Mobility-on-Demand (MOD) Overview

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Presentation Overview

- Trends driving MOD
- What is Mobility on Demand?
- How does MOD differ from MaaS?
- FTA MOD Sandbox
- MOD resources
Trends: What’s Driving MOD?

**Societal Trends**
- Over the next 30 years, the U.S. population is expected to grow by 70 million
- By 2045, the number of Americans over the age of 65 will increase by 77%
- 20% of population with disabilities
- Urbanization

**Technological Trends**
- Transportation is increasingly relying on data
- Prevalence of mobile devices
- Automated transportation offers new possibilities
- Integration of services

**Mobility Trends**
- On average, Americans spend over 40 hours stuck in traffic each year, costing $160 billion
- There is growing popularity of shared mobility services
- Focus on TDM
- Dynamic management

(Sheehan, 2018)
Innovative partnerships and new technologies are changing how we travel

- State and local DOTs are looking at shared mobility and volunteer drivers to address service gaps
- Integrated multimodal traveler information apps
- Carpooling and ridesharing start-ups enabling high-occupancy commuting
- Auto manufacturers rebranding as mobility companies, acquiring start-ups, and pursuing self-driving vehicles
- Mobility as a Service (MaaS) piloting in Europe (e.g., Finland, Sweden, Netherlands)
- Recognizing importance of mobility management not just traffic management

(Sheehan, 2018)
What is Mobility on Demand (MOD)?

Vision for an integrated and connected multi-modal network of safe, carefree, affordable, and reliable transportation options that are available to all

- User-focused options to improve personal mobility and access to more destinations
- Promotes choice in personal mobility & optimizes transportation system through electronic and wireless communications
- Advances connected vehicles & automation applications
- Uses emerging technologies & data exchange to enable personal mobility
- Encourages multimodal connectivity & system interoperability

(Sheehan, 2018)
User-Centric Mobility

- **Carsharing**: Provides members with access to a car for short-term use
- **Bikesharing**: Provides members with access to a bike for short-term use
- **Ridesharing**: Carpooling, vanpooling, and real-time ridesharing services
- **TNCs and Taxis**: Transportation Network Companies (TNCs) and Taxi Services
- **Car Rental**: Conventional Rental Car Services
- **Public Transportation**: Public Bus, Light Rail, Heavy Rail and other Public Transport Services
- **Integrated Payment**: Allows users to pay for services using a smartphone app
- **Incentives**: Rewards and incentivizes users for good travel choices
- **Smart Parking**: Allows users to reserve and pay for parking using a mobile app
- **Trip Planning & Navigation Services**: Includes public agency and private sector traffic data
- **Real-Time Travel & Operations Data**

(Sheehan, 2018)
MOD Enablers

Business Models & Partnerships
- Strategic Partnerships
- Financing
- Incentives
- Shared Use

Infrastructure
- Land Use
- Built Environment
- Transportation Infrastructure
- Dynamic transit service

Policies & Regulations
- Equity Considerations
- Safety Considerations
- Mobility Issues
- Standardization

Emerging Technologies
- Wireless Networks
- GPS/Sensors
- Big Data and Predictive Analytics
- Mobile Devices

(Shaheen et al. 2017; Sheehan 2018)
Who Benefits from MOD?

**Travelers**
- Access to more transportation options
- Builds a more efficient, effective, and customer-centered transportation network

**Public Transit Providers**
- Connects ALL regional transportation services and assets into a seamless public transit network
- Extends service quality and coverage

**Shared Transportation Providers**
- Connects travelers to provider services
- Provides an easy to use, common technology platform for mobility options

**Traffic and Mobility Managers**
- Streamlines information for transportation options
- Growing employment and transportation partnerships

(Sheehan, 2018)
MOD - Not Just A City Center

- **CITY CENTER**: High-density downtown/CBD employment centers and surrounding neighborhoods
- **SUBURBAN**: Predominantly lower-density residential users with some segregated mixed uses
- **EDGE CITY**: Medium-density employment centers outside of the urban core
- **EXURBAN**: Very low-density residential uses on the urban fringe
- **RURAL**: Typically unincorporated

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(Shaheen et al. 2017)
How Does MOD Differ From MaaS?

