Preparing for Autonomous Vehicles Now

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Why should local communities act now?
Experts disagree on whether electric autonomous cars will represent 95% of miles driven by 2025, or less than 1%.
Why should we act now?

- We (planners, policymakers) might not have that much more time
- We’ve been through this before, and recently
- We know that policy undergirds technological change
- We, not the manufacturers and operators, should set the future of our communities
The Oak Street area (below), a dense neighborhood, separated
the Downtown Business District from the Yale-New
Haven Medical Center. The Wooster Square area
(above) housed most of the city’s Italian community.

The Connector replacing Oak Street (above), connects
a portion of high-income apartments and government
buildings across the street from Room 111. It cuts through Wooster
Square (below), and industry spreads into the neighborhood.
Okay, we should act. What should we do?
Start with Values
Starting with Values

- Values help us disentangle the **different** coming transportation technology changes.
- Jurisdictions in this area have a strong interest in the “**Three Revolutions**”:
  - Automation
  - Electrification
  - Sharing
- But those revolutions are supplemented by larger goals around:
  - **Safety**
  - **Land Use**
Three Revolutions in Urban Transportation

**Business-as-Usual Scenario**
**20th Century Technology**
Through 2050, we continue to use vehicles with internal combustion engines at an increased rate, and use transit and shared vehicles at the current rate, as population and income grow over time.

**2 Revolutions (2R) Scenario**
**Electrification + Automation**
We embrace more technology. Electric vehicles become common by 2030, and automated electric vehicles become dominant by 2040. However, we continue our current embrace of single-occupancy vehicles, with even more car travel than in the BAU.

**3 Revolutions (3R) Scenario**
**Electrification + Automation + Sharing**
We take the embrace of technology in the 2R scenario and then maximize the use of shared vehicle trips. By 2030, there is widespread ride sharing, increased transit performance—with on-demand availability—and strengthened infrastructure for walking and cycling, allowing maximum energy efficiency.

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**Number of Vehicles on the Road by 2050**
- **2.1 billion**
- **2.1 billion**
- **0.5 billion**

**CO2 Emissions by 2050**
- **4,600 megatonnes**
- **1,700 megatonnes**
- **700 megatonnes**

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What to do now

1. Organize around Values

2. Scenario Test
   i. Long-term baked in risks
   ii. Long Range Planning, beginning at the regional level
   iii. Bring in the money people early in the process
VEHICLES
RANGE OF RESULTS

PRIVATE AV OWNERSHIP
50% SHARED AVs

Source: Fehr & Peers
What to do now

1. Organize around Values

2. Scenario Test

3. Plan for electrification
   i. Take advantage of ongoing efforts of Electrify America and public service commissions to **promote EV charging infrastructure**
   ii. Take a **transportation planning approach**
   iii. Green the fleet!
   iv. Strengthen **charging station requirements** for private development
   v. **Push the limits** on state-level action

- Electricity: 29%
- Transportation: 27%
- Industry: 21%
- Commercial & Residential: 12%
- Agriculture: 9%
What to do now

1. Organize around Values
2. Scenario Test
3. Plan for electrification
4. Make hard choices about sharing
   i. Invest in **competitive** transit
   ii. Implement the suite of transportation demand management practices that **nudge drivers** in the right direction (real pricing, tolling, and parking policies)
   iii. Manage the **curb** better (shared use mobility zones)
Two Rules:
1. Physics + Geometry
2. Frequency + Reliability
What to do now

1. Organize around Values
2. Scenario Test
3. Plan for electrification
4. Make hard choices about sharing
5. Build a safe system – don’t rely on the companies
   i. Continued commitment to **Vision Zero** to reduce risk to all
   ii. **State-level legislation** to mandate safe practices for CAVs
   iii. Closed and simple system **testing** to safely grow technology and build public support
What to do now

1. Organize around Values
2. Scenario Test
3. Plan for electrification
4. Make hard choices about sharing
5. Build a safe system
6. Adaptability and incentives in land use
   i. Seek out opportunities for adaptable parking and shared parking
   ii. With more efficient use of roadway, don’t hesitate to continue to emphasize economic and people uses of our space
   iii. Mitigate sprawl risk by applying appropriate price pressures on far-flung land uses
Wait, isn’t this what we are doing already?
Keep doing what we’re doing?

- If these approaches represent our values and goals for our transportation system, **why not continue to pursue them?**
- **Bend** this new technology to our needs
- While this might be what we *want* to be doing, are we **moving fast enough** to get ahead of the oncoming technology?
- Are we moving fast enough to address the **substantial challenges** (particularly environmental) of the future?
- **Build the support** to strengthen and deepen commitment to these values through policy