

# "I-25 HOV Express Lanes" – I-25, Denver, CO, HOT Lanes Project



U.S. Department of Transportation  
Federal Highway Administration

## Project Goals

The goal of the I-25 Express Lanes is to make better use of an underutilized HOV lane without degrading service for carpoolers and transit.

## Project Length

9 miles

## Number of HOT lanes

2-lane reversible

## Midpoint Access

No midpoint access

## Lane Separation

Concrete barrier

## Daily Traffic

11,803 (July 2009)

## Capital Costs

Approximately \$10 million

## Operating Costs

Approximately \$2.4 million, annually

## Revenue

Approximately \$5.4 million annually, including fines and fees

## Project Contact

Reza Akhavan  
Colorado Department of  
Transportation  
Reza.akhavan@dot.state.co.us  
(303) 757-9459

Jane Hann  
Colorado Department of  
Transportation  
jane.hann@dot.state.co.us  
(303) 7579397

## Project Description

The I-25 Bus/HOV lanes, also known as Downtown Express lanes, consists of a two-lane barrier-separated reversible facility in the median of I-25 between downtown Denver and 70th Avenue, a distance of 6.6 miles.

## Pricing Parameters

- Fixed time-of-day pricing
- Operates:
  - Southbound 5:00 a.m. – 10:00 a.m.
  - Northbound 5:00 p.m. – 3:00 a.m.
- Toll free for:
  - HOV 2+ carpools
  - Transit buses
  - Emergency vehicles
  - Motorcycles
  - Hybrid vehicles with permit, program expired December 2009 but may be extended
- Toll Rate - \$0.50 to \$4.50

## Unique Features

- In January 2009 the "License Plate Toll" program was implemented so transponders are no longer required
- Carpools are separated from SOVs at tolling point

## Project Support

41 percent of users utilized the lanes 16 or more days per month. 22 percent used the lanes at least 21 days per month. 62 percent of survey respondents say they use the express lanes because it saves time. 18 percent say they use the lanes because it is less stressful than the regular lanes.

## Project Website

<http://www.coloradodot.info/programs/tolling/i-25-hov-express-lanes>



# “Northwest U.S. 290 QuickRide” – U.S. 290, Houston, TX, HOV to HOT Conversion Project

## Project Goals

The U.S. 290 “Northwest Freeway” HOV lane was initially built to reduce congestion in the corridor by providing an incentive for people to carpool, but the minimum HOV2 requirement was changed to minimum HOV3 in 1988 due to high levels of congestion on the facility. After HOV2 was eliminated, the raised occupancy restrictions resulted in the HOV lane being underutilized during peak hours. In November 2000, Houston’s QuickRide program was introduced on this facility to allow HOV2 vehicles access without overwhelming the system. METRO hopes to use the new HOT lane program to maximize lane use and preserve an approximate speed of 50 mph on the facility, which would improve METRO bus service on-time performance.

## Project Length

13.5 miles

## Number of HOT lanes

1 reversible lane

## Midpoint Access

No at-grade midpoint access; all access is via dedicated direct connectors designed for transit

## Lane Separation

Concrete barrier separation

## Daily Traffic

Under QuickRide there are approximately 7,700 “free” vehicles in the HOT lane and 75 paying vehicles, but these numbers can vary greatly from day to day; when conversion to a managed lane is complete, the goal will be a level of service of about 1,500 vehicles per hour

## Capital Costs

\$50,000 (2005)

## Operating Costs

\$140,000 annually

## Revenue

\$155,000 annually

## Project Contact

Hameed Merchant  
hm01@ridemetro.org  
(713) 615-6307

## Project Description

The “Northwest Freeway” QuickRide facility on U.S. 290 in Houston is an expansion of the program that was begun on Houston’s Katy Freeway (I-10) facility in 1998. The QuickRide program requires the use of a transponder to participate in the program. With the conversion to dynamically-priced HOT lanes, QuickRide will be replaced by an EZtag (or METRO equivalent).

## Pricing Parameters

- SOVs prohibited at all times under QuickRide, but will be permitted under the new HOT lane system unless the lane becomes congested.
- Toll currently free for:
  - Registered 3+ carpools
  - Buses
  - Emergency vehicles
  - Motorcycles
- QuickRide toll rate - \$2.00 for HOV2 during peak hours
- QuickRide operates Mon – Fri during morning peak hours (6:45 a.m. – 8:00 a.m.).

