An AV for Everyone: Shared Mobility and Equity

Urbanism Next Conference
March 6, 2018
Agenda

• Introduction and overview (20 min.)
• Opening discussion (20 min.)
• Presentations (60 min.)
• Q+A (10 min.)
• Breakout groups (45 min.)
• Closing discussion (25 min.)
This is the Portland Region
Housing costs have skyrocketed
Housing costs have skyrocketed
People of color are being displaced from the center
All of this deepens inequities in transportation

Historically marginalized communities face...

• Longer, less convenient trips
• Higher risks of being hurt or killed while traveling
• Less access to jobs

How can shared mobility help?
Emerging technologies

- Automated vehicles (AVs)
- Connected vehicles (CVs) and infrastructure
- Electric vehicles (EVs)
- Transportation network companies (TNCs)
- AV/EV transit vehicles
- Microtransit
- Car share
- Bike share
- Travel information and payment
- New data sources
Some are **shared mobility services**

- Automated vehicles (AVs)
- Connected vehicles (CVs) and infrastructure
- Electric vehicles (EVs)
- TNCs, aka ridesourcing
- AV/EV transit vehicles
- Microtransit
- Car share
- Bike share
- Travel information and payment
- ...and don’t forget transit, carpooling, vanpools, and taxis.
The first generation of AVs will likely be shared
About one-third of our region’s residents have used TNCs, most sharing occasional short trips with others.

- **How many people ride with you?**
  - No one: 26%
  - One person: 29%
  - Two people: 24%
  - Three or more: 16%

- **On average, were your rides...?**
  - Less than $10: 23%
  - $10 - $20: 49%
  - More than $20: 18%

- **Frequency of use:**
  - A few times a week: 36%
  - Several times a month: 4%
  - Rarely: 22%
  - Never: 10%
15% of our region’s residents use TNCs multiple times a month. Who is (and isn’t) in this group?

**Over-represented**
- People from Multnomah County
- Men
- 16-29 year-olds
- People earning $100K or more

**Under-represented**
- People from Washington and Clackamas County
- Women
- 45+ year-olds
- People earning less than $50K and $74-100K
Transit is still the most important option when people don’t have a car available... especially for low-income people

<table>
<thead>
<tr>
<th>Mode of Transportation</th>
<th>Regional Average</th>
<th>Earning &lt;$50K</th>
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<tbody>
<tr>
<td>Use public transit</td>
<td></td>
<td>29%</td>
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<tr>
<td>Carpool/vanpool</td>
<td></td>
<td>18%</td>
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<tr>
<td>Taxi/ridehailing...</td>
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<td>16%</td>
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<tr>
<td>Ride a bike</td>
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<td>9%</td>
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<tr>
<td>Walk</td>
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<td>7%</td>
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<tr>
<td>Telecommute</td>
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<td>7%</td>
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<tr>
<td>Carshare</td>
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<td>6%</td>
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There are other barriers besides income
New mobility and transit are codependent

A healthy, well-functioning transit system supports other shared modes.

Almost everyone suffers from congestion.

But shared mobility may be hurting rather than helping. Studies have found:

• 14-42% of TNC riders would have otherwise taken transit.

• 47-56% are shifting from modes that produce less congestion.

• Many other shared mobility services slightly decrease transit ridership.
Equitable shared mobility is...

**Accessible** for all, regardless of age, physical ability, digital access, language/cultural background or documentation.

**Affordable** enough to be used by people of all income levels to meet their daily needs.

**Available** throughout our region, with reasonable variation in service quality, fares, and wait times.

**Non-discriminatory**; companies and drivers cannot deny people service on the basis of race, color, national origin, religion, sex, disability, or age.

**Safe** for both riders and non-riders.
Opening discussion

Please take 15 min. to discuss:

• What are you hoping to learn from this conversation?
• What promising opportunities do you see for AVs and new mobility services to create more equitable communities?
• What concerns do you have about how AVs and new mobility services will negatively impact marginalized communities?

Please designate someone to take notes and briefly (2-3 min.) report back to the group.
Presentations

- Vivian Satterfield, OPAL; and Aaron Golub, PSU
- Jon Isaacs, Uber
- Tim Navarrette, ReachNow
- Zach Henkin, Forth
- Ingrid Fish, City of Portland Bureau of Planning and Sustainability
What steps can be taken to ensure that the coming wave of transportation innovations will benefit all groups equitably?

