



## Operations and Safety

The focus of effectively operating the transportation system is not just about the efficient movement of vehicles, people, and goods—it is also about accomplishing this movement in a manner that improves safety and reduces fatalities and serious injuries.

### **Transportation System Management and Operations helps to achieve highway safety goals through:**

#### **Active Transportation Demand Management**

By smoothing traffic flow and providing advance warning, Active Transportation Demand Management (ATDM) strategies make travel safer for those using the system. Using tools such as variable speed limits and lane control and queue warning, traffic becomes more stable and predictable, resulting in reduced severity and frequency of collisions. The information provided by ATDM strategies allows drivers to take action before encountering congestion, incidents, or other adverse conditions, thereby reducing the likelihood of an incident. The benefits include a reduction in the total number and severity of incidents. Research indicates that ATDM strategies can reduce primary incidents by 3 to 30 percent and secondary incidents by 40 to 50 percent.

#### **Traffic Control**

The traffic control on streets and highways provided through standard signs, signals, and pavement markings promotes orderly and efficient movement of vehicles and pedestrians, but it is grounded in ensuring the safety of all system users. The Federal Highway Administration (FHWA) is responsible for developing and continually updating the *Manual on Uniform Traffic Control Devices* (MUTCD), the national standard for all traffic control devices. By requiring uniformity of the design, placement, and application of traffic control devices, the MUTCD is a key element in promoting and upgrading safety as well as

operational efficiency for all road users. The MUTCD directly and positively affects safety in many other important areas, such as work zones, school zones, highway-railroad grade crossings, bicycle lanes, and shared-use paths.

#### **Work Zones**

Work zone mobility and safety issues are closely intertwined. Existing work zone programs strive to reduce congestion and crashes in work zones by implementing proactive regulatory changes, developing and providing a broad array of guidelines and training, and increasing public awareness.

#### **Road Weather Management**

Road weather management activities also focus on both safety and mobility objectives. For example, FHWA has developed a system called Clarus that assimilates, quality checks, and disseminates the observations collected at road weather stations. The system collects data from 2,019 sensor stations, composed of 46,723 individual sensors that collect such data as air and pavement temperature, visibility, and wind speed and direction. The data collected from these stations is then used by a host of public and private sector information providers and turned into value-added





## Operations and Safety

information, which alerts road users and operators of adverse conditions on the road. In addition, the observations feed into weather forecasts, enabling communities to avoid the risks associated with adverse weather, thereby reducing the number of crashes and traffic delays.

### Traffic Incident Management

Traffic incident management activities focus on safety and mobility objectives by striving to develop and implement a planned, coordinated process by public and private entities to detect, respond to, and remove traffic incidents and restore traffic capacity as safely and quickly as possible. Safe and quick clearance of traffic incidents is important to minimize secondary crashes as well as traffic delays. Transportation operations professionals are involved with the National Traffic Incident Management Coalition (NTIMC), which developed the National Unified Goal for Traffic Incident Management (NUG). The three major objectives of the NUG are **responder safety; safe, quick clearance; and prompt, reliable interoperable communications**. These goals were developed through a consensus process and have been ratified by many regional and national organizations.

### Access Management

Access management program activities advance the development of state and local access management policies, guidelines, and procedures for the management of facilities and integrate these into established planning, policy, and design processes. Effective access management can significantly improve the movement of traffic, reduce crashes, and minimize vehicle conflicts.

### Freight Management

Efficient, seamless, and secure freight flows on the U.S. transportation system and across national borders are important to our nation's economy as well as to transportation safety and operational efficiency. An example of a freight management strategy that is focused on both productivity and safety objectives is the U.S. Department of Transportation's Smart Roadside initiative, which seeks to implement technology nationwide that

will enable State and Federal motor carrier regulatory agencies to perform their regulatory functions while commercial motor vehicles operate at highway speeds.

### Crash Reduction

In the future, cars, trucks, buses, trains and fleets of all types may be able to communicate with one another and with the traffic signals and other infrastructure around them to enhance the safety of all transportation users. In a connected transportation system, vehicles will be able to warn drivers and operators of potential hazards, enabling them to take action before a crash occurs. FHWA is a key partner in related research, known as Connected Vehicle, and transportation operators will be critical to enabling these capabilities in future.

### ABOUT NTOC

The National Transportation Operations Coalition (NTOC) serves as an important foundation for institutionalizing management and operations into the transportation industry. This alliance of national associations, practitioners, and private sector groups represent the collective interests of stakeholders at state, local, and regional levels who have a wide range of experience in operations, planning, and public safety.

**For more operations benefits related to safety, visit the NTOC Web site at [www.ntoctralks.com](http://www.ntoctralks.com).**