## Unique Features

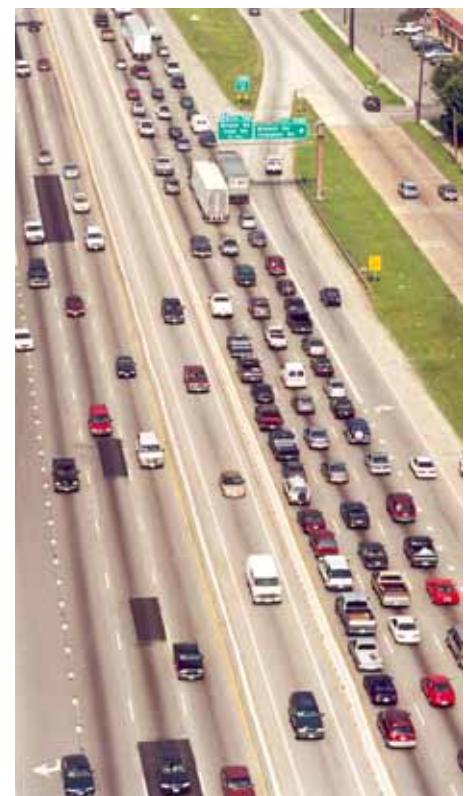
- One reversible lane in median with barrier separation
- Close integration with METRO’s Park & Ride and Express bus services

## Project Support

For both QuickRide users and non-QuickRide participants, the most important benefit for using the HOV lane is to save travel time. The perception of several focus group participants was that HOV lane use saved as much as 50 percent of total commute travel time. Another important benefit to users of the HOV lane is safety. Reliability was not as highly rated as travel-time savings and safety.

## Project Website

[http://www.ridemetro.org/TransportationServices/HOV\\_locations/HOV\\_system.asp](http://www.ridemetro.org/TransportationServices/HOV_locations/HOV_system.asp)



# “95 Express” – I-95, Miami, FL, HOV to HOT Conversion Project



## Project Goals

95 Express is one of several FDOT operational improvements designed to reduce congestion and make I-95 a better experience for drivers, residents, and transit users alike. Ultimately, 95 Express will create more travel options and encourage use of public transportation and carpooling. The goal is to keep traffic moving at a minimum speed of 45 miles per hour, while offering transit riders a seamless connection between Miami-Dade and Broward counties on 95 Express buses.

## Project Length

**Currently open:** 7.3 miles both directions without the 1 lane Flyover; ~9.5 miles with the Flyover

**Completed Project:** 22 miles, both directions

## Number of HOT lanes

2 in each direction

## Midpoint Access

**Currently open:** (NB) 2 entrances; 3 exits (SB) 3 entrances; 2 exits

**Completed project:** (NB) 4 entrances; 5 exits (SB) 5 entrances, 4 exits

## Lane Separation

Flexible plastic poles

## Daily Traffic

Average weekday traffic: 22,000 vehicles per day, northbound only; expected to be 55,000 vehicles per day with both directions open

## Capital Costs

Approximately \$124 million for Phase 1

## Operating Costs

Approximately \$7.5 million per year

## Revenue

Phase 1A (NB open only) - \$5.3MM  
Phase 1B (Since Jan 2010) - \$6.6MM total to date

## Project Contact

Rory Santana  
Florida Department of  
Transportation  
rory.santana@dot.state.fl.us  
(305) 470-6934

## Project Description

HOV lanes on I-95 are being converted to HOT lanes in three phases. The general purpose lanes are restriped and two express lanes are added resulting maintaining the existing number of GPLs while “adding” the additional HOT lane. Phase 1A opened in December 2008 and runs northbound from the Golden Glades Interchange just north of 151st Street in Miami-Dade County. Phase 1B opened in January 2010 and runs southbound from the Golden Glades area to I-395. Phase 1B also includes extending the northbound lanes to the south from the Golden Glades Interchange to I-395. This section opened in early 2010. Phase 2 will extend the express lanes to provide a continuous facility between the Golden Glades Interchange and Broward Boulevard in Broward County.