Or even better - achieve transportation justice?
Collaborative Research - OPAL, Forth and PSU

Community-based Assessment of Transportation Needs to inform City of Portland Smart Cities Plan
Research Questions

1. How can smart mobility technologies address the current and future needs of transportation disadvantaged communities?

2. What are the barriers to using smart mobility technologies experienced by different communities?

3. What potential solutions show the most promise in overcoming these barriers?
Methods

Two focus groups
- Bus Riders Unite
- Lower-income East Portland residents

Larger sample survey
- Online and in-person at several community events and intercepts on buses and transit stops
- August - October of 2017
- 300 survey responses
- Representing a racially, socio-economically diverse group of individuals
  - 46% of survey respondents identifying themselves as people of color
  - 55% reporting lower than the study area’s median income; solid distribution of ages
Where we surveyed
Results focusing on Race/Ethnicity:

Barriers to Access: Documentation and Banking

I drive to work. You drive to work. The driver license is part of our job.
Significant disparities by race/ethnicity (and even higher by income)
Barriers to Access: Housing Type and Ability to Charge Electric Vehicles
Significant disparities by race/ethnicity and by income.
Barriers to Access: Differences in familiarity and comfort with new technologies

Slight difference in familiarity and interest in autonomous vehicles by race/ethnicity
The “Digital Divide” and Smart Mobility: Mixed signals

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<tr>
<th>Use SP for:</th>
<th>POC vs WNH</th>
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<tr>
<td>Public Transit Info</td>
<td>More</td>
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<tr>
<td>Navigation</td>
<td>No Difference</td>
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<tr>
<td>Shared Vehicles</td>
<td>More</td>
</tr>
<tr>
<td>Share Bicycles</td>
<td>No Difference</td>
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<tr>
<td>Licenced?</td>
<td>Less</td>
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<tr>
<td>Banked?</td>
<td>Less</td>
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Language is an issue

“I like the [transit] screens in downtown. I can read a little bit of English, but the time I was lost, I had to ask because the instructions were only in English. So not everyone can understand. In a situation that is unexpected like that, I don’t know what the screen or the conductor is saying then it’s frustrating. It makes you fearful...”

Trust is an issue

“I do have a bank account, but am afraid TriMet will use it and share it.”

“I don’t have any information on my phone. I am afraid people will hack my phone. I would rather pay cash.”
Community Recommended Policies

#1 Real time communication between buses and riders about crowding, arrival time, etc. (n=140; 48.3%)

#2 Public wifi and charging stations for smartphone/mobile technology (n=135; 46.6%)

#3 Rebates or financing to help buy clean electric vehicles (n=106; 36.6%)

#4 Smartphone apps for transportation services translated to languages other than English (n=95; 32.8%)

#5 Self driving neighborhood shuttles to bring people to transit stops (n=86; 29.7%)
Capacity building recommendations

Which of the following types of neighborhood institutions or places would you most trust to lead trainings?

Most popular:
- Public Libraries (204, 70.6%)
- TriMet Transit Stations (202, 69.9%)
- Neighborhood Community Centers (172, 59.9%)
Thank You

Mike Serritella Portland State University

Jai Singh Community Organizer

Professor Aaron Golub Director and Associate Professor, Nohad A. Toulan School of Urban Studies and Planning, Portland State University

Survey respondents and focus group participants

Forth Mobility

Contact: Vivian Satterfield Deputy Director, OPAL Environmental Justice Oregon vivian@opalpdx.org
Driving Sustainable Mobility
Uber

Point-to-point, on demand mobility

Mobile tech enabled

Network of mobility providers and consumers

Two-way, flexible participation
Uber

Mobility globally

600+ Cities
78 Countries
300 Airports

3M Active drivers
5B+ Rides completed
15M Rides per day
Sharing by design
Uber’s business works best when we **ENABLE MORE PEOPLE TO MOVE WITH...**

- FEWER
- FULLER
- MORE EFFICIENT

...VEHICLES & TRIPS
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<th>FEWER</th>
<th>FULLER</th>
<th>MORE EFFICIENT</th>
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<tr>
<td>One driver on Uber’s network can serve as many as 10 or more riders per day</td>
<td>2 strangers in 1 car is how we began…</td>
<td>A driver on Uber’s network knows every dollar saved on fuel is a dollar in their pocket</td>
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<td>…3 or more is POOL &amp; other innovations</td>
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<td>FEWER</td>
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<td>Rider-driver GPS matching</td>
<td>POOL</td>
<td>Smart routing</td>
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<td>“Forward dispatch”</td>
<td>UberXL</td>
<td>Aggressive driving notifications</td>
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<td>Trip swap technology</td>
<td>Split-fare</td>
<td>Vehicle-to-trip right-sizing</td>
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<td>Pre- &amp; rematch technology</td>
<td>Multi-destination trips</td>
<td>Driver vehicle solutions support</td>
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<td>EV &amp; hybrid focused initiatives</td>
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Ridesharing helps EV adoption, EVs help ridesharing expansion

