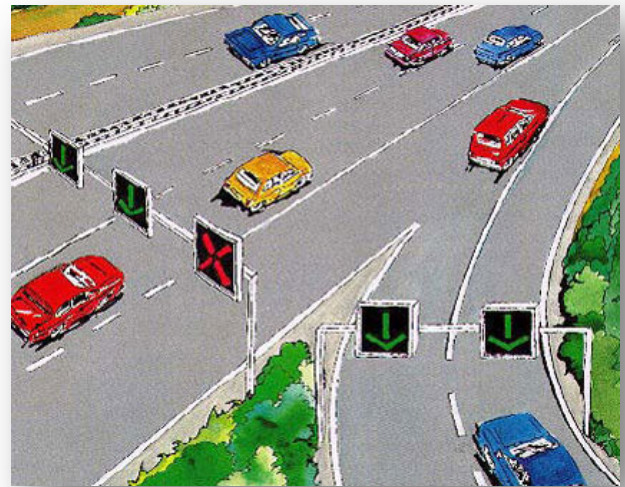


DYNAMIC MERGE CONTROL

Description

Dynamic merge control, or junction control, regulates or closes specific lanes upstream of an interchange. Agencies can change the amount of access based on traffic demand from two entering roadways. Control strategies improve the operation of roads that have more lanes entering the merge area than leaving. A potential U.S. application of this technique would be at a two-lane entrance ramp where the left lane of the entrance ramp merges with the outside lane of the freeway. Under dynamic merge control, either the outside freeway lane or the left lane of the entrance ramp would be closed upstream of the merge (depending on the traffic volume). The intent is to provide higher speeds and more reliable travel times to the higher traffic volume. Dynamic merge control can be a permanent application at known bottlenecks, or it can be used temporarily for special events or until a downstream roadway is widened. It is a practical approach to handling varying traffic demand on the main lanes and the merging lanes to effectively utilize existing capacity.



FHWA

Cost:	●●●○○
Time:	Moderate
Impact:	Corridor
Who:	State
Hurdles:	Right-of-Way, Operations, Public Support, Design

Target Market

- Freeways or roads experiencing frequent congestion and significant merging volumes
- Facilities with available capacity on main lanes upstream of an interchange that can be “borrowed”
- Roads where traffic volumes on two connecting roads peak at different times

How Will This Help?

- Delay the onset of congestion by increasing capacity and improving trip reliability.
- Improve safety by reducing primary incidents.
- Increase throughput by temporarily increasing capacity.

Success Stories

- Germany, The Netherlands—Provides priority to the facility with the higher volume and gives a lane drop to the lesser one. <http://ops.fhwa.dot.gov/publications/fhwahop10031>
- Dynamic Late Merge Control for Work Zones—Encourages drivers to remain in their lane until the lane closure. <http://ops.fhwa.dot.gov/wz/workshops/accessible/McCoy.htm>

Implementation Issues

Ideally, an expert system will deploy the dynamic merge control strategy based on prevailing roadway conditions without requiring operator intervention. This strategy can be implemented in conjunction with temporary shoulder use as long as overhead gantries with appropriate signing and lane control signals are part of the implementation.