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Planning for Future Mobility In a Performance-Based World

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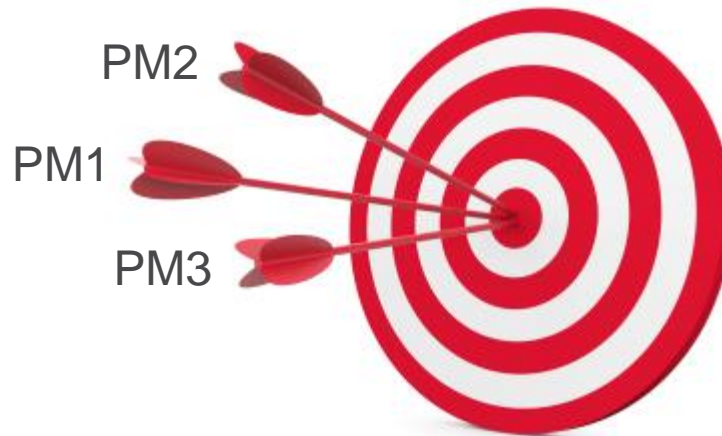
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MPOs at the Intersection



Performance-Based Planning

- New planning paradigm introduced in MAP-21
- MPOs and State DOTs must:
 - Consider the outcomes of investment choices
 - Adopt the perspective of system users
 - Set performance targets



Target Setting is Short Term

| FHWA and FTA Performance Target Years | | |
|---|---|--------------------|
| Performance Measure | Target Submission by State | Target Duration |
| Highway Safety (5 measures) | FHWA Highway Safety Improvement Program annual report | One year |
| Transit Safety (4 measures) | FTA National Transit Database annual submission | One year |
| Highway Infrastructure (4 measures) | FHWA biennial performance report | 2 year and 4 years |
| Transit State of Good Repair (4 measures) | FTA National Transit Database annual submission | One year |
| Highway System Performance (6 measures) | FHWA biennial performance report | 2 year and 4 years |



Consider the Planning Horizon

- The MTP and LRSTP must have a 20 year horizon at a minimum
- Goals, objectives, and priorities are established in these plans



It is difficult to reflect short-term performance target achievement in plan priorities

THINK ABOUT IT



How will the evolving mobility of people and goods impact system performance and target setting and achievement?

Future Mobility Definitions

VEHICLE MODES

- Connected Vehicles (CV)
- Autonomous Vehicles (AV)

AUTONOMOUS VEHICLE OWNERSHIP

- Personal privately owned vehicles (PAV)
- Shared ownership vehicles (SAV) for personal transport and goods movement

OTHER SERVICES

- Ridehailing
- Microtransit
- Shared Active Transportation



Future Mobility Definitions

MOBILITY as a SERVICE (MaaS)

MOBILITY on DEMAND

Purchasing individual trips to meet personal travel needs



Transit/
Microtransit



TNC



Carshare



Bikeshare

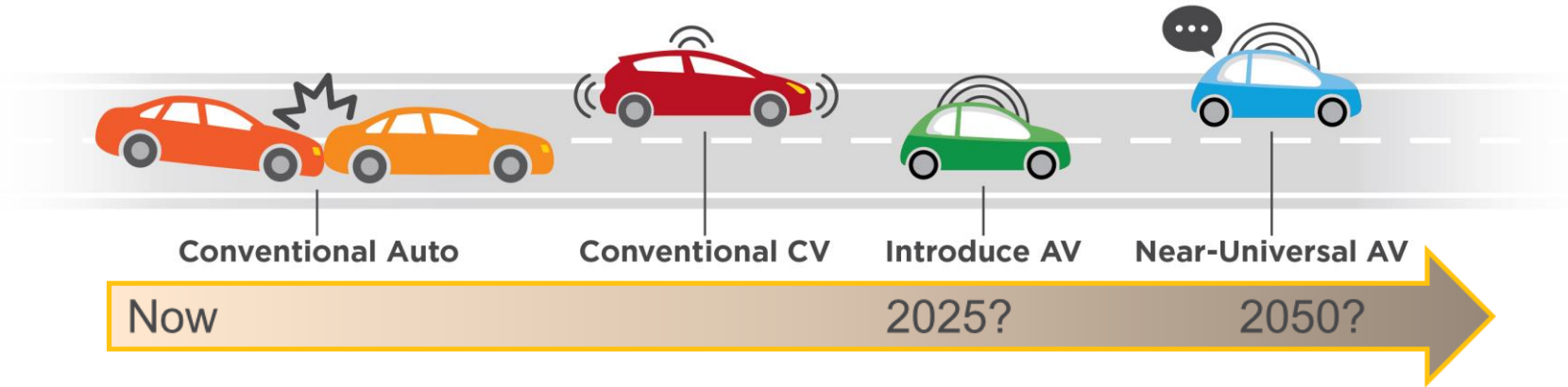


Scooter



Planning Impacts of Future Mobility

Overarching Issue: Adoption Timeline



- Challenge: Decades of mixed traffic operation
- Challenge: When to invest in enabling or responsive infrastructure

