Public Transportation Management Strategies

ICM Functional Area / Strategy	ICM Category	ICM High-Level Benefits								
		Safety / Response	Mobility / Accessibility	Demand Reduction / Shift	Travel choice / Decision Making	Return on / Use of Existing Investment	Efficiency / Productivity	Institutional Cooperation	Environmental Impact	Customer Experience / DOT Perception
Public Transportation Management										
Transit Incentives	Fundamental		•	•	•	•		•	•	•
Transit Lanes	Fundamental		•	•	•	•		•	•	•
Dynamic Transit Capacity Assignment / On Demand Transit	Active and Advanced		•	•	•	•	•		•	•
Fare Strategies	Active and Advanced			•	•	•		•	•	•
Bus on Shoulder	Active and Advanced		•	•	•	•		•	•	•
Bus Rapid Transit	Active and Advanced		•	•	•	•	•	•	•	•
Transfer Connection Protection	Active and Advanced			•	•		•			•
Transit Signal Priority	Active and Advanced		•	•			•	•	•	•
Express Bus Service	System Modification		•	•	•		•		•	•
Mobility on Demand	Emerging		•	•	•		•			•

Transit Incentives

	Transit Incentives
Description	A strategy to balance the effects of traffic congestion by making public transit use more appealing and encouraging its use. These incentives could include discounted tickets for public transit, free bus rides for commuters, or shuttle buses to nearby rail stations.
ICM Category	• Fundamental strategy
Anticipated Benefits	• Improved accessibility and mobility • Reduced or shifted demand • Enhanced traveler choice and decision making • Increased return on and use of existing investment • Improved institutional cooperation • Reduced environmental impact • Improved customer experience and perception
Provided Functionality	• Increases perception and use of transit
Prerequisite Functionality Required	• None
Complementary and/or Supported Strategies	• Transit lanes • Bus on shoulder • Carpooling / vanpooling • Bus rapid transit
Examples	• City of Alexandria, VA (Carlyle Community Council) • City of Arlington, VA • King County, WA

Transit Lanes

	Transit Lanes
Description	Transit lanes are a portion of the street designated by signs and markings for the preferential or exclusive use of transit vehicles, sometimes permitting limited use by other vehicles. On busy urban streets, transit lanes are the building blocks to provide reliable and robust transit service. Continuous running ways yield the greatest benefit to transit operations, and can often be implemented with little impact, or even positive impact, on general traffic flow. Transit lanes are implemented by repurposing general traffic lanes or parking lanes and are usually implemented on streets that also accommodate private motor vehicles in at least one direction.
ICM Category	• Fundamental strategy
Anticipated Benefits	• Improved accessibility and mobility • Reduced or shifted demand • Enhanced traveler choice and decision making • Increased return on and use of existing investment • Improved institutional cooperation • Reduced environmental impact • Improved customer experience and perception
Provided Functionality	• Increases perception and use of transit • Reduces transit impacts on other vehicular traffic
Prerequisite Functionality Required	• None
Complementary and/or Supported Strategies	• Bus rapid transit
Examples	• Watertown, MA • Cambridge, MA • Chicago, IL • El Monte Bus Lane (Los Angeles, CA)

Dynamic Transit Capacity Assignment / On-Demand Transit

	Dynamic Transit Capacity Assignment / On-Demand Transit
Description	Dynamic Transit Capacity Assignment involves re-organizing schedules and adjusting assignments of assets (e.g., buses) based on real-time demand and patterns, to cover the most overcrowded sections of network. Real-time and predicted travel conditions can be used to determine the changes needed to the planned transit operations, thereby potentially reducing traffic demand and subsequent delays on roadway facilities. On-Demand Transit involves travelers making real-time trip requests for services with flexible routes and schedules. This allows users to request a specific transit trip based on their individual trip origin/destination and desired departure or arrival time.
ICM Category	• Active and advanced strategy
Anticipated Benefits	• Improved accessibility and mobility • Reduced or shifted demand • Enhanced traveler choice and decision making • Increased return on and use of existing investment • Improved transportation efficiency and productivity • Reduced environmental impact • Improved customer experience and perception
Provided Functionality	• Transit center operator and resource assignment
Prerequisite Functionality Required	• Transit vehicle onboard equipment • Transit management and scheduling software
Complementary and/or Supported Strategies	• Planned special event management • Connected and automated vehicles
Examples	• Columbus, OH • Orlando, FL