## Pricing Parameters

- Full time operation with dynamic tolling
- Toll free for:
  - Registered 3+ carpools
  - Registered vanpools
  - County School Buses
  - Registered hybrid vehicles
  - Motorcycles
- Toll Range:
  - Minimum \$0.25 to Maximum \$7.10
  - Average Peak Period tolls equal \$1.60 (SB) and \$1.90 (NB)
- Must have Sunpass transponder
- No 3+ axle trucks allowed in Express lanes

## Unique Features

- Multidisciplinary fast-track project
- Developed in physically constrained corridor, previously toll-free
- Requires registration for carpools, vanpools and hybrid vehicles
- Bus Rapid Transit (BRT) service between Broward and Miami-Dade counties

## Project Support

- 76 percent say the project has provided faster, more reliable service
- 56 percent want the project expanded

## Project Website

<http://www.95express.com/>



Photo courtesy Jeffrey Katz



Photo courtesy Jeffrey Katz



Photo courtesy Jeffrey Katz

# “MnPASS Express Lanes” – I-394, Minneapolis, HOV to HOT Conversion Project

## Project Goals

The MnPASS project began with several goals to:

- Improve the efficiency of I-394 by increasing the carrying capacity of HOV lanes, in terms of both individuals and vehicles
- Maintain free-flow speeds (45 mph) for transit and carpools in the express lanes
- Use excess revenues, if available, to make transit and highway improvements in the I-394 corridor
- Collect tolls electronically
- Employ the latest technologies to manage traffic and enforce laws in the lane, including dynamic pricing and in-vehicle electronic enforcement.

## Project Length

11 miles total, 8 miles in concurrent section, 3 miles reversible barrier separated

## Number of HOT lanes

The 8 mile segment has one in each direction, but the reversible is two lanes in each direction.

## Midpoint Access

Eastbound: 5 entry/exit locations

Westbound: 6 entry/exit locations

## Lane Separation

Double white line paint stripe in 8 mile section; concrete barrier separation in 3-mile section

## Daily Traffic

Approximately 150,000 vehicles

## Capital Costs

Approximately \$10 million

## Operating Costs

\$1.2 million annually

## Revenue

Just over \$1 million annually

## Project Contact

Ken Buckeye  
Minnesota Department of  
Transportation  
Kenneth.buckeye@dot.state.mn.us  
(651) 366-3737

## Project Description

The project is a conversion of the HOV lane to a HOT lane. It allows single occupant drivers access to the HOV lane by electronically paying a toll. There are two sections of the project. There is an 8-mile section from Wayzata to MN 100 separated by a painted barrier and a 3-mile reversible section from MN 100 to I-94 in downtown Minneapolis. The project opened in May 2005.

## Pricing Parameters

- Western 8-mile section is open to solo drivers paying a toll Monday through Friday 6 a.m. to 10 a.m. and 2 p.m. to 7 p.m.; the lane is open to general traffic the rest of the day
- Reversible section is always tolled; Eastbound from 6 a.m. to 1 p.m. and westbound from 2 p.m. to 5 a.m.; it is closed other times
- Prices set dynamically based on demand
- Must have MnPASS transponder, if solo driver; \$1.50/month leasing fee
- 2+ carpools, vanpools, transit, motorcycles travel toll free
- Toll Rate – varies between sections between \$0.25 and \$8.00. Average toll during peak period is \$1.00 - \$4.00

## Unique Features

- Implemented as a public-private partnership
- Tolling on lanes directly adjacent to non-barrier separated lanes with multiple access and egress points
- Dynamic pricing applications on multiple consecutive segments
- Technology applications to assist enforcement

## Project Support

- 91 percent enrolled in MnPASS expressed satisfaction with the program
- 84 percent agreed or strongly agreed that the lanes provided them with “a fast, safe reliable commute every time”

## Project Website

[www.mnpass.net](http://www.mnpass.net)



# "I-35W MnPASS" – I-35W, Minneapolis, MN, HOV to HOT Conversion and Shoulder to HOT Conversion Project

## Project Goals

The I-35W project, as part of the Urban Partnership Agreement, seeks to:

- Reduce congestion
- Improve transit service
- Increase attractiveness of transit service
- Provide choices for commuters to avoid congestion

The project will provide a congestion free HOT/BRT lane from Burnsville Parkway to downtown Minneapolis

## Project Length

Northbound: 14 miles

Southbound: 11.5 miles

## Number of HOT lanes

1 in each direction

## Midpoint Access

Northbound: 9 entry/exit locations

Southbound: 7 entry/exits locations

## Lane Separation

Striped separation

## Daily Traffic

Approximately 210,000 average daily traffic in the corridor

## Capital Costs

Approximately \$50 million for roadway improvements and ITS infrastructure

## Operating Costs

Operating costs for the MnPASS system, including I-394 and I-35W are approximately \$2 million per year, including enforcement

## Revenue

Revenues for the second year of MnPASS operation on I-394 and I-35W are expected to be between \$2 million and \$4 million; I-35W revenues are expected to be about \$1 million

## Project Contact

Nick Thompson  
Minnesota Department of  
Transportation  
Operations Manager  
nick.thompson@state.mn.us  
(651) 366-3152

## Project Description

Following the success of the I-394 MnPass project, the Minnesota Department of Transportation has implemented a HOT lane project on I-35W south of downtown Minneapolis. The MnPASS Lanes on 35W opened on September 30, 2009.

