## Travel Demand Management Strategies

| ICM Functional Area / Tactic | 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 |
| **Travel Demand Management** | | | | | | | | | | |
| Carpooling / Vanpooling | Fundamental | | • | • | • | | • | | • | • |
| Telecommuting | Fundamental | | | • | • | | • | | • | • |
| Transportation Management Associations | Fundamental | | • | • | • | | • | • | • | • |
| Dynamic Routing | Active and Advanced | | • | • | • | • | • | • | • | • |
| Dynamic Ridesharing | Active and Advanced | | • | • | • | | • | | • | • |
| Flexible Work Hours | Active and Advanced | | • | • | • | | • | | • | • |
| Bike Sharing | Active and Advanced | | • | • | • | | | | • | • |
| Congestion Pricing | Active and Advanced | | • | • | • | • | | | | • |
| Mobility-as-a-Service | Emerging | | • | • | • | | • | • | | • |

## Carpooling/Vanpooling

| | Carpooling/Vanpooling |
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| **Description** | Carpooling is probably the most flexible type of alternative commute arrangement. Carpools consist of 2 or more people traveling together in the same vehicle. Carpooling can be very flexible where employees ride together one or more days a week. It is up to the carpool partners to decide who drives and how often. This makes carpooling a viable option for employees who live near one another and have consistent work schedules.<br><br>Vanpools are a cost-effective way to commute for employees who have consistent work hours. Vanpools are groups of 7-15 employees commuting together in one vehicle. Some vanpools serve more than one worksite. An employee drives the van and the passengers share the monthly cost of commuting. Implementing a vanpool program does not require more assistance than a carpool or even transit program. However, the benefits can be great too since one vanpool can reduce parking demand by up to 14 spaces. |
| **ICM Category** | • Fundamental strategy |
| **Anticipated Benefits** | • Improved accessibility and mobility<br>• Reduced or shifted demand (i.e., peak-period vehicle demand)<br>• Enhanced traveler choice and decision making<br>• Improved transportation efficiency and productivity<br>• Reduced environmental impact |
| **Provided Functionality** | • Maximizes roadway capacity potential |
| **Prerequisite Functionality Required** | • None |
| **Complementary and/or Supported Strategies** | • Park and ride lots<br>• Transit incentives |
| **Examples** | Many locations including:<br>• DART vanpools, Des Moines, IA<br>• GoTriangle Commuter Program, Triangle Region, NC<br>• Cornell University (Ithaca, NY)<br>• Emory University (Atlanta, GA)<br>• Nike (Beaverton, OR) |

## Telecommuting

| | Telecommuting |
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| **Description** | Telework/telecommuting is a flexible work arrangement that allows employees to perform officially assigned duties at a location other than the traditional office. This includes the employee's home, a telework center, or a satellite facility owned or leased by the employer, or by another public or private organization. Typically, the employee covered under a telecommuting agreement, with prior approval, works one or two days in the workweek or pay period at an alternative work site away from the main work site. Telecommuting program has the potential to provide significant transportation-related public benefits including the reduction of traffic congestion. |
| **ICM Category** | • Fundamental strategy |
| **Anticipated Benefits** | • Reduced or shifted demand (i.e., need for travel)<br>• Enhanced traveler choice and decision making<br>• Improved transportation efficiency and productivity<br>• Reduced environmental impact (also system preservation)<br>• Improved customer experience and perception |
| **Provided Functionality** | • Eliminates roadway demand |
| **Prerequisite Functionality Required** | • None |
| **Complementary and/or Supported Strategies** | • Transportation management associations<br>• Special event management |
| **Examples** | Many locations, including:<br>• Des Moines, IA – several employers<br>• City of San Antonio – Information Services Department<br>• Mobil Oil (Dallas, TX)<br>• Rice University (Houston, TX) |

## Transportation Management Associations

| | Transportation Management Associations |
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| **Description** | A transportation management association (TMA) is "an organized group applying carefully selected approaches to facilitating the movement of people and goods within an area." Also called transportation management organizations (TMOs) and other names, they vary widely in size, organization, membership, and services offered. TMAs allow businesses to pool their resources to support commuter transportation strategies and can act in an advocacy role with local government on behalf of its membership. TMAs provide a variety of services related to transportation demand management (TDM), usually focused on expanding knowledge of alternatives to commuting in a single occupant vehicle. A TMA was established in the Des Moines Metropolitan Area in 2001 as part of the I-235 reconstruction with the goal of reducing I-235 peak traffic demand by 10%. At this time, the TMA was managed by the Downtown Community Alliance. More recently, responsibility for this organization was handed to the Des Moines Area Metropolitan Planning Organization. |
| **ICM Category** | • Fundamental strategy |
| **Anticipated Benefits** | • Improved accessibility and mobility<br>• Reduced or shifted demand<br>• Enhanced traveler choice and decision making<br>• Improved transportation efficiency and productivity<br>• Improved institutional cooperation<br>• Reduced environmental impact<br>• Improved customer experience and perception |
| **Provided Functionality** | • Maximizes roadway capacity potential<br>• Eliminates roadway demand |
| **Prerequisite Functionality Required** | • None |
| **Complementary and/or Supported Strategies** | • Carpooling/vanpooling<br>• Telecommuting<br>• Special event management<br>• Parking management |
| **Examples** | • Ride-on (San Luis Obispo County, CA)<br>• Go Lloyd (Lloyd District Portland, OR)<br>• Commuter Challenge Program (Puget Sound Region, WA)<br>• Blackberry Creek Regional TMA (Toronto, Canada)<br>• Transportation Management Association of San Francisco<br>• Commuter Connections (Washington D.C.) |

