

Transportation Management and Operations

Improve the travel experience, efficiency and safety for all transportation modes

Transportation system management and operations (M&O) coordinates systems to make them more efficient, more convenient, more reliable, safer, and easier to use. M&O strategies make systems work better, allowing us to do more with less – less congestion, less money, less fuel, and less frustration. They support livability by increasing travel choices and efficiency—including transit, bicycling, and walking—while reducing emissions and resource use.

It can be frustrating to sit in traffic, inconvenient to use transit when you do not know when the next bus is coming or where it goes, and downright dangerous to walk or bike in some places. How the transportation system is operated and managed can help address these problems and provide safe, reliable, and timely access to jobs, services, housing, and schools, and expand business access to markets.

How M&O Strategies Improve Livability

Reduce congestion and fuel waste. M&O strategies help reduce traffic jams, help drivers hit fewer red lights, keep buses on schedule, improve reliability, and manage parking more efficiently. This saves time and money, and makes traveling less stressful. In 2007, M&O improvements nationwide saved travelers over 308 million hours stuck in traffic, worth \$6.5 billion.¹

Save money. M&O strategies make systems work better at low- to moderate-cost, reducing the need to widen roads or build new roads. Adding lanes to an existing freeway costs \$15 million per mile or more, while the cost of operational improvements typically ranges between \$0.5 and \$3 million per mile.²

Make walking, biking, and transit more attractive and safer. With M&O strategies, transit runs faster and on-time with signal prioritization, and riders know when the next bus or train is coming with real-time transit information. M&O strategies can help make it safer and more enjoyable to walk and bike by making crosswalks safer, alerting and slowing vehicles at crossings, and making bicyclists more visible. They can also make it easier for children, seniors, and persons with disabilities to get around.

Coordinate incidents, emergencies, and events. Coordination between transportation agencies and police, fire, and medical services can help them prepare for and respond to crashes, extreme weather, special events, and disasters. This also helps travelers to choose how, when, and where to travel; avoids delays; and allows travel to return to normal as quickly and safely as possible, often 30 to 40 percent faster.³

M&O strategies that support livability include:

- *Traffic signal coordination*
- *Transit signal priority & bus rapid transit (BRT)*
- *Traveler information systems*
- *Electronic tolling & transit smart cards*
- *Freight management*
- *Managing work zones, special events, traffic incidents & roadway weather*
- *Congestion pricing & managed lanes*
- *Ridesharing & travel demand management*
- *Parking management*

M&O strategies can be integrated with urban and context-sensitive roadway design to improve operations, access, and safety with:

- *Turning slip lanes and median islands*
- *Intersection design & roundabouts*
- *Multimodal boulevards and road diets*
- *Reduced lane width for bicycle lanes & parking*

¹ Texas Transportation Institute, *Urban Mobility Report 2009*, July 2009.

² Sacramento Area Council of Governments, *MTP2035 Issue Papers: Road Expansion*, October 2006.

³ U.S. Department of Transportation, Intelligent Transportation Systems Joint Program Office, *Investment Opportunities for Managing Transportation Performance through Technology*, January 2009.

Creating more livable communities through transportation choices



Success Stories

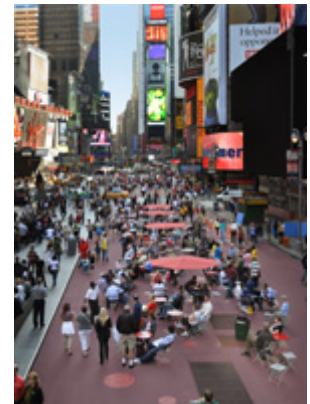
New pedestrian spaces reduce congestion. New York City is using M&O strategies to make its downtown less congested and more livable. The Broadway corridor cuts through Times Square and Herald Square. For years, Broadway struggled with confusing intersections and people walking in the street because sidewalks were too full. In 2009, the city turned Broadway into a pedestrian space in the two squares and filled the spaces with tables, chairs, and plants. A year later, there were 6 percent more people walking in the area, 35 percent fewer collisions involving walkers, and 80 percent fewer people walking in the streets. At the same time, thanks to M&O improvements on other nearby streets, travel speeds for cars and buses improved by 3 percent to 17 percent along the corridor.⁴ The city is now using real-time data about traffic conditions to make immediate changes to traffic signals so traffic jams clear up faster. Fewer traffic jams mean that buses arrive on time, drivers are less frustrated, and the air is cleaner for everybody.

Times Square

Before



After



New York City combined placemaking with M&O to improve pedestrian, bicycle, transit, and vehicle travel on and around the Broadway Corridor (NY City).

Better bus service with new technology. St. Cloud, MN is a small city that is using smarter traffic signals to help its buses run on time. All area traffic signals now have technology to help buses get through intersections faster. With less time spent waiting at red lights, the buses stay on schedule 42 percent more often. This helps riders arrive on-time for meetings, doctors' appointments, or wherever they are going. It also makes catching the bus easier – riders can be more certain the bus will come when the schedule says it will be there.⁵ In larger cities, this traffic signal technology is combined with other strategies to provide more efficient, predictable bus rapid transit (BRT) service, which is cheaper and faster to build than a subway. In Los Angeles, the Metro Rapid BRT system has 40 percent more riders than regular buses, with a third of those riders new to transit.⁶

More traffic information enables better choices. By providing reliable and timely information about different options for getting around, '511' information systems across the country help people make better decisions about when or if to travel, which route to take, and what travel mode to use. As a result, trips are more predictable, more convenient, and more pleasant. In the San Francisco Bay Area, a 511 system helps travelers get information about current driving conditions, plan a transit trip, get bicycle information, and find carpool or vanpool partners. The free service is available by phone (by dialing 511), through a website (<http://511.org>), and on smartphones. The San Francisco regional system gets more than 53,000 calls per month.

Available Resources

FHWA Planning for Operations website - <http://plan.4operations.dot.gov>.

⁴ New York City Department of Transportation. *Broadway*. www.nyc.gov/html/dot/html/about/broadway.shtml

⁵ St. Cloud Metropolitan Transit Commission. *Transit Signal Priority (TSP) Deployment Project*, March 2005.

⁶ Metro – Los Angeles County Metropolitan Transportation Authority, *Metro Rapid*. www.metro.net/projects/rapid/