Electric vehicles <1% global new car sales after decades of government spending … today, a hundred EVs on Uber’s network can serve 100,000’s of riders

In 2017, on Uber’s network in the US & Europe: thousands of EV drivers delivered millions of rides
Uber can help drive equitable access to EVs for both riders and drivers

For Drivers

○ Cost of new vehicle can be covered, in part, by ability to drive for Uber and earn extra income.
○ Partnership with Forth provides free financing advice including qualifying for federal and state tax rebates.
○ EV Ambassador program provides extra monthly stipend to drivers for carrying EV informational materials.

For Riders

○ More EVs on Uber increases access to a clean, affordable ride.
○ First/last mile to public transit. Reliable rides home in the evening.

Uber has grown about 3x faster in historically underserved areas of Portland.

● Outer East and North Portland - Approx 323%
● Rest of Portland - Approx 122%
Portland EV Program: How it works

- **EV Ambassadors:**
  - Forth Mobility trains drivers to effectively engage riders in EV-related conversations.
  - EV Ambassadors carry educational content on EVs for distribution to riders in their cars. Materials and app refer interested riders to the Forth Mobility EV showroom.
  - Drivers participating in the EV Ambassadors initiative may be eligible for $30 / month charging credit.

- **Assist PGE with the installation of new fast charging stations.** - #1 priority for drivers.

- **In app driver and rider referrals** to Forth Mobility for special purchasing or long term lease deals.
Automated mobility promises dramatic efficiency gains in the future ... so we’re real-world testing today

Automated UberX: Pittsburgh & Phoenix
- Over 1M miles
- Over 30,000 riders

Automated heavy duty trucks & light-duty cars testing on CA roads
New solutions are emerging to drive a more sustainable future of mobility

New mobility solution themes

**BEHAVIORAL SHIFT**
...away from solo, private car trips to shared journeys

**VEHICLE GREENING**
...via turnover to cleaner fuels and higher efficiency technologies

**COMPLEMENTARITY**
...with public transit and multi-modal mobility on more sustainable modes

**INFRASTRUCTURE TRANSFORMATION**
...to more human-centric designs as demand from private cars shrinks
Transit Partnerships

We have learnings from partnerships across the country and now know what works for improving first mile / last mile logistics

SAN FRANCISCO, CA: CALTRAIN
Partnership promoting uberPOOL to/from Caltrain during Super Bowl 50

LOS ANGELES, CA: METRO
Exclusive partnership promoting uberPOOL to/from new stations

SAN DIEGO, CA: MTS
$5 off all uberPOOL trips to/from stations

MINNEAPOLIS, MN: METRO TRANSIT
City-sponsored free rides when needed most

BOSTON, MA: MBTA PARATRANSIT
$13 subsidy from the MBTA for eligible paratransit riders

ATLANTA, GA: MARTA
Free first rides to/from MARTA stations

DALLAS, TX: DART
API integration with the DART app - call a ride after buying a ticket

TAMPA BAY, FL: PINELLAS SUNCOAST TRANSIT
$3 subsidies for Uber rides during outages, discounts all trips for low-income riders.

CENTRAL FL: CITY PLANNING
5 Cities subsidizing 20%-25% off of rides.
• TriMet is the first transit agency in the nation to be given real time access to Uber’s API.

• Open Trip Planner will allow multi-modal trip planning. Beta in 2018.

• Riders will be able to see estimated wait times, trip costs, and ride times to and from TriMet stations across Portland.
Thank you
Jon Isaacs

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An AV for Everyone: Private public partnerships

ReachNow
Tim Navarrette
Community Manager
03/06/2018
What is car sharing?
Short term car rental

Car Sharing is short term car rental – instead of renting cars by the day Car Share vehicles can be rented by the hour or minute. There are two types of Car Sharing:

**STATION BASED**
- Cars are located in designated spots for round trip rentals

**FREE FLOATING**
- Cars “float” around the city parked on public streets
Who is ReachNow?
Mobility services by BMW

- Started as a pilot in the CA Bay Area in 2011
- Moved HQ to Seattle to launch first city April 2016
- Portland August 2016 and Brooklyn 2016
- Free floating car share
- ReachNow Ride Seattle Pilot Launch [ride share]

Our mission is to empower members to move seamlessly through their world and experience the people and places that matter most to them.
Free floating car share
Contiguous areas and public partnership
An urban solution for a suburban problem
Portland’s west side

- ReachNow’s first non-contiguous islands of service
- Private partnerships with large employers and property management companies
- Public partnerships with the City of Hillsboro
- Initial success with continued improvement
How do we expand our business into new communities? Population, partnerships, presence, pilots

POPULATION

• Is there a viable membership base?
• What is the public/active transit infrastructure?
• Will usage warrant expansion?

