
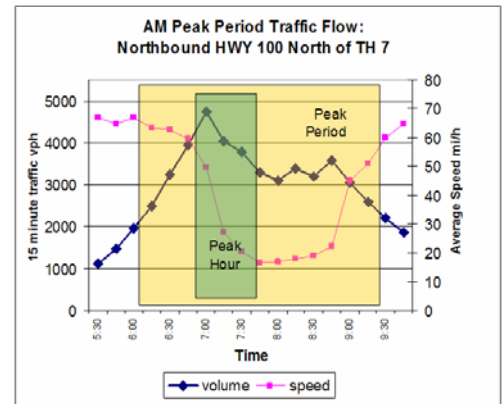


CONGESTION PRICING: BENEFITS (TIME SAVINGS AND THROUGHPUT)



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A highway system breaks down and becomes noticeably congested when the traffic demand exceeds the capacity of the facility. There is ample evidence confirming that the vehicles served (throughput) and speeds are reduced when traffic demand exceeds the roadway capacity. The adjacent figure illustrates how the corridor reaches capacity at 7:00 AM. Shortly after 7:00 AM, the throughput of the corridor drops from a maximum of 4800 vehicles per hour (vph) to approximately 3100 vph. As a result, the facility serves 1700 less vph due to this demand to capacity relationship (i.e., breakdown). The average speed of the facility also drops to 20 mph, and the prevailing conditions remain until the commute period ends around 9:30 AM.



Efforts to assess the system-wide impacts of demand management strategies, including congestion pricing, have just begun. Currently, it is well known that demand management strategies, including congestion pricing, have the potential to influence mode choices, route choices, choices regarding departure times, and in some cases eliminating a trip all together, resulting in better use of the available capacity of the highway network. Some studies suggest that there is an increase in speeds and vehicle throughput as a result of applying these strategies, including congestion pricing.

State Route 91, Orange County, California

Limited data collected on State Route 91 shows that the priced lanes carry twice as many vehicles as the adjacent toll-free lanes during the hour with heaviest traffic. Simulation studies have also shown that congestion pricing strategies eliminate demand surges during peak periods and prevent facilities from breaking down, resulting in higher speeds and vehicle throughput.

Washington, DC Area

A simulation study in the Washington, DC area indicated that a 15% drop in demand in the morning peak, due to pricing, resulted in an increase in vehicle throughput of more than 50% on a specific freeway facility.

The ultimate benefit of congestion pricing remains unknown. This is due in part to limited empirical data on how travelers react to the choices made available to them when the strategy is implemented at a large scale. The Federal Highway Administration has begun several studies to better understand and to quantify the benefits of congestion pricing as a viable demand management strategy. One study will collect and analyze data in several locations across the country to better understand the impact of eliminating demand surges during peak periods on vehicle throughput and speed in highway networks. In addition, several simulation studies have begun to better understand the real impacts of congestion pricing on traffic operations in highway networks.

