NJTPA
NORTH JERSEY
TRANSPORTATION
PLANNING AUTHORITY

Mobility on Demand

Implementation Brief

June 2021

NJTPA
NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

CONTENTS

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

Mobility on Demand

This implementation brief provides general guidance for the NJTPA and partners to support Mobility on Demand (MOD) as a strategy for advancing transportation demand management (TDM) and mobility. This implementation brief was developed in coordination with NJTPA staff and the project Technical Advisory Committee (TAC). This brief was also informed by consultation with NJ TRANSIT and the New Jersey Department of Transportation (NJDOT).

Strategy Overview

Mobility on Demand (MOD) provides many opportunities for improving mobility in the NJTPA region, including providing accessible, reliable, and safe mobility service options to all travelers; addressing gaps in low income and rural areas; affecting a sustained increase in the use of sustainable modes; and providing a platform for filling the gap for the first and last mile, ridesharing programs, paratransit, and parking limitations, among others.

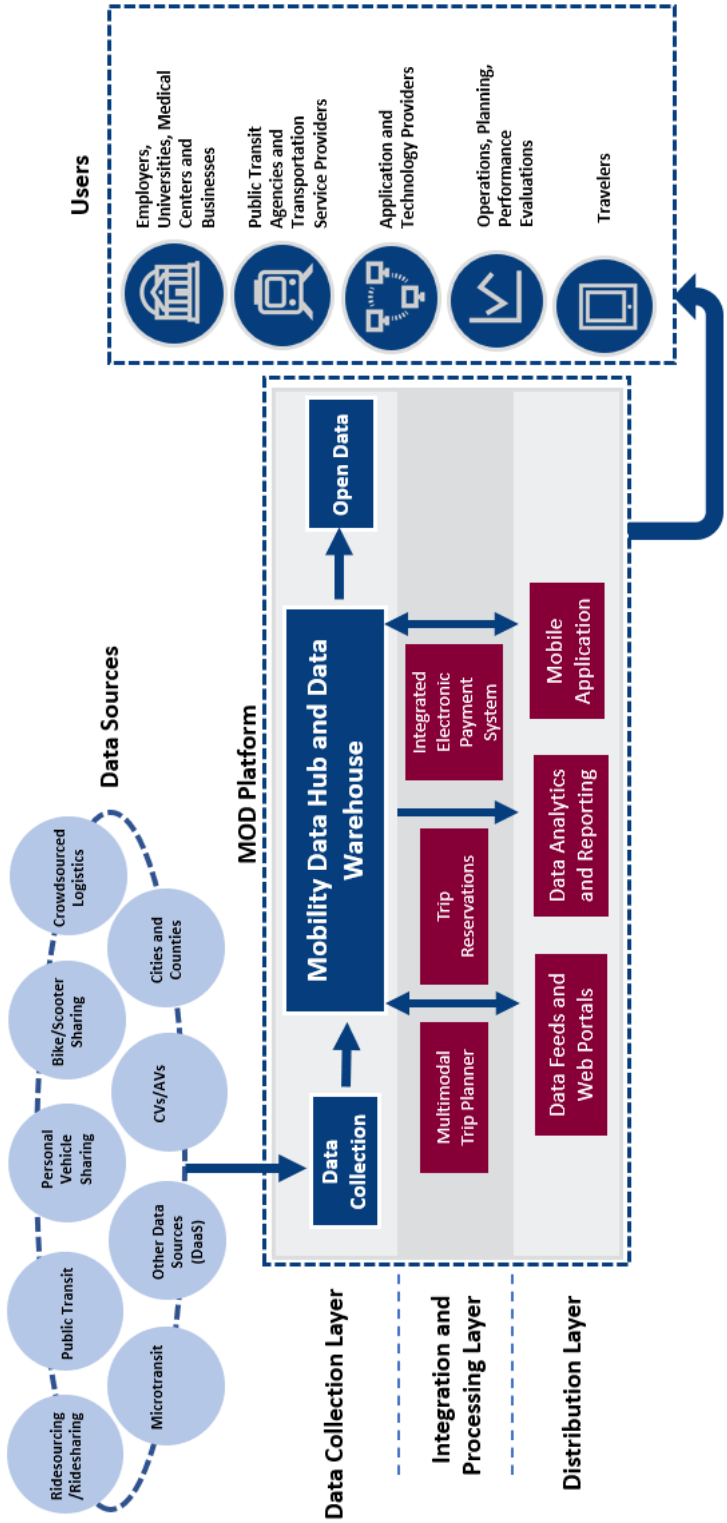
TAC members ranked this strategy second-highest in priority, citing NJ TRANSIT's initial work in this area. MOD integration makes sustainable transportation options and multi-modal trips easier to find, schedule and plan, pay for, and use, and it also enables direct payment or application of modal subsidies and discounts to clients of human services organizations.

