Autonomous Transportation and the Impact on Planning and Design of our Communities

- Largest shift to land use since the advent of the automobile and freeway system
- 71 million Av’s on the road in 2030 — ULI May, 2017
- CDOT by 2025 1.2 million connected vehicles
Do You Feel No One is at the Wheel?

How do we Start Planning for this Change?
What is Your Vision for an AV Future?
The Idea has Been Around for a Long Time
Credit: General Motors
Vision for the Future

Brought to You by
Ford Motor Company

ADVANCED, HIGH-SPEED MASS TRANSIT

SIGNIFICANT POPULATION OF FULLY AUTONOMOUS VEHICLES

IMPROVED WALKABILITY
We Have Seen this Before

- Urban Design of the 60s–80s
- Downtown LA Bonaventure Hotel
Lyft’s Answer to Last-mile Service for Transit
Alternative Transportation can Influence our Public Spaces in a Short Period of Time
How Do We Start Addressing This Change?

- Reduction in driving
  - Year 2000 – 76% of teenagers obtained their driver’s license
  - Year 2017 – 70% of teenagers obtained their driver’s license

- Automobile ownership will peak in 2020

- 74% of Americans believe AVs are not safe – Global Automotive Consumer Survey

- 70% of Americans want to test a self-driving vehicle – Consumer Technology

- 95% of the 500 largest American cities do not have AV policies adopted – APA PAS Report 592

- 3% of US Comprehensive Plans address AVs – APA PAS Report 592
Shift Towards People Focused Design

Changes to Design of our Communities

- **Parking**
  - Parking lots cover 30% of the land area of US cities – infill opportunities
  - Conversion of parking garages

- **ROW/Public Realm**
  - Curb drop off becomes more important
  - Narrowing of travel lanes
  - Reclaimed public space
Parking Garages
World Trade Center Denver – 38th and Blake St.

- 700 Parking stalls planned
- Garages being designed to be converted to residential/office as future demand warrants
Denizen Apartment Community – Alameda Station

- Current ride sharing and light rail usage is influencing garage conversion
Repurposing the ROW/Public Realm

- Reducing travel lanes
- Opportunities for
  - Transit
  - Pedestrian access
- Active Uses
- Environmental

[Image of a repurposed public space with people walking, cycling, and using transit]
Downtown Street Concept – Blueprint for Autonomous Vehicles NACTO
Flexible Curbside Uses
– Blueprint for Autonomous Vehicles NACTO
Policy Changes

- Zoning Ordinance Chandler, Arizona
- Number of parking spaces required may be reduced by 10% for each passenger loading zone space provided in accordance with the following table up to a maximum of 40%:

<table>
<thead>
<tr>
<th></th>
<th>Loading Zone Requirements</th>
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<tbody>
<tr>
<td>Commercial</td>
<td>1 loading zone space per 50,000 sq. ft.</td>
</tr>
<tr>
<td>General Office</td>
<td>1 loading zone space per 100,000 sq. ft.</td>
</tr>
<tr>
<td>Industrial</td>
<td>1 loading zone space per 200,000 sq. ft.</td>
</tr>
<tr>
<td>Institutional and Medical</td>
<td>1 loading zone space per 50,000 sq. ft.</td>
</tr>
<tr>
<td>Multiple Family</td>
<td>1 loading zone space per 150 units</td>
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Just Don’t Sit Back and Enjoy the Ride

Plan for what Will Work for Your Community
AVs: Policy, What can your community be doing now?

Chris Breiland, PE
POLICY TO THE RESCUE!

AVs will usher in change good and bad

Long-range infrastructure implications

Policy Objectives:

Enhance AV benefits

Manage problems stemming from overuse
STATE POLICIES

Generally clarifying how to register and operate AVs

Not focused on planning implications
WE HAVE BEEN TO THIS RODEO BEFORE…

Too much VMT

Traffic congestion/transit delays

High energy use/GHG emissions

Unequal access to mobility benefits

Safety issues between AVs and other modes
BUT THERE ARE SOME NEW ENTRANTS TOO!

Zero occupant vehicles

Super-ultra-mega commutes/uberurban communities
ENHANCING THE BENEFITS

- Less parking
- Greater mobility
- Safety
- Higher densities
- More energy efficient
NEW POLICIES AND STRATEGIES

Portland

Goals.

- Discourage congestion (times of day and locations)
- Encourage high-occupancy trips
- Encourage energy efficiency (vehicles/use)
- Discourage trips that replicate transit
- Promote equitable access
- Pay for connected vehicle infrastructure*

Management Options.

1. Zero-passenger charge + FIFO holding areas in congestion fee zones
   - Nominal initial fee; recalibrate after trial period
2. Single passenger pickup charge within congestion fee zones
   - 50-100% surcharge
3. Shared-ride pickup only within restricted zones
   - Zones are simple and clearly identified
NEW POLICIES AND STRATEGIES

Chandler, AZ:
- Reduced minimum parking requirements
- Increases loading zone requirements

Utah Department of Transportation
- First large-scale deployment of CV infrastructure
  - Primarily focused on Vision Zero
  - Secondary benefits to transit
NEW POLICIES AND STRATEGIES

Metropolitan Transportation Commission (Bay Area), CA:
• Identified an Issues Paper, suggested policies:
  • Urban growth boundaries
  • Repurposing parking for affordable housing
  • Focus on high-capacity and demand responsive transit
  • Dynamic pricing in CBDs and major highways

Louisville, KY
• Goals articulated around:
  • AV fleet storage
  • Parking minimum updates
  • Require parking to be retrofitted
CLOSING THOUGHTS

- Many cities/counties now beginning to articulate desired outcomes from AV adoption
  - Issues/strategies
- Parking policies are the first being changed
- Beginning to see large-scale CAV deployment
- “Open for Business” policies
- Not many policies on managing excessive use
- Land use policies are just now being discussed
Now, what do you think about autonomous vehicles?