Overarching Issue: AV Ownership

- Personally owned AVs and Shared AVs have very different impacts
- Will this be left to the marketplace, or is there an incentive to regulate?
- Initial deployment most likely to be shared fleets

“Waymo buys up to 62,000 Chrysler minivans to expand self-driving fleet”
Automotive News, May 31, 2018

“Initially, self-driving vehicles will work best in a different business model: one where vehicles are accessed and shared versus owned and driven. They will operate as part of a mobility service accessed through a smartphone app for either moving people or delivering goods.”

A Matter of Trust: Ford’s Approach to Developing Self-Driving Vehicles



Overarching Issue: Policy/Regulatory Approach

- Private sector mobility providers are getting in front of local and state governments
- Broad range of policy incentives and disincentives can be considered
- Example: NACTO “Guidelines for the Regulation and Management of Shared Active Transportation”



Impact on VMT: Autonomous Vehicles

Factors that may...



Increase VMT

- Access by non-drivers (young, old, disabled)
- PAV ownership model
- Zero-occupant vehicle trips
- Land use decisions that increase trip length
- Lower cost per mile
- Reduced use of traditional transit services

Decrease VMT



- SAV ownership model
- Redefining transit to include more shared-mobility options
- Mode shift to shared active transportation options
- Continued growth of e-commerce and micromanufacturing



Impact on Safety: CV and AV

Research suggests:

- CV may result in a **50%** crash reduction
- AV may result in a **90%** crash reduction



Source: USDOT ITS JPO

Caveat: Assumes high percentage of fleet penetration

Impact on Mode Share

Rather than focusing on the potential loss of ridership in traditional service models, [researchers] propose reexamining the role that transit can play in providing mobility in a more automated world.

Transit operators become providers of shared mobility:

- Traditional rail and bus services
- Microtransit replaces inefficient routes, provides first/last mile connections
- App-based paratransit
- Ownership of shared AV fleets



Impact on Equity

“The innovative mobility options...have the potential to increase the accessibility of transportation for many Americans, including these disadvantaged populations. But they may also leave people who are already transportation-disadvantaged further behind, either because they will not be able to take advantage of these new services (**making them relatively worse off**) or because the rise of these new services could reduce some existing services (**making them absolutely worse off**).”

National Research Council's Committee for Review of Innovative Urban Mobility Services. 2016. "Special Report 319: Between Public and Private Mobility: Examining the Rise of Technology-Enabled Transportation Services,"



Impact on Land Use

- What is the effect on residential location choice?
- What is the effect on employment-based site location choice?
- What are the impacts on parking demand and location in the urban core and in suburban locations?



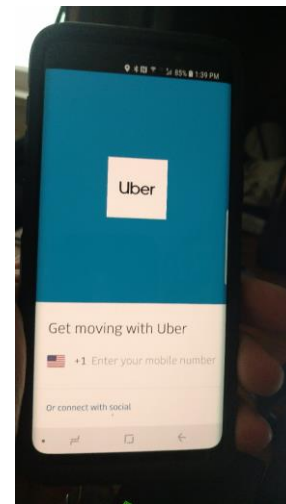


Future Mobility and System Performance

Consider the Potential Impacts

Current considerations:

- Shared Active Transportation ~ Safety target for non-motorized transport



- Ridehailing/TNC use ~ VMT, Peak hour excessive delay (PHED) target, transit state of good repair targets

Consider the Potential Impacts

Near term considerations

- Connected conventional vehicles ~ All safety targets
- Roll out of Shared AV in large cities ~ Peak hour excessive delay, transit utilization



Consider the Potential Impacts

Long-term considerations:

- Connected Autonomous vehicles
 - All safety targets
 - Travel time reliability (person and freight) targets
 - Peak hour excessive delay
 - Non-SOV travel



THINK ABOUT IT



Consider the value of a new planning approach: the **Future Mobility Plan**. A shorter term plan that focuses on current and near term state of practice in personal and freight mobility and identifies strategic investments, actions, programs, and policies to support performance targets and MPO goals.

Thank You!

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