What is Mobility on Demand?

The concept of MOD, achieved through a digital platform, allows for the integration of multimodal transportation services for consumers to plan, reserve, and purchase services that meet their current transportation needs. The vision of MOD is to create an ecosystem that merges the supply of mobility services provided by public agencies, private providers, and even individuals with the demand for improved personal mobility. The MOD ecosystem is comprised of data sources, the MOD platform, and the users. Through the MOD ecosystem's platform, the user can explore and book multimodal mobility options using all available mobility providers based on the user's choices. The MOD platform is comprised of: (1) a data collection layer responsible for ingesting data from transportation services, (2) an integration and processing layer (e.g., multimodal trip planner, integrated electronic payment system) and (3) a distribution layer through a web portal, mobile app and/or kiosk solution. The figure below depicts the MOD ecosystem and shows how the MOD platform processes data sources to deliver mobility services to users. A discussion of the MOD ecosystem follows.

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

Figure 1 - MOD Ecosystem



Modified from USDOT MOD Marketplace High-Level Architecture[1]

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

MOD consists of integrating available transportation services to provide safe, carefree, reliable, and equitable multimodal transportation options available to all. MOD is built on four guiding principles:

1. Traveler-centric: A traveler-centric system promotes choice in personal mobility and increases access to alternative modes and destinations.
2. Technology-enabled: By being technology-enabled, MOD can leverage emerging technologies and innovations to enable integration of mobility options. Using integration services and mobile applications allows for the integration of transportation and payment options based on travelers' choices.
3. Partnership-driven: Building public-private partnerships enables the provision of a seamless regional travel experience for users by accessing the best possibly mobility options based on trip selection, thereby bridging gaps in the traveler's trip chain.
4. Mode-agnostic: MOD is interoperable among various modes of transportation; it does not favor one mode over another. Mode-agnosticism encourages an integrated, multimodal approach based on local needs and goals.

Connections to Other Strategies

Implementing the MOD strategy would support the related TDM and mobility strategies of land use policies and transportation planning assistance, first/last mile solutions, and evaluating rideshare matching service options.

Land Use Policies and Transportation Planning Assistance: Land use, the built environment, and transportation infrastructure serve as infrastructure enablers for MOD in terms of traveler safety, ease of use, cost of trips, and other factors that affect mode choice.

First/Last Mile Solutions: A MOD platform would enhance connections between transit and first/last mile solutions (such as bikeshare) through integrated trip planning, booking, and/or fare payment across service providers.

Evaluate Rideshare Matching Service Options: There is an opportunity to integrate rideshare matching services into a regional Mobility on Demand approach, by considering and planning for technological solutions (e.g., application programming interfaces (APIs) or other types of data feeds that can offer rideshare matching information as part of a larger multi-modal approach). Facilitating a rideshare through a rideshare matching service may also be a solution for individuals facing gaps in transit service.

MOD Ecosystem

A core element of MOD is the provision of a dynamic supply of mobility services that relies on integrated and linked information systems and applications. The richer the supply side of the mobility services, the more choices available on the demand side. The MOD ecosystem comprised of stakeholders on the supply and demand sides, with evolving needs for improved mobility services. MOD stakeholders to consider include the suppliers, the

consumers, operators, and maintainers of these services and systems that will create a merged and balanced network of supply and demand actors.