Fare Strategies

	Fare Strategies
Description	This strategy involves reducing the fare for use of the transit system in a corridor as congestion or delay on that corridor increases. This encourages selection of transit mode to reduce traffic volumes entering the corridor. Fare changes are communicated in real-time to the traveling public, through general dissemination channels such as the transit web site, as well as personalized messages to subscribers. Real-time and predicted highway congestion levels and/or the utilization levels of the transit system can be used to adjust transit fare in real-time to encourage mode shift necessary to meet agencies goals and objectives.
ICM Category	• Active and advanced strategy
Anticipated Benefits	• Reduced or shifted demand • Enhanced traveler choice and decision making • Increased return on and use of existing investment • Improved institutional cooperation • Reduced environmental impact • Improved customer experience and perception
Provided Functionality	• Increases perception and use of transit
Prerequisite Functionality Required	• None
Complementary and/or Supported Strategies	• Bus rapid transit • Express bus • Carpooling/vanpooling
Examples	• Widely implemented

Bus on Shoulder

	Bus on Shoulder
Description	Bus shoulder lanes are authorized bus-only lanes that run along selected freeways. They are a low-cost solution that fully use the capacity of existing corridors and provide immediate benefits to fixed route buses operated by local transit agencies. Most bus shoulder lanes are on the right shoulder, which allow buses to enter the freeway from the right-side during peak congestion hours and avoid having to weave into either general purpose or HOV traffic. Bus shoulder lanes are not designed to carry a large amount of traffic and are only used during specific times so buses can maintain a reliable schedule during periods of peak congestion.
ICM Category	• Active and advanced strategy
Anticipated Benefits	• Improved accessibility and mobility • Reduced or shifted demand • Enhanced traveler choice and decision making • Increased return on and use of existing investment • Improved institutional cooperation • Reduced environmental impact • Improved customer experience and perception
Provided Functionality	• Incentivizes transit use over other less efficient modes • Reduces transit delay
Prerequisite Functionality Required	• Network surveillance
Complementary and/or Supported Strategies	• Network surveillance • Traffic information dissemination • Connected and automated vehicles
Examples	• I-66 (Northern, VA) • I-64 (Hampton Roads, VA) • I-55 and I-94 (Chicago, IL)

Bus Rapid Transit

	Bus Rapid Transit
Description	Bus Rapid Transit (BRT) is a high-quality bus-based transit service that delivers fast, comfortable, and cost-effective services at metro-level capacities. It does this through the provision of dedicated lanes, with busways and stations typically aligned to the center of the road, off-board fare collection, and fast and frequent operations. Because BRT contains features like a light rail or metro system, it is much more reliable, convenient and faster than regular bus services. With the right features, BRT can avoid the causes of delay that typically slow regular bus services, like being stuck in traffic and queuing to pay on board.
ICM Category	• Active and advanced strategy
Anticipated Benefits	• Improved accessibility and mobility • Reduced or shifted demand • Enhanced traveler choice and decision making • Increased return on and use of existing investment • Improved transportation efficiency and productivity • Improved institutional cooperation • Reduced environmental impact • Improved customer experience and perception
Provided Functionality	• Increases perception and use of transit • Reduces transit delay
Prerequisite Functionality Required	• Network surveillance • Traffic information dissemination • Transit fare management
Complementary and/or Supported Strategies	• Transit incentives • Connected and automated vehicles
Examples	• East-West BRT (In Design - Milwaukee, WI) • Loop Link (Chicago Transit Authority) • Ashland Avenue BRT (Chicago Transit Authority) • Rapid Bus (Metro Transit, Minneapolis/St. Paul, MN) • IndyGO BRT (Indianapolis, IN)