## Dynamic Routing

| | Dynamic Routing |
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| **Description** | This strategy uses variable destination messaging (e.g., messaging specific to two or more downstream locations) to disseminate information and make better use of roadway capacity by directing motorists to less congested facilities. These messages could be posted on dynamic message signs, and eventually broadcast directly into in-vehicle displays, in advance of major routing decisions. Real-time and anticipated conditions can be used to provide route guidance and distribute the traffic spatially to improve overall system performance. |
| **ICM Category** | • Active and advanced strategy |
| **Anticipated Benefits** | • Improved accessibility and mobility<br>• Reduced or shifted demand<br>• Enhanced traveler choice and decision making<br>• Increased return on and use of existing investment (i.e., demand balancing)<br>• Improved transportation efficiency and productivity<br>• Improved institutional cooperation<br>• Reduced environmental impact<br>• Improved customer experience and perception |
| **Provided Functionality** | • Balances demand among networks and modes that have excess capacity |
| **Prerequisite Functionality Required** | • Network surveillance<br>• Traffic information dissemination |
| **Complementary and/or Supported Strategies** | • Connected and automated vehicles<br>• Work zone management<br>• Incident management<br>• Traffic signal improvements<br>• Adaptive traffic signal control |
| **Examples** | • I-35, Hillsboro, TX |

## Dynamic Ridesharing

| | Dynamic Ridesharing |
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| **Description** | This strategy involves travelers using advanced technologies, such as smart phones and social networks, to arrange a short-notice, one-time, shared ride. This facilitates real-time and dynamic carpooling to reduce the number of auto trips/vehicles trying to use already congested roadways. |
| **ICM Category** | • Active and advanced strategy |
| **Anticipated Benefits** | • Improved accessibility and mobility<br>• Reduced or shifted demand<br>• Enhanced traveler choice and decision making<br>• Improved transportation efficiency and productivity<br>• Reduced environmental impact<br>• Improved customer experience and perception |
| **Provided Functionality** | • Maximizes roadway capacity potential |
| **Prerequisite Functionality Required** | • Carpooling / vanpooling |
| **Complementary and/or Supported Strategies** | • Park and ride lots<br>• Transit incentives |
| **Examples** | • Bellevue Smart Traveler System (Bellevue, WA)<br>• Los Angeles Smart Traveler (Los Angeles, CA)<br>• Caltrans Dynamic Ridesharing Program (Sacramento, CA)<br>• TransAction Network (Riverside County, CA) |

## Flexible Work Hours

| | Flexible Work Hours |
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| **Description** | Flexible work scheduling can be provided by employers as an incentive to reduce peak-period commutes. It provides more commute options and therefore additional opportunities to steer people toward efficient alternatives to driving alone on busy routes and during peak periods. It encourages people to think about how, where and when they travel. |
| **ICM Category** | • Active and advanced strategy |
| **Anticipated Benefits** | • Improved accessibility and mobility<br>• Reduced or shifted demand<br>• Enhanced traveler choice and decision making<br>• Improved transportation efficiency and productivity<br>• Reduced environmental impact<br>• Improved customer experience and perception |
| **Provided Functionality** | • Shifts roadway demand to non-peak periods |
| **Prerequisite Functionality Required** | • None |
| **Complementary and/or Supported Strategies** | • Fare strategies<br>• Dynamic ridesharing |
| **Examples** | • Widely implemented |

