**

**Vehicle Ownership**

Data Source: ACS
Ride-hail Trends
Ride-Hail Trends

Annual Rides Started in Cambridge

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Rides</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>6,782,367</td>
</tr>
<tr>
<td>2018</td>
<td>7,827,584</td>
</tr>
</tbody>
</table>

Rides Started per Capita

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Rides per Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>64.49</td>
</tr>
<tr>
<td>2018</td>
<td>74.43</td>
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Data Source: Mass Dept of Public Utilities
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People Journeys
Scenario 1 – Restaurant Worker

How to make the transfer experience more seamless and connected?

How can we create rides that go closer to home?

What new technologies improve pedestrian safety?

Home

School

Work

Work

Walks to 2nd job closer to home

Walks to 2nd job closer to home

Takes bus from Charlestown to Cambridge with one transfer

Gets a ride home from a coworker, gets dropped 9 blocks from home

Goes back home to rest

Goes to bed and then walks the kids to school in the morning

Pick up kids from school in the afternoon

Doesn't need to walk to the second job
Scenario 2 – Young Professional

- Would e-bikes encourage people to bike in from suburban homes?
- How to meet peak demand for shared bikes?
- Is it legal to hail a ride in a self-driving car after a few drinks?

1. Home
2. Bar
3. Work
4. Dinner

- Rides Bluebike to work
- Takes T to Boston since Bluebikes nearby are rented out in evening rush hour
- Calls a ride-hail vehicle for pickup after drinking
Scenario 3 – Working Parent with Kids

How many residential chargers are needed to prevent Cambridge residents from driving EVs to work just to be able to charge them?

Are there dedicated parking spots available for EV owners at apartment buildings or only for shared vehicles?

How to cope with peak loads for charging demand (both for # of charging points available and for the electric grid)?

How to make walking, biking, and public transit feel possible to parents with small kids?

How to incentivize shopping destinations to provide EV chargers?

Drives EV to drop the kids off at school

Drives EV to work and recharges in workplace garage.

Drives EV to pick the kids up and goes grocery shopping after
Scenario 4 – High School Student

Will there be an autonomous shuttle service available at school?

Will shared autonomous ride-hail vehicles be more affordable in the future?

How do we encourage more cycling and walking in a future that values convenience?

What are the opportunities for scooters and other forms of micro-mobility to supplement or compliment transit services for longer trips?

- Home
- Class
- Cafe
- Library
- Work

Bikes with backpack
Walks to nearby cafe to eat lunch with friends
Bikes to the library (and picks up the bike the next day)
Calls a ride-hail vehicle for pickup since it’s late
Takes T to work in Boston

Cambridge New Mobility Blueprint
Scenario 5 – Active Senior, Aging in Place

How to use more mobility services without a smart phone?

How to reduce empty buses but provide services on demand?

I want a cab, but need to make a bunch of stops...will I have to leave a big tip?

Are there going be fixed transit packages that cover all the types of modes I want to take?

- Home
- Routine check
- Dinner
- Doctor
- Store
- Home
- Takes bus to meet a friend for dinner
- Takes a cab to the store
- Takes bus to go home
- Waits for Bus to go home
- Waits for subway to go home
- Walks to bus stop to go to doctor

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Scenario 6 – Person with Mobility Impairment

I feel like most mobility choices are for only a certain small group of people...particularly for small trips

Will the bus driver stop to pick me up?

How to make more transit stations ADA-compliant?

Why does it seem like ride-hail vehicles don’t have fold out ramps and lifts?

Walks to bus station to go to work, always plans extra commute time

Takes bus to meet up with friends

Waits for Bus

Travel to bus station

Waits for T to go home

Bus Station

Work

Home

Friends

Waits for Bus Station

Travel to T

Walks to bus station

Walks to bus station to go to work, always plans extra commute time

Takes bus to meet up with friends

Waits for Bus Station

Travel to T

Walks to bus station

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Travel to T
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New Mobility Roleplay

The purpose of the roleplay is to better understand the viewpoints and challenges faced by the various people who use, provide, and regulate new mobility options. By stepping into each other’s shoes, we hope to encourage each player to explore the complexity of perspectives and think broadly about how the City can develop policy that meets a variety of needs.
Run of Show

Members break into 5 groups
Each group will have 20 minutes to discuss the prompts
Each group will give a brief 5 minute discussion summary
Each group will have 5 minutes for Q&A from others
Switch and Repeat!

And remember…

The goal is to experience a new role
There are no “right” or “wrong” answers...we’re exploring together
Groups

Company 1
- Ride-hail

Company 2
- AV Shuttle
- Public Transportation Operators
- Bluebikes
- MBTA Bus
- MBTA Subway

Company 3
- Scooter

Policy Makers
- MassDOT
- MBTA
- City of Cambridge

Cambridge New Mobility Blueprint
Mobility Trends

Walking → Transit
Biking ↑ SOV
Micromobility ↑ Ride-hail
# Group Assignments

<table>
<thead>
<tr>
<th>Name</th>
<th>Round 1</th>
<th>Round 2</th>
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<tbody>
<tr>
<td>Ride Hail (Ben Alpert)</td>
<td>Bruce Kaplan</td>
<td>Jane Gould</td>
</tr>
<tr>
<td></td>
<td>Kathryn Carlson</td>
<td>Steven Miller</td>
</tr>
<tr>
<td>Scooter (Trevor Johnson and Yuan Shi)</td>
<td>James Cater</td>
<td>Bruce Kaplan</td>
</tr>
<tr>
<td></td>
<td>Steven Miller</td>
<td>Ruth Allen</td>
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<tr>
<td></td>
<td>Chris Tassone</td>
<td>Megan Aki</td>
</tr>
<tr>
<td>AV Shuttle (Peter Glus)</td>
<td>Megan Aki</td>
<td>David Keith</td>
</tr>
<tr>
<td></td>
<td>Zef Vataj</td>
<td>Kathryn Carlson</td>
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<tr>
<td></td>
<td></td>
<td>Melissa Chan</td>
</tr>
<tr>
<td>Public Transit (Pete Costas)</td>
<td>Melissa Chan</td>
<td>Will Dickson</td>
</tr>
<tr>
<td></td>
<td>Jane Gould</td>
<td>James Cater</td>
</tr>
<tr>
<td></td>
<td>Iiya Sinelnikov</td>
<td></td>
</tr>
<tr>
<td>Policy Makers (joe Iacobucci)</td>
<td>Will Dickson</td>
<td>Zef Vataj</td>
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Project Schedule

- **Task 1**: April - June
- **Task 2**: July - Sept
- **Task 3**: October - Dec
- **Task 4**: Jan – Mar 2020
- **Task 5**: Apr – Jun 2020

**Tasks:**
- Task 1
- Task 2: Trends and Forecasting
- Task 3: Implementation Blueprint
- Task 4: EV Pilot
- Task 5: Regulatory Strategy
- Task 6: Plan for Future Engagement
Advisory Group Schedule

July Meeting

- Task 1
- Task 2
- Task 3
- Task 4
- Task 5

September Meeting

- Task 2
- Task 3
- Task 4

November Meeting

- Task 3
- Task 4
- Task 5
- Task 6

January Meeting

- Task 4
- Task 5
- Task 6

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