

Congestion Management Process – 2013 Update

TRAVEL DEMAND MANAGEMENT AND TRANSPORTATION SYSTEM MANAGEMENT AND OPERATIONS STRATEGIES AND PROJECTS

TDM and TSM&O Strategies	Associated Projects	Alternative Roadway Infrastructure (Services)	Modal Options (Services)	System Demand (Recurring)	System Reliability (Non-Recurring)
Commuter Transportation Options	Bicycle Sharing/Leasing Services	x	✓	✓	✓
	Bike/Transit System Integration	x	✓	✓	✓
	Carsharing/Ride Leasing/Station Car	x	✓	✓	✓
	Commuter Trip Reduction Programs (Aggressive marketing of biking, walking, transit, ridesharing, alternative work schedules, telecommuting, Transportation Management Associations (TMA), etc.)	x	✓	✓	✓
	Park-and-Ride Facilities	x	✓	✓	✓
	Ridesharing and Ridematching Services – Carpooling and Vanpooling	x	✓	✓	✓
	Shuttle and Taxi Services	x	✓	✓	x
	Transit	x	✓	✓	✓
Freight Management Operations	Freight and Fleet Administration (Administrative processes, driver security authentication, maintenance, assignment tracking)	x	x	✓	✓
	Freight Railroad Grade Crossing (Standard and Advanced)	x	x	✓	✓
	Freight Safety & Security Management (On-board and roadside operations, HazMat detection/mitigation)	x	x	✓	✓
	Truck Lane Restrictions	x	x	✓	✓
	Weigh-In-Motion Operations/Electronic Clearance	x	x	✓	✓

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Incentives to Use Alternative Modes	Active Parking Management/Shared Parking	x	✓	✓	✓
	Commuter Financial Incentives (transit, ridesharing, parking, etc.)	x	x	✓	✓
	Distance-Based Pricing/Pay-As-You-Drive Vehicle Insurance	x	x	✓	x
	Guaranteed Ride Home	x	x	✓	x
	HOV/Managed Lane Management	x	✓	✓	✓
In-Vehicle System Efficiency Improvements	Advanced Vehicle Controls (Lateral and Longitudinal)	x	x	x	✓
	Driver Safety Monitoring	x	x	x	✓
	Driver Visibility Improvement	x	x	x	✓
	Intersection Collision Avoidance	x	x	x	✓
	Pre-Crash Restraint Deployment	x	x	x	✓
	Vehicle Safety Monitoring and Warning Systems (early, intersection, lateral, & longitudinal)	x	x	x	✓
Roadway Incident and Emergency Management Operations	Disaster Response and Recovery	✓	x	✓	✓
	Emergency Routing	✓	x	✓	✓
	Evacuation and Reentry Management	✓	x	✓	✓
	Mobility Assistance Patrol Services	✓	✓	✓	✓
	Strategic Incident Response and Clearance Time Program	✓	x	✓	✓
	Traffic Incident Management Training	✓	✓	✓	✓
	Transportation Infrastructure Protection Plans	✓	x	✓	✓

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Roadway Infrastructure Improvements	Access Management Improvements (Turn lanes, close driveways)	✓	✗	✓	✓
	Addition of New Lanes	✓	✗	✓	✓
	Bottleneck Removal (installation of signage, reduce merging and weaving)	✓	✗	✓	✓
	Bus Loading Bays	✓	✓	✓	✓
	Intersection Improvements	✓	✗	✓	✓
Sustainable Development Improvements	Bicycle and Pedestrian Facility Improvements	✗	✓	✓	✗
	Bicycle Parking Facilities	✗	✓	✓	✗
	Context Sensitive Design	✓	✓	✓	✗
	Location of Efficient Development	✗	✓	✓	✗
	Pedestrianized Streets	✓	✓	✓	✗
	Transit-Oriented Development (TOD)	✗	✓	✓	✗
System Management and Operations Improvements	Active Traffic Management (Lane Assignment Changes/Re-striping, turning movement and lane use restrictions)	✓	✗	✓	✓
	Electronic Toll Collection	✓	✗	✓	✓
	ITS Devices (CCTV, Cameras, DMS, etc.)	✓	✗	✓	✓
	Probe Surveillance	✓	✗	✗	✓
	Regional Traffic Control	✓	✗	✓	✓
	Reversible Lane Management	✓	✗	✓	✓
	Shoulder Utilization Program	✓	✗	✓	✓
	Traffic Signal Improvements (Hardware Upgrades, interconnection, retiming)	✓	✗	✓	✓
	Speed Harmonization and Monitoring	✓	✗	✓	✓