Transfer Connection Protection

	Transfer Connection Protection
Description	Transfer Connection Protection (TCP) involves the use of vehicle location and information systems and operational policies to address inter-agency transfers and connections. The goal of a regional TCP system is to reduce passenger wait times at inter-agency transfer points, by minimizing the number of missed connections. This can be done by alerting service board dispatch systems to inter-agency connections that are in danger of being missed. Corrective action can then be considered. For passengers, this will mean reduced waiting time, improved security, and less uncertainty. With TCP service boards should see gradual increases in ridership and revenue, as well as improvements in operating efficiency.
ICM Category	• Active and advanced strategy
Anticipated Benefits	• Reduced or shifted demand • Enhanced traveler choice and decision making • Improved transportation efficiency and productivity • Improved customer experience and perception
Provided Functionality	• Transit center multi-modal coordination • Transit vehicle on-board performance/schedule monitoring
Prerequisite Functionality Required	• Transit vehicle on-board communications • Transit stop support equipment • Personal information devices
Complementary and/or Supported Strategies	• Bus rapid transit • Connected and automated vehicles
Examples	• Utah Transit Authority

Transit Signal Priority

	Transit Signal Priority (TSP)
Description	Modification of traffic signal timing or phasing when transit vehicles are present either conditionally for late runs or unconditionally for all arriving transit. TSP can be a powerful tool to improve both transit schedule reliability and transit travel time, especially on corridor streets with long signal cycles and distances between signals. In urban contexts, TSP benefits are amplified when implemented alongside other strategies like dedicated transit lanes.
ICM Category	• Active and advanced strategy
Anticipated Benefits	• Improved accessibility and mobility • Reduced or shifted demand • Improved transportation efficiency and productivity • Improved institutional cooperation • Reduced environmental impact • Improved customer experience and perception
Provided Functionality	• Reduces transit delay • Increases perception and use of transit
Prerequisite Functionality Required	• TMC signal control (central management software) • Transit vehicle signal priority (on-board transit vehicle subsystems)
Complementary and/or Supported Strategies	• Traffic signal timing improvements • Adaptive traffic signal system • Planned special event management • Transfer connection protection • Express bus service
Examples	• Widely implemented

Express Bus Service

	Express Bus Service
Description	Express bus service is fixed route service that typically picks up passengers from park and ride lots in suburban areas. These commuter routes have limited stops, and typically travel non-stop on highways to reach the destination, usually downtown. Express routes tend to be used for longer distance commuter trips, and many services utilize high occupancy vehicle (HOV) lanes. Express routes usually offer service during peak operating (commuter) periods with limited or no service during the mid-day. Fares for the service may be comparable to park and ride fares—slightly higher than typical local fixed route service.
ICM Category	• System modification
Anticipated Benefits	• Improved accessibility and mobility • Reduced or shifted demand • Enhanced traveler choice and decision making • Improved transportation efficiency and productivity • Reduced environmental impact • Improved customer experience and perception
Provided Functionality	• Reduces transit delay • Increases perception and use of transit
Prerequisite Functionality Required	• None
Complementary and/or Supported Strategies	• Fare strategies • Transfer connection protection • Bus on shoulder • Transit signal priority • Bus rapid transit • Traffic signal timing improvements • Park-and-Ride facilities
Examples	• Widely implemented among transit agencies operating within Major US cities

Mobility on Demand (MOD)

	Mobility on Demand (MOD)
Description	MOD allows for the use of on-demand information, real-time data, and predictive analysis to provide travelers with transportation choices that best serve their needs and circumstances. MOD leverages technologies that allow for a traveler-centric approach that provides better mobility options for everyone. The vision of MOD is a multimodal, integrated, automated, accessible, and connected transportation system in which personalized mobility is a key feature.
ICM Category	• Emerging strategy
Anticipated Benefits	• Improved accessibility and mobility (i.e., first/last mile connection) • Reduced or shifted demand • Enhanced traveler choice and decision making • Improved transportation efficiency and productivity • Improved customer experience and perception
Provided Functionality	• Expands mobility options • Reduce reliance on single occupant travel
Prerequisite Functionality Required	• ITS data (varies on desired functionality) • Personal Information Device
Complementary and/or Supported Strategies	• Transit incentives • Carpooling and vanpooling • Ridesharing • Bike sharing • Connected and automated vehicles
Examples	• Bay Area Rapid Transit (BART) Integrated Carpool to Transit Access Program • The Vermont Agency of Transportation (VTrans) Open TripPlanner • Pierce Transit Limited Access Connections • Dallas Area Rapid Transit (DART) First and Last Mile Solution