Ultimately, the goal of partnering with stakeholders in an MOD ecosystem is to harness positive impacts (e.g., accessibility, reduced travel costs), improve network efficiency (by reducing single occupancy vehicle (SOV) travel), and shift travel behavior toward modes that help achieve air quality goals.

Table 1 below summarizes the potential MOD stakeholders that comprise an MOD ecosystem.

Table 2 - MOD Ecosystem

Stakeholder	Description	Examples
State and Local Authorities	State, regional and local government entities responsible for the transportation infrastructure, ensuring a fast, safe, efficient, accessible, and convenient transportation network. These entities play a key role in serving local communities by enhancing their mobility through reliable, predictable trips or enabling more efficient movement of goods and people.	• New Jersey Department of Transportation (NJDOT) • North Jersey Transportation Planning Authority (NJTPA) • Port Authority of New York and New Jersey (PANYNJ) • Jersey City • City of Newark
Public Transit Agencies	Public Transit Agencies: These include all the agencies that provide, operate and maintain public transportation. Services include buses, rail, ferries, paratransit, and microtransit.	• NJ TRANSIT • PANYNJ PATH • AMTRAK
Regulatory Entities	State agencies of New Jersey, responsible for licensing and regulating a broad range of occupations, businesses, facilities, and transportation services in New Jersey.	• New Jersey Department of Licensing and Regulation • New Jersey Motor Vehicle Commission
Transportation Service Providers (TSPs)	Private sector companies providing prearranged and on-demand transportation services for compensation, connecting passengers with drivers or vehicles. Smartphone mobile applications facilitate booking, and ratings (of the service, drivers, and passengers), with the option of electronic payment.	• Ridesourcing/Microtransit providers • Carsharing providers • Ridesharing providers • Bikesharing providers • Scooter Sharing providers
Application and Technology Providers	Deliver solutions and services to implement, operate, and maintain the TSP services.	• ARRO

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

Stakeholder	Description	Examples
		• Waze • Here • Uber Routematch
Local Communities and Special Groups	Provide, coordinate, or advocate for transportation accessibility for specific user groups including human services clients, travelers with special needs or disabilities, low-income populations, unbanked or underbanked users, youth, or older adults.	• Transportation Management Associations (TMAs) • Municipal and county senior services • NJ Division of Developmental Disabilities & NJ Division of Vocational Rehabilitation Services • New Jersey Council on Access and Mobility
Employers, Universities, Medical Centers, and Businesses	Large employers and establishments providing mobility to employees, customers, patients, and students, such as universities, employers, medical centers, special venues, property developers, entertainment and recreation centers, shopping malls, airports, and hotels.	• Johnson & Johnson • Amazon • Rutgers University • American Dream • Hackensack Medical Center
Travelers	End users of the MOD services that affect the system by the type of origin and destination and mobility choices they make.	• New Jersey commuters and travelers

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

Potential Actions

Potential actions and next steps to initiate the process to define the regions' MOD concept and future implementation are presented below along with anticipated partners, resources, and timeframes. Actions are presented in order of anticipated level of effort.

1. Build a Regional MOD Taskforce and Vision

A regional MOD Taskforce would collectively lead research and planning activities supporting MOD implementation, including developing a shared vision for MOD. The vision may include elements such as providing accessible, reliable, safe, and equitable mobility service options to all travelers. This vision would then guide the development and deployment of potential features, such as a real-time transit information system to improve reliability, or a multi-modal trip planner to improve access through increased transportation options. The taskforce would also facilitate the other potential actions identified in this section.

Implementation Partners: NJTPA and NJ TRANSIT could lead this effort with support from Port Authority of New York and New Jersey (PANYNJ), NJDOT Bureau of Mobility and Systems Engineering, New Jersey Economic Development Authority, as well as representatives from counties and cities such as Jersey City that have pursued MOD services.

