



RAMP FLOW CONTROL



Source: Arizona Department of Transportation: www.azdot.gov



WHO



STATE

HURDLES



PUBLIC ACCEPTANCE

More Information: tti.tamu.edu/policy/how-to-fix-congestion

Description

Ramp flow control (also known as ramp metering) uses red lights on entrance ramps to let vehicles onto a freeway in a smooth, even manner. Vehicles wait on the ramp until the light changes. By releasing one or two vehicles at a time, ramp flow control prevents entering traffic from crowding out freeway traffic, stop-and-go traffic, and its ripple effects. This strategy may not stop all congestion, but it can delay its onset and shorten it.

Two approaches to ramp flow control are:

- A pre-timed or fixed-time system.
- An adaptive system that controls how many vehicles enter the freeway based on traffic rates to best respond to current conditions.

Target Market

Ramp flow control works best in locations where a large group of vehicles enters a freeway with regular congestion at one time, such as busy entrance ramps. They can also be used in areas before a recurring freeway bottleneck. High-occupancy vehicle lanes can be added to ramps to give priority to those users.

How Will This Help?

- **Decreases crash rates** in signal-controlled areas.
- **Increases road volume and speed**, which reduces travel time.
- **Costs less to install and maintain** than other congestion strategies.

Implementation Issues

How quickly (if at all) the public accepts ramp flow control remains the key issue. The public must be convinced of the benefits that can be achieved from ramp flow control. In addition, operators must carefully adjust operation strategies to take full advantage of the system.

SUCCESS STORIES

Cities using ramp flow control report success in several areas:

- ▲ **Houston and Atlanta** report significant travel-time savings on their freeways (up to 22 percent).
- ▲ **Milwaukee, Portland, Detroit, and Los Angeles** report significant increases in travel speeds (up to 8 percent).
- ▼ **Minneapolis** reports significant reduction in emissions.

