

Transportation systems management and operations

Transportation systems management and operations is a philosophy that considers existing levels of safety and mobility across all modes as an asset: one to be intentionally preserved, maintained, and managed.

Transportation systems management and operations includes the following strategies at WSDOT:

- **Cooperative automated transportation:** connected and autonomous vehicles (also known as cooperative connected automated mobility), driver-assisted truck platooning, machine-readable signing and stripes, and vehicle-occupancy detection.
- **Intelligent transportation systems:** technology-based strategies such as traveler information, ramp metering, incident-response programs, traffic-management centers, wrong-way driver notification, and work-zone management.
- **Planning, partnering, and policy development:** land-use planning, utilization of the entire roadway network, corridor management, and policy/agreement development.
- **Traffic operations:** access management, signal operations and optimization, safety analysis, signage, striping, and minor roadway enhancements.
- **Transportation demand management:** transit passes, parking fees, parking management, transit services and facilities, pedestrian and bicycle facilities, commute trip reduction programs, high-occupancy vehicle lanes, transit-oriented development, tolling, and bus-on-shoulder lanes. Additionally, mobility on demand (i.e., shared transportation used on an on-demand, fee basis, and often app-enabled) including shared cars, bicycles and scooters (e.g. Lime, Jump), and ride-hailing (e.g., Uber and Lyft).

Those five strategies support [Practical Solutions](#):

“We collaborate with our partners to make the right investments, in the right places, at the right time, while using the right approach. Our investment choices are guided by multimodal performance outcomes in order to achieve a truly integrated, sustainable transportation system.”

WSDOT policy and guidance

- [Transportation Systems Management and Operations](#)
- [Design Manual](#)
- [Traffic Manual](#)
- [Practical Solutions](#) and the [Practical Solutions Performance Framework](#)
- [State Efficiency and Environmental Performance Executive Order 18-01](#)

Other useful agency resources:

- The [Transportation Data, Geographic Information Systems and Modeling Office](#) provides travel-time profiles that illustrate peak-period trips on a roadway segment.
- Statewide Planning Office Sugar Access Geographic Information Systems plug-in.

If the project proposes something not discussed in the WSDOT Design Manual, contact the regional assistant state design engineer to discuss appropriate documentation.

Additional resources

- [Transportation systems management and operations training](#), CITE Consortium
- [OnTheMap](#), U.S. Census

User tips

Transportation system management and operations enables more efficient use of existing transportation facilities and services. These efficiencies address performance gaps and delay or eliminate the need for major roadway construction projects. They can be used in all contexts: urban, suburban, and rural.

Expanding roadways is not as feasible today as it once was due to the need to invest in maintenance and preservation, limited funding, physical constraints, environmental impacts, impacts on historically disadvantaged populations, rapid population and travel growth, and changing public opinion.

Expanding highways does not resolve traffic congestion in locations with high travel demand. In these conditions, highway capacity-expansion projects may be quickly filled with additional traffic. This occurs due to a combination of factors, including shifts in individual choices (e.g., travel time, route, and mode) and land-development decisions (e.g., residential and business location, changes in regional population and economic growth). Travel-demand modeling and forecasting accounts for some, but not all, of these factors.

Identify performance gaps

Use data and analysis and work with local communities to identify performance gaps. Consider:

- Local interests and broader system or network performance.
- Performance of various modes, including freight (local and interstate), transit, active transportation, and human services transportation.
- Person throughput, vehicle occupancy, and mode shift.
- Safety, particularly for the most vulnerable travelers, bicyclists, pedestrians, and people with special transportation needs.

Examples of performance gaps include:

- Bottlenecks
- Recurring daily or seasonal congestion
- Non-recurring congestion
- Reliability
- Travel times
- Truck-turning path conflicts

- Efficient and safe pathways for bicyclists and pedestrians
- Regional and interstate trips
- Energy efficiency
- Pollution reduction and climate resiliency

Ensure that historically disadvantaged communities influence this work.

Use operational efficiencies and transportation demand management first (and forever)

Design to address performance gaps using operational efficiencies and transportation demand management before expanding roadway capacity.

Include traffic operations and transportation demand management as the first strategies to address gaps, and as ongoing strategies to complement any proposed roadway expansion.

Where to get help

Contact your regional traffic office for more information. WSDOT's [Public Transportation Division community liaisons](#) can also help.

*Your input helps to make these planning and design tips a relevant resource!
For more information, contact Kate Severson, seversk@wsdot.wa.gov or (360) 709-8003.*

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