Resources: This action would require staff time of implementation partners to participate in the MOD Taskforce.

Next Steps: Identify key regional MOD stakeholders and potential project partners.

- Identify Concept/Project implementation leading agency.
- Identify the shared vision for MOD for the region.
- Define the objectives of the taskforce.
- Consider a group of diverse public and private MOD stakeholders reflecting the mobility marketplace.
- Identify partnerships to fill in gaps in the regional mobility network.

Timeframe: Short-term (6-18 months)

2. Identify Gaps in Transportation Services and Regional Needs

Identifying gaps in current transportation services and regional needs will help stakeholders to prioritize future investments to round out a robust MOD ecosystem as outlined in Table 1. This action should be implemented in coordination with Actions 1 and 2 of the First/Last Mile Solution strategy. The First/Last Mile Solution strategy Action 1 recommends identifying priority areas for public investment in first/last mile solutions, which involves a regional analysis of priority service areas to determine opportunities and

areas of high need. More specifically, the First/Last Mile Solution strategy Action 2 recommends identifying gaps in bike and pedestrian infrastructure, based on existing facilities and demand for bike and pedestrian access.

Implementation Partners: The NJTPA would lead this effort, working with members of the Regional MOD Taskforce, especially those municipality-members that have developed or implemented mobility initiatives, such as Jersey City, City of Newark, and Township of Princeton Participation from private entities such as Uber, Lyft, Citi Bike, Zipcar, and Enterprise carsharing may also be requested, to understand the scope of coverage of their services.

Resources: This action would require staff time of implementation partners to conduct the analysis.

Next Steps: Next steps for implementing this action include:

- Beginning with a review of the Congestion Management Plan, identify regional transit trip gaps to provide comprehensive options to travelers.
- Identify areas where new connections between transit service and other mobility services such as carsharing, bikesharing, ridesharing, TNCs/ridesourcing, scooter sharing, microtransit, and shuttle services, could benefit regional and local travelers. This evaluation can be done in coordination with the first potential action under the first/last mile strategy.
- Identify Park & Ride locations with parking shortages and evaluate the potential for offering alternative access methods such as transit, bicycle routes, or other first/last mile solutions.

Timeframe: Short-term (6-18 months)

3. Develop a Concept of Operations

A Concept of Operations (ConOps) serves as the foundation for the systems engineering process of a proposed technological system. A ConOps is a narrative that describes the proposed system's capabilities and how they will achieve the desired objectives, and usually includes the following elements: the

- User and system requirements that drive the need for the system;
- How the proposed system will interact within the larger ecosystem; and
- Roles and responsibilities of those who will operate, own, manage, maintain and use the system (and train others to use the system).

Developing a ConOps for MOD implementation facilitates stakeholder consensus, reduces risk of cost and schedule overruns, and aligns MOD goals with the operational

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

system. [2] The ConOps document should be engaging and accessible to all MOD ecosystem stakeholders outlined in Table 1, including those without a technology background.

Implementation Partners: The Regional MOD Taskforce would serve as an advisory committee for developing the MOD ConOps. The lead agency for the ConOps may be NJTPA if regional in scope or NJDOT if statewide in scope.

Resources: Developing a MOD ConOps is a significant undertaking that would require dedicated funding for staff time and consultant support. The ConOps may use existing technical resources such as the MOD Marketplace Concept of Operations Blueprint sponsored by FHWA.[3]

Next Steps: Next steps for implementing this action include:

- Identify the existing regional mobility challenges in coordination with work under Action 2.
- Provide a justification for changes.
- Identify key regional MOD stakeholders and potential project partners.
- Identify the issues and limitations of the current systems.
- Develop the MOD concept including goals, objectives, outcomes, and performance measures and needed resources.
- Build on the regional institutional, policy, and technical drivers for the delivery of an MOD platform.
- Conduct an MOD feasibility analysis.
- Define the MOD platform concept and its sub-systems.

