

# Shared AVs

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SHARED-USE  
MOBILITY CENTER

# SHARED USE MOBILITY CENTER

*Making it possible to live well  
without having to own your own car,  
by creating a multimodal transportation  
system that works for all*

# AGENDA

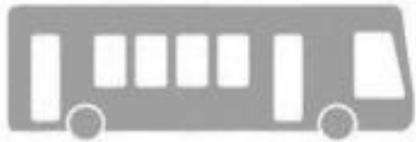
- What are the goals for AVs?
- Evolving from Ownership to Usership
- Shared vehicles
- Shared rides
- Incentives for shared use
- Research needs

# WHAT ARE THE GOALS FOR AVs?

- Increasing safety
- Reducing congestion
- Enhancing accessibility
- Increasing environmental and energy sustainability, and
- Encouraging economic development and equity

Can these goals be achieved without shared vehicles?

# WHY IS SHARED MOBILITY IMPORTANT?



- **Jumpstarts** transition to a less auto-dependent future
- **Fills gaps** in transit, particularly on weekends and late-night service
- **Adds more options** to improve multimodal ecosystem
- **Provides first/last mile connections** between transit stations and residential areas
- **Can be implemented quickly** with few infrastructural costs
- **Encourages sustainable, healthy,** and walkable communities.

# EVOLVING FROM OWNERSHIP TO USE

- Bikeshare, scootershare, TNCs all growing
- Decline in driver's licenses
- Parking requirements under zoning codes are being reduced
- Cities are growing in most places, with increasing density and use of transit where it works well. Congestion makes cars less attractive.



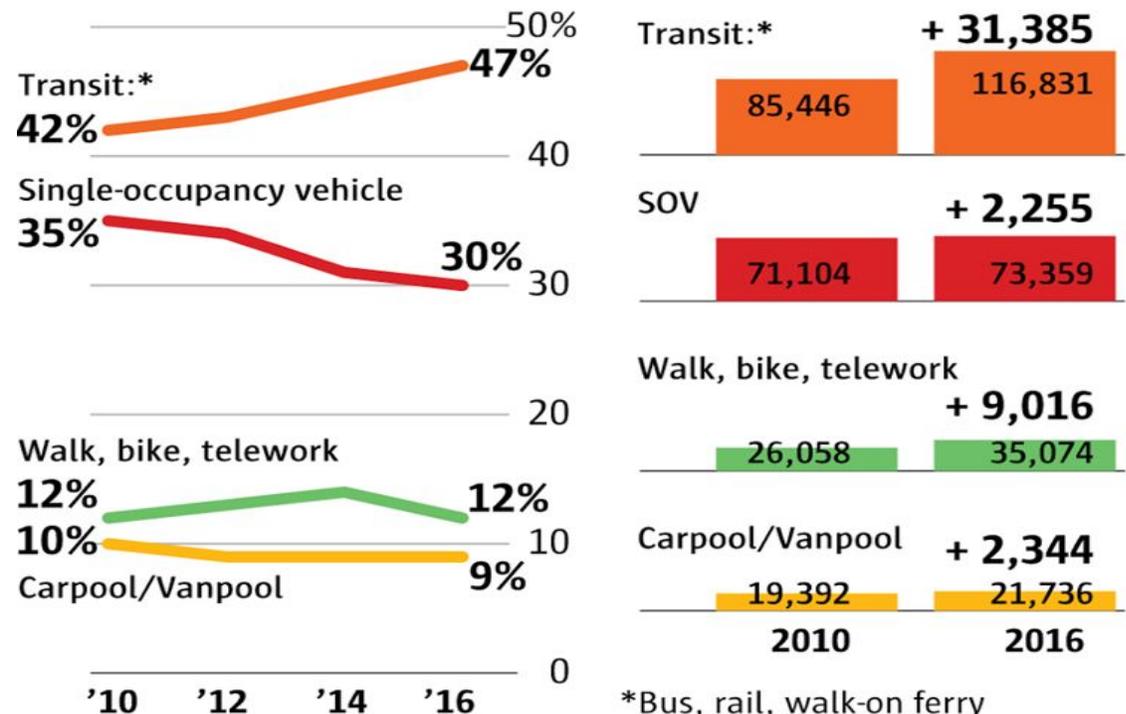
# EXAMPLE: SEATTLE MODE SHIFT

**Seattle: Downtown working population grew by 45,000 2010-16, but only added 2,255 daily SOV trips**

- Subsidized transit passes in all new buildings
- 3000 free floating carshare cars
- Unbundled parking
- Preferences for shared vehicles

## Shifting the commute

Transit use has increased to 47 percent of central-city commuters, while solo driving has dipped to 30 percent.