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Transit System Efficiency Improvements	Demand Response Transit Operations	x	✓	✓	x
	Adaptive/Demand-Responsive Signal Systems	x	✓	✓	✓
	Transit Fixed-Route Operations	x	✓	✓	x
	Transit Management	x	✓	✓	x
	Transit System Signal Priority	x	✓	✓	✓
	Transit Vehicle Tracking	x	✓	✓	x
Traveler Information Services	511	✓	x	✓	✓
	Integrated Transportation Management/Route Guidance (ISP Based Trip Planning, Dynamic, Autonomous)	✓	x	✓	✓
	Roadside Traveler Information System (emergency and wide-area alert system)	✓	x	✓	✓
	Traveler Information Systems (transit, interactive, broadcast, disaster, etc.)	✓	✓	✓	✓
Work Zone/Construction Management Operations	Maintenance and Construction Activity Coordination	✓	x	✓	✓
	Winter Maintenance	✓	x	x	✓
	Work Zone Management and Safety Plans	✓	x	x	✓

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511 – one-stop phone and web source for up-to-the minute transportation information.

Access Management Improvements – regulation of interchanges, intersections, driveways and median openings to a roadway.

Active Demand Management – the dynamic management, control, and influence of travel demand, traffic demand, and traffic flow of transportation facilities. Examples include dynamic ridesharing, on-demand transit, dynamic pricing, predictive traveler information, demand responsive signal systems, etc.

Active Parking Management – the dynamic management of parking facilities in a region to optimize performance and utilization of those facilities while influencing travel behavior at various stages along the trip making process: i.e., from origin to destination. Examples include dynamically priced parking, dynamic parking reservations, dynamic way-finding, dynamic parking capacity, etc.

Active Traffic Management – the ability to dynamically manage recurrent and non-recurrent congestion based on prevailing and predicted traffic conditions. Examples include dynamic lane use/shoulder control, dynamic speed limits, queue warning, adaptive ramp metering, etc.

Adaptive/Demand Responsive Signal System – a signal control that uses real-time traffic information to determine the flow of traffic.

Addition of New Lanes – adding new capacity to a roadway.

Advance Vehicle Controls (Lateral and Longitudinal) - a variety of technologies which seek to prevent accidents by offering advanced in-vehicle technological assistance. Lateral control ensures that lane changes are accomplished safely. Longitudinal control and adaptive cruise control maintain safe following distances between vehicles.

Alternative Roadway Infrastructure – the presence of parallel freeways, frontage roads, parallel arterials, and direct connections or interchanges along a corridor.

Bicycle and Pedestrian Facility Improvements – improving conditions for bicycling and walking thru a new or improved lane, path, or shoulder for use by bicyclists/pedestrians or a traffic control device or shelter.

Bicycle Parking Facilities – involves the infrastructure and equipment (bike racks, bicycle locks, etc.) to enable secure and convenient parking of bicycles.

Bicycle Sharing/Leasing Service – a service in which bicycles are made available for shared use to individuals on a very short term basis.

Bike/Transit System Integration – the merging of bicycle transport with transit services to further enhance both modes of travel.

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Bottleneck Removal – removal of “bottlenecks” where the number of lanes decreases at ramps, interchanges or where there are roadway alignment changes (sharp curves, steep hill, etc.).

Bus Loading Bays – a multi-stop feature for bus stations that can handle a much higher capacity of traffic and allows for buses to pull out of travel lanes.

Carsharing/Ride Leasing/Station Car – a model of car rental where people rent cars for short periods of time, often by the hour.

Commute Trip Reduction Program – a program that give commuters resources and incentives to reduce their automobile trips through ridesharing, biking, walking, transit, alternative work schedules, telecommuting, etc.

Commuter Financial Incentives – monetary benefit offered to commuters or employees to encourage behavior or action change which otherwise would not take place.

Congestion – relates to an excess of vehicles on a portion of roadway resulting in speeds that are slower than normal or “free flow” speeds.

Non-recurring Congestion – unexpected or unusual congestion caused by an event that was unexpected and transient relative to other similar days. Unanticipated delays.

