Active Traffic Management



TRANSPORTATION SYSTEMS MANAGEMENT & OPERATIONS TOOLS

Transportation Systems Management & Operations, or TSMO, focuses on cost-effective strategies that prioritize the safety, access, and reliability of the multimodal transportation system.



Tools like active traffic management are part of a holistic TSMO approach that includes: planning and policy development, **transportation operations**, cooperative automated transportation & technology, **intelligent transportation systems**, and transportation demand management.

Why use Active Traffic Management?

Active Traffic Management (ATM) is a method of improving safety and trip reliability by dynamically managing and controlling traffic demand and available capacity of transportation facilities, based on prevailing traffic conditions, using one or a combination of several real-time and predictive operational strategies. Through the use of variable message signs, lane control signs, and ramp meters, an ATM system can dynamically display traveler information, queue warnings, variable advisory speeds, lane use control, and weather warnings as well as manage bus on shoulder and adaptive ramp metering.

BENEFITS:

- Improves travel time reliability
- Proactive congestion management
- Reduces crashes due to merging and stop-and-go traffic
- Improves safety for first responders (lane control)
- Prevents/reduces secondary crashes

WSDOT APPLICATIONS:

ATM has been implemented on Washington State freeways that have recurring and non-recurring congestion, bottlenecks, and/or significant number of crashes including:

- Vancouver: Interstate 5
- Seattle: Interstates 5 and 90; Highway 520





[top] Ramp meter signal allowing cars to merge one at a time onto the freeway.

[bottom] Variable Message Signs mounted on a structure showing reduced speed limits and warning message.



Case Study

I-5 Ramp Metering & Active Traffic Management Vancouver, Washington

Southbound I-5 between the Washington/Oregon state line and NE 99th Street experiences heavy weekday congestion, especially in the morning, as people commute to the Portland area.

In 2020, WSDOT installed ramp meters on six southbound on-ramps to control the number of vehicles entering the freeway and manage mainline traffic flows. WSDOT also implemented ATM that includes overhead mounted VMS that display variable advisory speed limits to slow traffic before and during congestion or extreme weather conditions. The system also provides lane control by warning drivers of closed lanes ahead due to stalled vehicles, emergency responders on the road, or adverse weather conditions. Larger VMS supplement the variable advisory speed limits and lane control by providing action messages, warning messages, or additional information.



TRENDS:

SOUTHBOUND I-5 SAFETY METRICS:

12% REDUCTION IN TOTAL CRASHES







41%

(6AM - 9AM) CRASHES

*January 2015 – December 2019 averages were used for before condition. January 2021 – June 2022 data was used for after condition although vehicle volumes were lower than pre-pandemic conditions. WSDOT will continue to collect data and report changes as a result of the TSMO strategy implemented

BENEFIT COST RATIO

. **= 4.0**

*Based on the 2017 Crash Analysis Report, which considered construction and crash reduction costs. Construction costs have not been adjusted for inflation.

RAMP METERS AND ATM ALSO PROVIDE OPERATIONAL BENEFITS:



IMPROVING TRAVEL TIME RELIABILITY



REDUCING TRAVEL TIME DURING PEAK HOURS

QUESTIONS? CONTACT:

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TO LEARN MORE ABOUT TSMO VISIT: https://tsmowa.org