Source: Commute Seattle

\*Bus, rail, walk-on ferry  
 MARK NOWLIN / THE SEATTLE TIMES

# SHARED VEHICLES

- AVs are likely to be part of fleets because
  - Easier to update software
  - Higher asset cost is easier for fleets to cover
  - Electric, and fleets can more easily arrange charging

# SHARED RIDES

- Public transit is about planning, optimizing traffic and equitable coverage rather than an individual trip
- Geometry problem. If vehicles are not shared, the idea of Single Person AVs dropping off passengers at a building like the Sears Tower is not possible: 7 hours to disembark all office inhabitants
- Bundling of transport choices. MaaS is the direction that both public and private agencies are headed toward. MaaS is based on the concept that people need choices for their mobility, and that it should be seamless to “look, book, and pay.”

# SHARED RIDES

- AV buses may be introduced early
  - Defined fixed routes to cover
  - Will allow for more frequent service
- Shuttle services are being piloted in multiple U.S. cities:  
San Ramon, CA; Ann Arbor, MI; Santa Clara, CA; Pittsburgh, PA; Phoenix, AZ; San Francisco, CA; Las Vegas, NV; Miami Dade County, FL; Boston, MA; Babcock Ranch, FL
  - Future: Dynamic routing to get to transit that is faster, easier, cheaper

# INNOVATIVE SERVICES FOR SENIORS & KIDS

- **GoGoGrandparent:** concierge booking and accessible interface for seniors for Uber
- **LiftHero:** Ridesourcing and ridesplitting service for seniors in San Francisco
- **SilverRide:** Ridesourcing and ride-splitting for seniors in San Francisco
- **HopSkipDrive:** Safe ridesourcing for kids (Los Angeles, Orange County, and San Francisco)
- **Liberty Mobility:** Rural rideshare primarily used by seniors (5 states)



# CONCERNS WITH SHARED USE

- Technology is not working ideally now. Algorithms are not working as well as they could, but they learn! Expect it to be better in the future.
- Pricing has not been figured out, as indicated by the losses of Uber and Lyft.
- Curb use is being re-thought: Who gets what and when? Where do we have deliveries? Where do scooters go? Where can Via have virtual bus stops?
- Streets themselves can be re-envisioned to encourage shared use, with priority lanes for buses, shuttles, pooled rides.

# CREATE INCENTIVES FOR SHARED USE

- Optimize use of scarce space in dense urban areas
- Why? Equitable provision of mobility is a public interest required by government, by law, regulation, or procurement requirements
  - **In Chicago, from November 2018 through March 2019, 27% of rideshare requests were for pooled rides. 70% were delivered as pooled. 39% of requests from low-income areas were for pooled rides.**
- User fees based on use of asset will lead toward shared use. A large SOV with one person should cost more to use city streets than a large vehicle with multiple persons. On a per capita basis, it uses more resources: space, pavement wear and tear.

# CHALLENGES IN A FAST-EVOLVING SECTOR

- Companies come and go (and merge)
- Data sharing
- Integrating modes requires agreements across jurisdictions, agencies, and departments—and involve many stakeholders

# CITIES: BE PROACTIVE AND SET GOALS

- **MAKE MOBILITY THE GOAL** and change performance metrics
- **INCENTIVIZE** scale & equity
- **BREAK DOWN SILOS**
- **SET RULES & REQUIRE DATA SHARING** and address accessibility
- **PILOT** innovative projects **AND SCALE FOR SUCCESS**
- **DEVELOP PARTNERSHIPS** and new business models
- **CREATE FLEXIBLE POLICIES** that can adapt to the changing environment

# RESEARCH NEEDS

- Facilitate active/livable communities
- Understand impacts on the built environment
- What's in it for rural areas?

## CLIMATE CHANGE IMPACTS

From TRB Forum on Preparing for AVs and Shared Mobility

A white and black autonomous shuttle bus is parked on a paved area. The bus has a large black window and a white body. On the roof, there is a sign that says "IBM Watson IoT". The side of the bus has the word "elli" written on it. The bus is open, showing the interior seats and a steering wheel. The background shows a building with a yellow and red facade and some trees.

Thank you.

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**UNUSUAL?**