Recurring Congestion – congestion caused by routine traffic volumes operating in a typical environment. Anticipated delays.

Context Sensitive Design (CSD) – refers to roadway standards and development practices that are flexible and sensitive to community values. CSD allows roadway design decisions to better balance economic, social and environmental objectives.

Corridor – a combination of adjacent surface transportation networks (e.g., freeway, arterial, rail networks) that link the same major origins and destinations. It is defined operationally rather than geographically or organizationally.

Demand Response Transit Operations – comprised of vehicles operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick up the passengers and transport them to their destinations.

Disaster Response and Recovery – coordination of emergency response plans when a surface transportation disaster occurs.

Distance-Based Pricing/Pay-As-You-Drive Vehicle Insurance – vehicle charges are based on the amount a vehicle is driven during a time period.

Driver Safety Monitoring – a device that uses infrared sensors to monitor driver attentiveness.

Driver Visibility Improvement – a device that will enhance driver visibility using an enhanced vision system.

Dynamic Lane/Shoulder Control – the opening of a shoulder to vehicular traffic. Shoulders may be opened to alleviate traffic during peak periods of travel or at the time of an incident

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Electronic Toll Collection – the collection of tolls electronically to eliminate delay on toll roads.

Emergency Routing – a device that supports automated vehicle location and dynamic routing of emergency vehicles.

Evacuation and Reentry Management – evacuation of the general public from a disaster and manages subsequent reentry to the disaster area.

Freight and Fleet Administration – promotes the deployment of technology and the adoption of best practices to facilitate the smooth flow of goods on the Nation's transportation system and across our borders.

Freight Railroad Grade Crossing – an installation at points where a railroad track crosses a highway at grade.

Freight Safety and Security Management – involves protecting transportation assets – facilities, vehicles, and supporting infrastructure (communications structures and power stations) – from a host of potential threats.

Guaranteed Ride Home – provides commuters who regularly (twice a week) carpool, vanpool, bike, walk or take transit to work with a “free” and reliable ride home when one of life's unexpected emergencies arise.

HOV/Managed Lane Management – highway facilities or a set of lanes where operational strategies are proactively implemented and managed in response to changing conditions. Conceptually, Managed Lanes are based upon flexible operating strategies and active management of the transportation system and provide the perspective needed for integrated operations leading to improved performance.

Integrated Transportation Management/Route Guidance – generates a trip plan, including a multimodal route and associated service information (e.g., parking information), based on traveler preferences and constraints. Routes may be based on static information or reflect real time network conditions.

Intersection Collision Avoidance – a user service warning a driver of imminent collisions when approaching or crossing intersections that have some form of traffic control.

Intersection Improvements – improving the safety and efficiency of an intersection to increase the performance of the facility through the implementation of turning lanes, pavement restriping, signage and lighting, bus turnouts, and channelization of traffic.

ITS Devices (CCTV, Cameras, DMS, etc.) – advanced applications which, without embodying intelligence as such, aim to provide innovative services relating to different modes of transport and traffic management and enable various users to be better informed and make safer, more coordinated, and 'smarter' use of transport networks.

Location of Efficient Development – consists of residential and commercial development located and designed to maximize Accessibility and overall Affordability. This usually means

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that it is close to good transit service and public services, has good walking and cycling conditions and other features that reduce Automobile Dependency.

Maintenance and Construction Activity Coordination – the dissemination of maintenance and construction activity to centers that can utilize it as part of their operations, or to the Information Service Providers who can provide the information to travelers.

Mobility Assistance Patrol Services – provides assistance to stalled and stranded motorists by helping them to move disabled vehicles from the main lanes of regional highway/freeway facilities and ultimately getting the vehicles operating or off the facility completely.

Modal Options – the presence of transit options (bus and/or rail), park-and-ride facilities, HOV/Managed Lanes, and bicycle/pedestrian options along a corridor.

Park-and-Ride Facilities – serve as collection areas for people transferring to higher occupancy vehicles. Park-and-Rides are often located and designed to serve bus or rail transit, but many are used by carpoolers and vanpoolers as well.

Parking Management/Shared Parking – includes a variety of strategies that encourage more efficient use of existing parking facilities, improve the quality of service provided to parking facility users and improve parking facility design.

Pedestrian Streets – areas of a city or town reserved for pedestrian use only in which some or all automobile traffic may be prohibited.