Timeframe: Long-term (2-6 years)

4. Identify Potential Fund Sources, Pilot Areas, and Partnerships

Identifying potential pilot areas, would allow MOD stakeholders to deploy the shared MOD vision at a small scale to test and improve upon the feasibility, cost, duration, and challenges that would affect a regional larger-scale implementation. Identifying potential fund sources and partnerships, including both inter- agency and public-private partnerships, would enable the region to refine the implementation details or focus on specific components to correspond with funding objectives. Availability and types of funding may influence the selection of pilot areas and partnerships, which would ideally target at least one of the gaps and regional needs identified in Action 2. New pilots and partnerships could incorporate lessons learned from existing pilot programs in the North Jersey region, such as

[2] FHWA. 2006. "Developing and Using Developing and Using a Concept of Operations Concept of Operations in Transportation Management Systems." FHWA. https://tmcpfs.ops.fhwa.dot.gov/cfprojects/uploaded_files/conops_fs.pdf
[3] USDOT. 2020. "Mobility on Demand Marketplace Concept of Operations." FHWA-JPO-20-822. National Transportation Library. https://rosap.ntl.bts.gov/view/dot/53343

the microtransit partnership between Jersey City and the TNC Via, or the first/last mile solution to rail transit sponsored by the City of Summit in partnership with Uber and Lyft.

Implementation Partners: The Regional MOD Taskforce would lead the identification of potential pilot areas and partnerships. Any pilots that advanced to implementation would require a sponsoring agency such as a municipal government. Implementation partners would procure MOD services from private vendors.

Resources: This action would require funding to implement and operate a pilot. Substantial funding would be required for a full MOD implementation; new challenge competitive grant programs like FHWA's Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD), Accelerating Innovative Mobility (AIM), FTA's Integrated Mobility Innovation (IMI), and MOD Sandbox become available on an irregular bases so tracking these sources will be essential. Close communication with the USDOT and monitoring of the Federal Register are highly recommended. If the pilot involves operating a transportation service, then there may be opportunities to utilize Congestion Mitigation and Air Quality Improvement Program, New Jersey Jobs Access Reverse Commute, FTA 5310, or Senior Citizens and Disabled Persons Transportation Assistance Program (casino revenue) funding; these state and federal funding opportunities are administered by NJ TRANSIT and the NJTPA.

Next Steps: Next steps for this action include:

- Define potential pilot projects with measurable benefits.
- Estimate the planning and delivery of a pilot project.
- Define a pilot project goals and how will they be measured.
- Identify options for expanding the pilot project to the entire NJTPA region.

Timeframe: Long-term (2-6 years)

5. Participate in Grant Submission

While the previous actions can be completed with local, regional, and state funds, competitive grant opportunities at the federal level have been a primary funding source for MOD implementation by state and regional transportation agencies over the past five years. MOD partners can use the work products of the previous actions, including the MOD Vision developed in Action 1, the ConOps developed in Action 3, and the potential pilot areas and partnerships identified in Action 4, to inform the grant submission concept. Because federal grant opportunities have been extremely competitive in the past, this foundational work increases the likelihood of a successful grant submission and award for the North Jersey region.

Implementation Partners: The grant application project sponsor would lead this effort with support from the Regional MOD Taskforce.

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

Resources: This action would require staff time of the sponsor agency and Regional MOD Taskforce members.

Next Steps: Next steps for implementing this action include:

- Identify grant submission and requirements.
- Assemble an MOD grant working group from the Regional MOD Taskforce to develop a scope of services and desired features to be included in a grant application.
- Identify the grant application project sponsor.
- Develop and submit an MOD grant application.

Timeframe: Long-term (2-6 years)

Potential Outcomes

USDOT identifies the goals of MOD as "to encourage, facilitate, and develop a dynamic supply of mobility services and operations by leveraging existing ITS technology, emerging mobility solutions, advances in transit service, and innovative business and operational models that focus on providing independent, seamless, and situationally appropriate mobility options that move people and goods."[4]

To successfully implement MOD, it is important to translate these goals into objectives and potential outcomes. At a later stage, stakeholders can drill further to set key performance indicators associated with various selected MOD strategies.