PARTNERSHIPS

• HOAs/Neighborhood organizations?
• Can we operate in parking right of way?
• Time restricted/paid parking?
• Private partnerships to be had?
How do we expand our business into new communities? Population, partnerships, presence, pilots

**PRESENCE**

- Where is the best place for vehicles/parking?
- Where can we be to physically promote?
  - Transportation/benefit/sustainability fairs
  - How can we keep cadence?

**PILOTS**

- ...not necessarily permanence
  - ...unless permanence!
- Can we test all of this and iterate for success?
What is the underlying thread?

Education

---

**POPULATION**
- Residents
- Employees
- Business Owners
- Neighbors

**PARTNERS**
- Municipalities
- HOA/Neighborhood Associations
- Transportation Coordinators
- HR Departments
- Security Personnel
- Local Law Enforcement
- Local Parking Enforcement

**PRESENCE**
- Where
- Frequency
- Execution

**PILOTS**
- What is the goal of partnering?
- What can we test?
- What is success?
- How can we iterate?
Thank you.
Who we are:

Nonprofit (501c6 & 501c3)

Mission: Forth is transforming the way we get around. Through innovation, demonstration projects, advocacy and engagement, we are advancing electric, smart, and shared transportation in the Pacific Northwest and beyond.

Funded by grants, member companies, and Roadmap—our annual conference

Membership 130+ companies, utilities, local governments, other stakeholders
New mobility options are not (yet) reaching diverse communities

• 87% of carshare users were white
• 80% of DC bikeshare users were white
• Both carsharing and bikesharing used more by higher income people
• Use of TNCs higher among younger and more education
• 8% of households are unbanked
Many new and used electric options
“For low-income households—roughly the poorest 25 percent of households—only housing and food expenditures constitute larger budget shares than transportation expenditures.”

Let’s avoid “privileged mobility”
Community Electric Vehicle Project

Hacienda CDC in NE Portland

- 85% of Cully students qualify for free or reduced lunch
- Poor transit access
- Outside of most car share territories
- Redlined by Getaround
- 325 units of community-centered affordable rental housing
Community Electric Vehicle Project
Community E-Bike Project

Community Cycling Center
in NE Portland

• Measure 88 denies Oregon undocumented immigrants drivers licenses
• Portland has the highest bike commute in the U.S. (for large city)
• Biketown bike doesn’t extend to areas of need
• E-bikes are a healthy
Community E-Bike Project

“Commuting on our ebike saves our family time and money, allows me to spend quality time outside with my kids and generally makes me a happier person.”

Ingrid Fish, SE Portland

www.forthmobility.org/ebikes
Questions?

Zach Henkin
zachh@forthmobility.org
www.forthmobility.org
Twitter: @zachenkin
Ingrid Fish
City of Portland
Bureau of Planning & Sustainability
TRANSPORTATION HEIRARCHY

Sources: City of Portland Climate Action Plan, Comprehensive Plan, and Transportation Systems Plan.
SHARE MOBILITY BENEFITS

• Increase transportation options for POC & LIC
• Decrease Transportation Costs
• Employment opportunities
WHAT CAN CITIES DO TO MITIGATE POC & LIC BARRIERS TO SHARED MOBILITY?

- Technical Assistance
- Dedicating Space
- Planning
- Research
- Incentives
- Programs
- Pilot Projects
- Mandatory Requirements
- Fees

Photo by Tom Natt, from Flickr creative commons
TECHNICAL ASSISTANCE
DEDICATING SPACE
PILOT PROJECTS

Photo by Marco Verch, from Flickr creative commons
MANDATORY REQUIREMENTS
FEES/PRICING
Questions?
Your table group will be assigned a community in the Portland region. Think about the needs of this community and discuss:

• What shared mobility services could help meet needs?
• What barriers are people likely to face to using shared mobility? What solutions might help?
• What role could public agencies, shared mobility companies, and community groups play?

Please designate someone to take notes and report back.
Closing discussion