- **MAAS** emphasizes a digital platform integrating curb-to-curb trip planning, booking, electronic ticketing, and payment services across all modes of transportation (public and private).

- **MOD** focuses on commodification of transportation services.
  - A distinct concept based on principle that transportation is a commodity where modes have economic values that are distinguishable in terms of cost, journey time, wait time, number of connections, convenience, and other attributes.
  - Includes passenger travel and goods delivery.
  - A recognition that goods delivery and digital delivery could serve as a substitute for passenger travel.

(Shaheen et al. 2017)
FTA MOD Sandbox Program Overview

Demonstration Program to Explore MOD Models

- Explores innovative approaches
- Empowers project teams to implement innovative business models
- Informs the MOD program on how to support future deployments

(Sheehan, 2018)
FTA MOD Sandbox Awardees

11 Selected Projects: $7,931,080

(Sheehan, 2018)
## FTA MOD Demonstrations Overview

<table>
<thead>
<tr>
<th>PROJECT SPONSOR</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>Chicago Transit Authority (CTA)</td>
<td>Incorporate the local bike sharing company, Divvy, a 580-station bike share service, into CTA’s existing transit trip planning app ($400,000).</td>
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<td>Dallas Area Rapid Transit (DART)</td>
<td>Integrate ride-sharing services into its GoPass ticketing app to solve FMLM issues ($1,200,000).</td>
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<td>Los Angeles County Metropolitan Transportation Authority</td>
<td>Two-region mobility on demand partnership with the ridesourcing company, Via, in Los Angeles and Seattle to provide FMLM mile solutions ($1,350,000).</td>
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<td>City of Palo Alto</td>
<td>Proposed solutions seek to reduce Bay Area single occupancy vehicle (SOV) commute share from 75% to 50% through a Fair Value Commuting (FVC) solution ($1,080,000).</td>
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<td>Pierce County Public Transportation Benefit Area Corporation</td>
<td>Utilize Limited Access Connections project, an initiative connecting Pierce Transit local service and Sound Transit/Sounder regional service with local ride-share companies to increase regional transit use ($206,000).</td>
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<tr>
<td>Regional Transportation Authority (RTA) of Pima County</td>
<td>Adaptive Mobility with Reliability and Efficiency (AMORE) project, integrating fixed route, subscription based ride-sharing and social carpooling services into an existing data platform to provide affordable, convenient and flexible service ($670,000).</td>
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<td>Pinellas Suncoast Transit Authority (PSTA)</td>
<td>A set of partnerships with Lyft, United Taxi, CareRide, the Center for Urban Transportation Research (CUTR), and Goin’ Software to develop a model to provide more cost-effective on-demand door-to-door paratransit service ($500,000).</td>
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<td>San Francisco Bay Area Rapid Transit</td>
<td>Partnership between Scoop Technologies, Inc. (Scoop), the San Francisco Bay Area Rapid Transit (BART) District, and the Metropolitan Transportation Commission (MTC) to better integrate carpool access to public transit by matching passengers according to their destination, and by providing a way to reserve and pay for parking spaces at BART stations ($358,000).</td>
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<td>Tri-County Metropolitan Transportation District</td>
<td>In corporate shared use mobility (SUM) options into the Open Trip Planner (OTP) project, that will create a platform integrating transit and shared-use mobility options ($678,000).</td>
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<tr>
<td>Valley Metro Rail, Inc.</td>
<td>Smart phone mobility platform that integrates mobile ticketing and multimodal trip planning ($1,000,000).</td>
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<tr>
<td>Vermont Agency of Transportation</td>
<td>Statewide transit trip planner that will enable flex-route, hail-a-ride, and other non-fixed route services to be incorporated in mobility apps ($480,000).</td>
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USDOT MOD Resources

https://www fhwa dot gov/policy/otps/shared_use_mobility_equity_final.pdf

https://ops fhwa dot gov/publications/fhwahop16022/fhwahop16022.pdf


https://rosap ntl bts gov/view/dot/34258

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