The NJTPA has developed a regional performance measures[5] framework to supplement the required federal performance measures to provide a more holistic snapshot of transportation system performance with respect to livability, natural environment and resiliency, mobility, and more. The NJTPA regional performance measures most directly related to MOD include:

- Percent of work trips that are not drive-alone
- Total transit ridership
- Annual on-road mobile source greenhouse CO2 gas emissions
- Annual person hours of delay per capita

The NJTPA can supplement this framework with MOD indicators such as number of trips generated and booked through an MOD platform. Outcomes and potential indicators of an MOD implementation are outlined in Table 2 below.

[4] USDOT Intelligent Transportation Systems Joint Program Office. N.d. "Mobility on Demand." USDOT ITS JPO. https://www.its.dot.gov/factsheets/mobilityondemand.htm
[5] NJTPA. 2020. "Regional Performance Measures." NJTPA. November. https://www.njtpa.org/RegionalPM.aspx

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

Table 3 - Regional Potential Outcomes

Outcomes	Potential Indicators
Scope of MOD Implementation	• Ability of public agencies to collect, integrate, and access multimodal data for performance evaluation • Number of trips generated and booked through MOD platform • Number of services available through multimodal trip planner • Number of services available through single convenient Consumer Payment Solution account • Reduced gaps in availability of mobility options for medium- to long-distance trips
Mobility & Access	• Increased number of multi-modal transportation services available • Number or percent of residents within one-half mile of one or more transportation option • Number or percent of jobs and services within one-half mile of one or more transportation option • Reduced average and median travel times for MOD trips
Travel Behavior	• Increased ridership on public transit and shared mobility services • Increased carpooling and vanpooling modeshare • Reduced single-occupant vehicle trips and modeshare

MOD Key Enablers

The MOD marketplace is at a very early stage in its development, with much innovation and research underway. The reality is that MOD services have quickly evolved from concepts to implementations by combining rapidly emerging mobility services and technology offerings to respond to local needs. For example, Dallas Rapid Area Transit (DART) MOD Sandbox project delivered an integrated trip planning and payment app including public transit, TNCs, and microtransit, offering more trip choices for riders in a low-density area that was difficult to serve with fixed-route transit.

MOD enablers are the components that could enable the systems to work more efficiently and expand the benefits of MOD to more users. These enablers could be categorized as follows:

- **Business models and partnerships** include financing structures, incentive strategies, and strategic partnerships. Many of these emerging transportation services are driven by private sector transportation services providers (TSPs). TSPs often have very different business models and expectations than their public sector counterparts. While TSPs often

rely on venture capital to attract new customers, increase revenue, and establish market share, public agencies must operate within the bounds of funding allocations and revenues and seek to serve the public interest. This includes compliance with statutes and directives that apply to programs and activities receiving federal financial assistance that may not apply to privately funded operations.

- **Infrastructure enablers** comprise land use, the built environment, and transportation infrastructure (e.g., roads, curbside, rail tracks). The type of built environment (e.g., urban, suburban, and rural) can greatly affect the operation of MOD and the extent of use. In addition, the digital infrastructure associated with smart devices connecting the transportation infrastructure could positively affect the overall transportation system operations in terms of ease of use, duration, optimization, and cost of trips.
- Several **MOD businesses models** (e.g., business to consumer (B2C), business to government (B2G), business to business (B2B), and peer to peer (P2P)) have evolved to meet the diverse needs of consumers, service providers, and partners. With different business models, there are also opportunities for differing financing structures which are needed for maintaining both the current forms of mobility and the emerging ones. Likewise, supporting MOD has numerous potential benefits for partner organizations, such as reducing parking demand, decreasing partner costs, and achieving environmental goals.
- **Policy and regulatory enablers** include equity, safety, mobility, sustainability, accessibility considerations, and standardization efforts. Policy and regulatory enablers are the best tools to address challenges with the applicability of existing laws and regulations, accessibility for people with disabilities, economic accessibility, digital poverty, and urban and rural divides. Likewise, standardization (both technological and for infrastructure) is crucial to ensure interoperability among different components of the MOD system and to enable a more efficient and usable system. The public sector is a major stakeholder and enabler affecting different transportation modes by defining legislative frameworks, ensuring fair market performance, establishing incentives, and initiating pilot programs.
- **Emerging technologies** comprise enablers such as Global Positioning Systems (GPS), sensors, wireless systems, Internet of Things (IoT), mobile apps, automated aerial vehicles (AAVs), Unmanned Aerial Vehicles (UAVs), robotic delivery, big data, data analytics and management systems, machine learning, artificial intelligence (AI), virtual reality, inclusive Information and Communications Technology (ICT), and universal design. Technology is a key enabler of the MOD ecosystem and has enabled enhanced connectivity among travelers, services, and infrastructure, which is in turn enabling more efficient use of resources and new transportation and consumption choices.