## Bike Sharing

| | Bike Sharing |
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| **Description** | Bike sharing, and the sharing of other types of non-motorized forms of transportation including scooters is a type of transportation service that provides these options to use for a daily, monthly, annual, or trip-based fee. Traditionally, bike sharing systems have been station-based meaning that bicycles must be acquired from and returned to self-serve stations—also known as "smart docks." A growing proportion of systems now have "smart bikes" that are outfitted with all the necessary technology built-in to the bicycle, which can provide greater flexibility by eliminating the need for permanent stations. Potential benefits of bike sharing include the increase in bicycling visibility, promotion of healthy and active living, easier transit connections. |
| **ICM Category** | • Active and advanced strategy |
| **Anticipated Benefits** | • Reduced environmental impact<br>• Reduce traffic congestion<br>• Increased system interoperability and benefits (first mile and last mile connections)<br>• Increased transportation accessibility and efficiency |
| **Provided Functionality** | • Improved accessibility and mobility<br>• Reduced or shifted demand (i.e., promotes non-auto modes of travel)<br>• Enhanced traveler choice and decision making<br>• Reduced environmental impact<br>• Improved customer experience and perception |
| **Prerequisite Functionality Required** | • None |
| **Complementary and/or Supported Strategies** | • Planned special event management<br>• Transit incentives<br>• Mobility as a service<br>• Cycle tracks |
| **Examples** | • Divvy (Chicago, IL)<br>• B-Cycle (Denver, CO)<br>• CitiBike, (Miami, FL)<br>• Coast Bikes (Tampa, FL)<br>• Indiana Pacers (Indianapolis, IN) |

## Congestion Pricing

| | Congestion Pricing |
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| **Description** | Congestion pricing is a congestion management strategy that encourages people not to drive in congested areas through financial incentives or pricing. Congestion pricing harnesses the power of the market to reduce traffic congestion. There are four main types of pricing strategies:<br>• Variably priced lanes, involving variable tolls on separated lanes within a highway, such as Express Toll Lanes or High Occupancy Toll (HOT) lanes<br>• Variable tolls on entire roadways - both on toll roads and bridges, as well as on existing toll-free facilities during rush hours<br>• Cordon charges - either variable or fixed charges to drive within or into an area within a city<br>• Area-wide charges - per-mile charges on all roads within an area that may vary by level of congestion<br>In some situations, it may be appropriate to offer rebates to avoid traveling during times of congestion instead of imposing a toll. The rebates would be offered to those sign up for the program and who use transit or travel during off-peak periods. While the use of rebates or other incentives is not usually implemented, it represents a positive or less controversial means to shift driver behavior. The intent of this strategy is to maximize the limited amount of transportation infrastructure capacity that exists by encouraging the use of other, high-occupant forms of travel or traveling outside peak periods. In turn this helps to increase person throughput within congested corridors and/or lessens overall demand. In the case of a toll, the amount charged can vary to support specific transportation and congestion reduction goals (e.g., peak-period surcharge or off-peak discount). Congestion pricing can also improve trip reliability and reduce delay. |
| **ICM Category** | • Active and advanced strategy |
| **Anticipated Benefits** | • Improved accessibility and mobility (i.e., reduced delay and improved travel time reliability)<br>• Reduced or shifted demand<br>• Enhanced traveler choice and decision making<br>• Increased return on and use of existing investment<br>• Improved customer experience and perception |
| **Provided Functionality** | • Maximizes roadway capacity potential<br>• Shifts vehicle demand to other modes and times of day |
| **Prerequisite Functionality Required** | • Network surveillance<br>• Traveler information dissemination |
| **Complementary and/or Supported Strategies** | • Dynamic routing<br>• Traveler information dissemination<br>• Access control<br>• Event Management |
| **Examples** | • Portland, OR (I-5 and I-205) |

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| | • Puget Sound Region, WA<br>• Dallas / Fort Worth, TX<br>• Sand Diego, CA (I-15)<br>• New York City, NY (Manhattan) |

## Mobility-as-a-Service (MaaS)

| | Mobility-as-a-Service (MaaS) |
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| **Description** | A combination of public and private transportation services within a given regional environment that provides holistic, preferred and optimal travel solutions, to enable end-to-end journeys paid for by the user as a single charge. Solutions such as integrated single payment for complete journeys, linking multiple mobility accounts under a common single transit account, and use of multi-modal planning tools to determine a journey are all a part of the MaaS model. MaaS is envisioned to provide better information and better connectivity to help cities and organizations face increasing urbanization and demographic shifts while also providing safe, efficient and functioning transportation that customers expect. |
| **ICM Category** | • Emerging strategy |
| **Anticipated Benefits** | • Improved accessibility and mobility<br>• Reduced or shifted demand<br>• Enhanced traveler choice and decision making<br>• Improved transportation efficiency and productivity<br>• Improved institutional cooperation<br>• Improved customer experience and perception |
| **Provided Functionality** | • Provides on-demand transportation options |
| **Prerequisite Functionality Required** | • Integrated payment systems |
| **Complementary and/or Supported Strategies** | • Transit incentives<br>• Carpooling and vanpooling<br>• Ridesharing<br>• Bike sharing<br>• Connected and automated vehicles |
| **Examples** | • Whim (Helsinki, Finland)<br>• Tompkins County, NY (under consideration)<br>• Smart Mobility (Silicon Valley, CA) |