Mobility Performance Metrics (MPM) for Integrated Mobility and Beyond

Background

To better serve the traveling public, new mobility performance metrics are desirable given movements in the transportation industry toward integrating the operations of mostly public-sector fixed-route and specialized public transportation services with private-sector on-demand mobility services. Mobility-on-Demand (MOD) is as an integrated and connected multimodal network of safe, affordable, equitable, and reliable options for personal mobility and goods delivery that are available and accessible to all. The progression towards individualized, integrated, and seamless mobility is occurring through the Federal Transit Administration's (FTA's) MOD Sandbox and Integrated Mobility Innovation (IMI) programs as well as other industry activities. The motivation for such movements is the aspiration to better serve the traveling public. With greater involvement of private companies and jurisdictions in "public transportation," travelers expect the transition between modes to be as seamless as possible.

Objectives

The objective of this research is to develop new mobility performance metrics (MPM). New MPM are needed to supplement existing, traditional public transit-oriented ones because emerging mobility services such as bikeshare, carshare, ridesourcing, ridesharing, and on-demand transit, coupled with trip planning, scheduling, transfer, and navigation platforms, are changing the way people get around. These new mobility services have important implications for public transportation, such as serving as first/last-mile solutions or shifting demand to other modes of mobility services, especially in urban areas and cities.
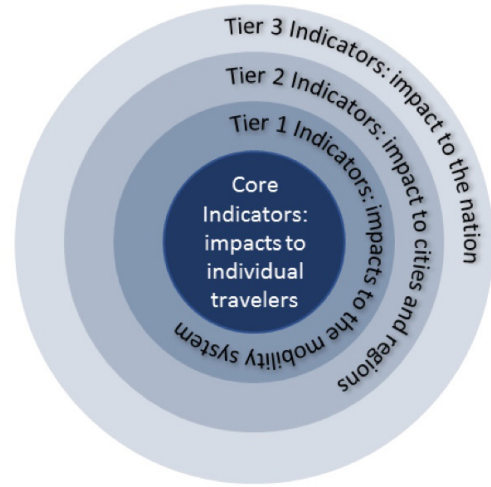
Findings

Developing and using new performance metrics will measure how well an integrated public-private mobility system meets the needs of individual travelers, how well the system performs while meeting overall travel demand, and what the system's impact is locally and nationally.

The approach to this overall effort includes a Development Phase and a Testing Phase. Research completed in the Development Phase included development of metrics and data assessment; subsequent efforts will include policy assessment and demonstration/implementation activities (Testing Phase).

A tiered framework was developed, and 65 candidate metrics were identified for the core and each tier. The core of the framework focuses on performance as it impacts individual travelers—specifically, how individual travelers view their trip experience through five factors that affect transportation efficiency, effectiveness, and experience: time, budget, reliability, safety, and availability.

Data assessment identified potential data required for analyses and measurement of the metrics and assessment of data availability and potential constraints. Assessment activities include applicability assessment, feasibility analysis, gap analysis and redundancy analysis, prioritization analysis, and data integration strategies to determine how to facilitate performance measurement.

MPM Tiered Framework

Benefits

The new supplemental mobility performance measures will aid in improving decision-making in transit agencies by measuring the performance of "integrativeness" of the mobility system, primarily focusing on the effectiveness of traveler-centric performance. These measure are well aligned with the goals of MOD and other types of integrative mobility projects and can provide the necessary insight into the true impact of programs across MOD project goals.