



Freeway Ramp Meters

INTELLIGENT TRANSPORTATION SYSTEMS IN THE PORTLAND METROPOLITAN REGION

Managing traffic on entrance ramps reduces delay and accident rates.

BENEFITS

Mobility: Metered entrances allow freeways to keep flowing smoothly during peak travel.

Safety: Less conflict during high-speed merges decreases the risk of collisions.

Cost Effectiveness: Reduced delay and fuel consumption on the freeways without physical expansion.

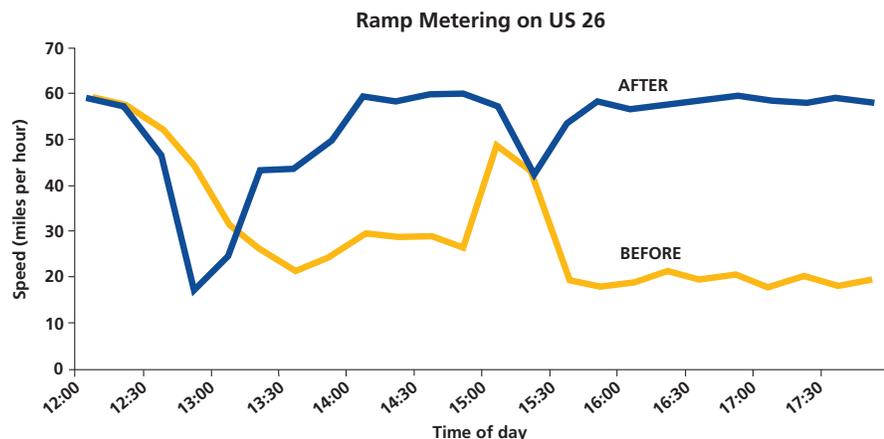
Merging lanes of traffic – and highway onramps in particular – are common locations at which to find congested bottlenecks. The weaving patterns, poor visibility and speed differentials between vehicles frequently create traffic jams as well as fender benders. Because this pattern tends to be worse when large numbers of cars try to merge into heavy traffic, transportation agencies around the country have installed ramp metering systems. Ramp meters create space between vehicles entering a freeway, which makes the merge more efficient and decreases the risk of collision. Furthermore, the meter can be adjusted in real-time based on the freeway's level of congestion.



Ramp metering reduces the delay associated with traffic merging onto freeways.

ODOT has installed ramp meters at 118 on-ramps along Interstates 5, 205, 405, and 84 as well as the Sunset Highway and Route 217. In one evaluation, ODOT found that the ramp meters on the Sunset Highway save an average of 15 minutes for a trip from Hillsboro to downtown Portland. The most comprehensive analysis on the benefits of such implementations comes from the Minneapolis-St. Paul metropolitan area where the region's ramp meters were shut down temporarily in response to customer dissatisfaction. During the five-week experiment, throughput on the freeways declined by 14% and crashes increased by 26%.

ODOT's ramp meters rely on sensors that are installed in the lanes of the freeway to measure traffic volumes. The data used to program the ramp meters are also used to create real-time traveler information.



Traffic speed increased after ramp metering was implemented on the Sunset Highway.

For more information, visit www.metro-region.org