Pre-Crash Restraint Deployment – a device that provides in-vehicle sensors and on-board communications to monitor the vehicle's local environment, determine collision probability and deploy a pre-crash safety system.

Probe Surveillance – a field-to-vehicle application that covers the interface between roadside equipment and vehicles that are equipped with a short range communications device. The probe data collected by the field equipment may include link travel times, average speeds, road conditions, environmental conditions, surface weather information, and any other data that can be measured and communicated by passing vehicles. The collected probe information could be sent to a center for processing and distribution.

Regional Traffic Control – provide an information hub around which effective system monitoring and incident detection occur. Various traffic management and motorist information systems are controlled by personnel at the center to alleviate congestion conditions.

Reversible Lane Management – a lane in which traffic may travel in either direction, depending on certain conditions.

Ridesharing and Ridematch Services (Carpooling and Vanpooling) – two or more people sharing a ride in a car constitutes a carpool. A vanpool constitutes a group of six to fifteen commuters.

Roadside Traveler Information System/Traveler Information System – refer to 511.

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Shuttle and Taxi Services – regular travel back and forth over an established, often short route by a vehicle.

Speed Harmonization and Monitoring – reduces the speed differential between and within lanes, and creates a more uniform and acceptable headway distribution thus reducing the potential for the occurrence of primary accidents.

Strategic Incident Response and Clearance Time Program – a program focusing on a common goal between Traffic Incident Management (TIM) agencies, such as police, fire and emergency services in reducing the time to respond to and clear a traffic incident.

System Demand – the measurement of a corridor’s demand by including factors such as traffic volume, truck volume/percentage, number of employees along the corridor (by block), and the number of residential population.

System Reliability – the measurement of a corridor’s reliability by including factors such as crash rates, number of agencies that participate in incident management training, truck lane restrictions, roadway shoulders, and the presence of ITS technology.

Traffic Incident Management Training – training program for first responders focusing on a response effort that protect motorist and responders while minimizing traffic impact.

Traffic Signal Improvements – to improve the efficiency of a signal by upgrading the hardware or through retiming, equipment or installation of new signals.

Transit – a system of buses, trains, etc. that people use to travel around a particular city or area.

Transit Fixed-Route Operations – a service that performs vehicle routing and scheduling, as well as automatic operator assignment and system monitoring for fixed-route and flexible-route transit services.

Transit Management – provides real-time computer analysis of vehicles and facilities to improve transit operations and maintenance. It monitors the location of transit vehicles, identifies deviations from the schedule, and offers potential solutions to dispatchers and operators.

Transit-Oriented Development (TOD) – a mixed-use residential and commercial area designed to maximize access to public transport, and often incorporates features to encourage transit ridership.

Transit System Signal Priority – an operational strategy that facilitates the movement of transit vehicles (usually those in-service), either buses or streetcars, through traffic-signal controlled intersections.

Transit Vehicle Tracking – monitors current transit vehicle location using an Automated Vehicle Location System. The location data may be used to determine real time schedule adherence and update the transit system's schedule in real-time.

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Transportation Infrastructure Protection Plan – a plan detailing how risk management is implemented within the context of the unique characteristics and risk landscape of the sector.

Traveler Information Systems – a system of information that allows travelers to choose the most efficient mode and route to their final destination. Traveler Information Systems use ITS to provide timely and detailed information about traffic incidents, the weather, construction, and special events to improve travel time predictability, allow drivers to make better choices, and reduce congestion.

Truck Lane Restrictions – restricting trucks to operate only in certain lanes of the corridor.

Vehicle Safety Monitoring and Warning Systems – a device that monitors critical components of the vehicle and warns the driver of potential dangers. These capabilities are provided by on-board sensors to monitor the vehicle condition and performance, including steering, braking, acceleration, emissions, fuel economy, engine performance, etc. Problems with any of these systems are identified and reported to the driver. Warnings are provided in the event of a serious condition (e.g., likely failure or damage).

Weigh-In-Motion Operation/Electronic Clearance – a device designed to capture and record axle weights and gross vehicle weights as vehicles drive over a measurement site.

Winter Maintenance – a service to keep roadways clear and to minimize the risk of accidents during the winter months.

Work Zone Management and Safety Plans – a program that aims to reduce the fatalities and injurious crashes in work zones, and to enhance traffic operation and safety within work zones.