



Traffic Demand Management and Managed Lanes

By Katie Ruedebusch

We may all complain about traffic, but traffic professionals regularly work to deploy a wide variety of strategies to reduce or redistribute traffic. One of the major strategies is managed lanes, or as they are commonly known, toll roads. This *issue brief* discusses traffic demand management and managed lanes.

Traffic Demand Management

Traffic congestion can increase the cost of travel, reduce worker productivity, and contribute to air pollution. Because of these consequences, transportation professionals try to manage demand. Transportation demand management refers to a set of strategies to reduce or redistribute the demand for road travel and to encourage commuters to use alternative modes of transportation. Strategies include, but are not limited to: increasing capacity; improving traffic flow; incentivizing mass transit; and managing lanes. Managed lanes are broadly defined as dedicated lanes used to proactively implement traffic demand management strategies to achieve traffic flow and mobility goals.

Pricing. Many managed lanes involve tolls. Managed lanes generally utilize one of two pricing systems: dynamic or peak. *Dynamic toll pricing* increases or decreases the price of a toll based on traffic patterns and/or the amount of traffic in the high occupancy toll (HOT) lane. Under *peak pricing*, tolls are fixed for specific peak times and lower during off-peak hours. Some managed lanes use a combination of dynamic and peak pricing, and several international cities charge a variable or

fixed fee to drive within or into certain areas of a city.

Colorado Public Highway Authorities

Public highway authorities, authorized by the General Assembly in 1987, are political subdivisions that plan, design, and construct public highways. Of the three public highway authorities in Colorado, two, E-470 and Northwest Parkway, operate toll roads in Colorado. E-470 is a four-lane toll highway that runs about 47 miles along the eastern perimeter of the Denver metropolitan area, connecting I-25 North to I-25 South. The Northwest Parkway runs about nine miles through the Northwest Denver metropolitan area, connecting E-470 at I-25 with US 36 at State Highway 128 in Broomfield.

Toll rates. E-470 toll rates range from \$1.25 to \$13.50 depending on distance travelled, number of axles, and whether ExpressToll or license plate tolling is used. Northwest Parkway assesses a \$3.90 toll rate for the length of the road for a two-axle vehicle, and an additional \$3.90 per additional axle. Along with accepting ExpressToll, the Northwest Parkway uses its own Go-Pass transponder system.

Express Lanes

The High Performance Transportation Enterprise (HPTE), created by Senate Bill 09-108, replaced the Statewide Tolling Enterprise created in 2002. The General Assembly established the HPTE to pursue public-private partnerships and other means of

completing surface transportation projects, including collecting tolls on existing roadways.

Currently, the Colorado Department of Transportation (CDOT), HPTE, and its partners manage several high-occupancy vehicle (HOV) and/or managed HOT lanes in the Denver metropolitan area and on I-70. These Express Lanes allow only vehicles carrying a specified number of persons (HOV) or that pay a toll (HOT).

Express Lanes are currently in operation on:

- [US 36 from Denver to Boulder](#);
- [North I-25, from Speer Boulevard to 120th Avenue](#); and
- [I-70 Mountain Corridor, from Empire to Idaho Springs](#).

Figure 1 below highlights the locations of CDOT's current managed lanes.



Source: Colorado Department of Transportation.

Managed lanes are under construction or proposed for the following interstate sections:

- [C-470 from I-25 to Wadsworth Boulevard](#);
- [Central I-70 from I-25 to Chambers Road](#);
- [North I-25 from 120th Avenue to Northwest Parkway/E-470](#);
- [North I-25 from Johnstown to Fort Collins](#);

- [South I-25 from Castle Rock to Monument](#); and
- [I-70 Westbound Peak Period Shoulder Lane](#).

Express Lanes management. The following entities operate Express Lanes.

- *Plenary Roads Denver.* HPTE contracts with Plenary Roads Denver for the operation and maintenance of Express Lanes on US 36 and Central I-25. Currently, US 36 has one HOT lane running in each direction from Table Mesa Drive in Boulder to the junction with I-25 in Denver. There are also two HOT switchable-direction lanes running seven miles from the junction of US 36 and I-25 to 20th Street in downtown Denver.

- *HPTE.* HPTE operates a single express lane running in each direction on I-25 between US 36 and 120th Avenue.

- *CDOT.* CDOT manages a 13-mile eastbound peak-period shoulder Express Lane on I-70 between Empire and Idaho Springs. CDOT is currently completing the National Environmental Policy Act process for a proposed 12-mile westbound peak-period shoulder lane.

ExpressToll. State law requires CDOT to standardize automatic vehicle identification system use on HOV and HOT lanes to ensure that drivers can purchase and install one electronic identification device, such as a transponder, to use for all toll facilities. As a result, HPTE entered into a tolling services agreement with E-470 to provide tolling services through ExpressToll. Switchable transponders cost \$15, and a \$20 balance is required to open an online account. Free transponders are available for HOV-only travelers. Any driver using the Express Lanes without an ExpressToll transponder receives a license plate toll bill sent to the registered owner of the vehicle.

Toll rates. Express Lane toll rates vary depending on time of day, and whether the vehicle owner uses an ExpressToll transponder or relies on license plate tolling. ExpressToll transponders also have an HOV setting that allows vehicles to travel toll-free.