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

Resources and Funding

Implementing MOD will require resources and funding from various sources. Examples of potential funding sources include the following:

- **Local state funding through the New Jersey casino tax revenue**. NJ TRANSIT is beginning development of a multi-modal trip planner using casino tax revenue set aside for senior citizen and disabled resident's transportation. The trip planner would include NJ TRANSIT and county and local fixed route services with a human services transportation focus. However, this funding source is limited by statute and has been declining due to the declining popularity of gambling. In addition, it is dedicated for services that benefit seniors and people with disabilities.
- **Public-Private Partnerships**: Municipal governments, metropolitan planning organizations, and transit agencies around the country are embracing the idea of greater synergy with TNCs and emerging mobility services. Most partnerships are motivated by a desire to improve mobility in areas in which transit options are inadequate or nonexistent, or where the supply of parking is insufficient.
- **Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) Grant Projects:** The Fixing America's Surface Transportation (FAST) Act established the ATCMTD program to make competitive grants available for large-scale installation and operation of advanced transportation technologies to improve safety, efficiency, system performance, and infrastructure return on investment (ROI). These advanced transportation technologies will be developed through model deployment sites. The FAST Act funds the program through a set-aside from the Highway Research and Development, Technology and Innovation Deployment, and Intelligent Transportation System Research Programs. (FHWA 2016). Various grants across the United States have been awarded to provide funding for MOD services and implementations. A few examples of MOD grants awarded include:
  - **Contra Costa Transportation Authority (CCTA)**
    San Francisco Bay Area Mobility-On-Demand
    Award: $8,000,000
    The Contra Costa Transportation Authority will enhance Bay Area MOD applications to reduce traffic congestion on the I-680 Corridor and surrounding communities.
  - **TxDOT Houston ConnectSmart**
    Houston ConnectSmart: Connecting TSMO and Active Demand Management
    Houston, Texas
    Award: $8,939,062
    The project will deploy an advanced technology platform that integrates transportation operations and active demand management with a multi-modal approach. The

NJTPA NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY

ConnectSmart model platform will integrate various mobility technologies for carpooling, ridesharing and shared electric bicycles to provide reliable multi-modal travel time information.

Past Competitive Federal Funding Opportunities

Over the past five years, USDOT has offered competitive grants that awarded over $80 million to dozens of innovative mobility projects across the country through the Integrated Mobility Innovation, MOD On-Ramp, MOD Sandbox, and Smart Cities Demonstration programs, described below. USDOT may offer similar federal competitive grant opportunities in the future that transportation agencies in the North Jersey region could pursue. Having a well-defined and coordinated regional vision for the implementation of MOD will enable the North Jersey region to be well-positioned for future grant opportunities. Additionally, technologies and innovations resulting from the demonstration programs may help accelerate adoption of MOD in the region.

- **FTA's Integrated Mobility Innovation (IMI) Program**: The FTA funds projects that demonstrate innovative and effective practices, partnerships, and technologies to enhance public transportation effectiveness, increase efficiency, expand quality, promote safety, and improve the traveler experience. Various grants across the United States have been awarded to provide funding for innovative technical solutions[6]. Some examples include:
  - **Baldwin County Commission/Baldwin Regional Area Transit System (BRATS),**
    BRATS On Demand
    Award: $326,000
    Includes the implementation of MOD to a rural setting with a fully integrated MOD platform. For rural areas, the service expanded standard on-demand offerings with a service fully scoped for rural mobility.
  - **Greater Hartford Transit District, CT**
    GHPIM Mobility Platform
    Award: $946,665
    The Greater Hartford Transit District intends to provide a new demand-responsive, 24/7 transportation option to older adults and persons with disabilities that will fill many of the service gaps in the Greater Hartford Metropolitan Area and surrounding remote rural areas, while providing a Complete Trip experience for all passengers. The service is called the Greater Hartford Program for Innovative Mobility (GHPIM).
- **Accelerating Innovative Mobility (AIM) Program:** FTA provides funding opportunities under the AIM Grants to foster innovative transit technologies, practices and solutions that incentivize travelers to choose public transportation, promote economic development in communities, and enhance public/private partnerships to improve personal mobility.

[6] Federal Transit Administration. N.d. "Integrated Mobility Innovation." FTA. https://www.transit.dot.gov/IMI

FTA awards multiple AIM Challenge Grants to eligible recipients for projects that can accelerate the development, implementation and adoption of innovative technologies, practices, and service models to improve mobility and enhance the rider experience, with a focus on innovative service delivery models, creative financing, novel partnerships, and integrated payment solutions.[7]

- **Shared-Use Mobility Center MOD On-Ramp Projects:** The Shared-Use Mobility Center (SUMC), a national nonprofit organization that works to foster cooperation in shared mobility, announced in 2017 the selection of six public transportation agencies to receive free technical assistance to develop MOD projects through its MOD On-Ramp Program, funded by FTA. SUMC published webinars on lessons learned from each of the six MOD projects in June 2020.[8]
- **MOD Sandbox Projects:** In 2016, the FTA launched the MOD Sandbox Demonstration to provide a venue through which integrated MOD concepts and solutions (supported through local partnerships) are demonstrated in real-world settings. The eleven awarded MOD Sandbox projects explored types of MOD partnerships, new business models, integration between transit and MOD solutions, and investigating new enabling technical capabilities such as integrated payment systems, decision support, and incentives for traveler choices.[9]
- **Smart Cities MOD projects**: In 2015, the USDOT launched the Smart Cities Challenge initiative to demonstrate the potential of integrated data, ITS, and applications to improve safety, enhance mobility, and address climate change. The funding was intended to stimulate partnerships among the public sector, major institutions, and private sector in the form of committed funds, in-kind contributions, and administrative streamlining. The demonstration projects included the most comprehensive MOD service offerings. including the following cities: Columbus, OH; Portland, OR; and San Francisco, CA. Smart Columbus received $40 million from the US DOT, and developed a private sector "acceleration fund" that has raised an additional $58 million that has been used to implement the full MOD vision. The Smart Columbus program manager shared in an expert interview that low-cost strategies for other regions to pursue MOD included smart mobility hubs and a coordinated investment fund of major public and private sector partners to complement and scale MOD initiatives.[10]

[7] Federal Transit Administration. N.d. "Accelerating Innovative Mobility." FTA. https://www.transit.dot.gov/AIM
[8] Shared Use Mobility Center. 2020. "MOD On-Ramp Program Lesson Learned Webinars." SUMC. July 1. https://learn.sharedusemobilitycenter.org/multimedia/mod-on-ramp-program-lesson-learned-webinars/
[9] Federal Transit Administration. N.d. "Mobility on Demand (MOD) Sandbox Program." FTA. https://www.transit.dot.gov/research-innovation/mobility-demand-mod-sandbox-program
[10] USDOT. 2017. "Smart City Challenge." USDOT. June 29. https://www.transportation.gov/smartcity