At this time, the northbound and southbound lanes between Hwy. 13 and Hwy. 62, and the northbound lane from 42nd St to downtown, are available. In late 2010, the I-35W crosstown sections between 66th St. and 42nd St will be available in both directions. The eventual project will be 16 miles comprised of converting the HOV lane and/or the shoulder to a HOT lane.



## Pricing Parameters

- The northbound and southbound sections of I-35W south of I-494 and the northbound section of I-35W at 42nd Street are tolled during the following hours:
  - Northbound from TH 13 to Hwy. 62 from 6 a.m. to 10 a.m.
  - Northbound from 42nd Street to downtown will always be tolled when open to traffic
  - Southbound from I-494 to TH 13 from 2 p.m. to 7 p.m.
- During the off-peak hours the lanes are not tolled and open to general traffic with the exception of northbound from 42nd Street to downtown.
- Must have MnPass transponder, if solo driver; \$1.50/month leasing fee
- 2+ carpools, vanpools, transit, motorcycles travel toll free
- Dynamically priced based on demand
- Toll rate – varies between sections between \$0.25 and \$8.00; Average toll during peak period is \$1.00 - \$3.00.



## Unique Features

- Price Dynamic Shoulder Lane (PDSL) equipped to operate as a MnPASS lane during peak periods to maximize capacity on existing roadways
- Electronic signs alert drivers whether the PDSL is open or closed
- Variable speed limits in the adjacent non-tolled lanes
- Coordination with business in the corridor to offer flex schedules and telework

## Project Support

- 91 percent enrolled in MnPASS expressed satisfaction with the program
- 84 percent agreed or strongly agreed that the lanes provided them with “a fast, safe reliable commute every time”

## Project Website

[www.mnpass.net](http://www.mnpass.net)

[www.dot.state.mn.us/upa](http://www.dot.state.mn.us/upa)

# “I-15 FasTrak® Express Lanes” – I-15, San Diego, CA, Managed Lanes Project

## Project Goals

The goal of the I-15 Express Lanes is to keep traffic moving through the I-15 corridor, adjusting as needed to accommodate increased congestion or special events. The Express Lanes are designed to offer multiple choices for commuters and were created to provide vanpools, carpools, and express bus and FasTrak® customers with a smoother, quicker, and more reliable trip along the booming I-15 corridor. The Express Lanes also help ease demand on the general purpose lanes, benefiting all commuters and contributing to a “greener” community as commuters realize both the environmental and economic benefits of ridesharing and public transit.

## Project Length

20 miles (16 miles currently open)

## Number of HOT lanes

4 lanes (2+2 or 3+1 configuration)

## Midpoint Access

5 BRT direct accesses and  
6 at-grade access points

## Lane Separation

Concrete exterior with moveable (zipper) barrier interior

## Daily Traffic

2,069,153 FasTrak® trips in 2010

## Capital Costs

The total cost for the freeway improvements, including expansion of FasTrak® and the transit elements of the I-15 Express Lanes, is estimated to be approximately \$1.4 billion in current dollars. ([www.keepsandiegomoving.com](http://www.keepsandiegomoving.com))

## Operating Costs

FY 2010 – \$3.125 million with \$500k going to transit

## Revenue

FY 2010 – \$3.3 million

## Project Contact

Ingrid Weisenbach    Chris Burke  
iwe@sandag.org        cbur@sandag.org  
(619) 699-6920        (619) 699-1934

## Project Description

This project builds on the success of the existing eight-mile reversible HOV lanes on I-15 and expands SANDAG’s FasTrak® road pricing program by creating a four-lane managed lane facility for a total of 20-miles.



## Express Lanes

- 8 miles long
- 2 lanes
- Reversible
- Peak direction
- Focus on weekdays
- Access at two ends only



## Managed Lanes

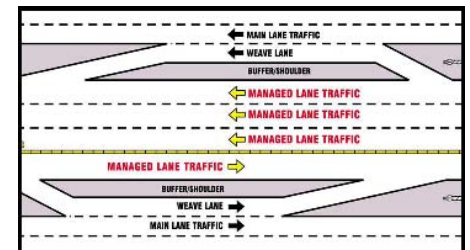
- 20 miles long
- 4 lanes
- Movable Barrier
- Bi-directional
- Open all week
- Multiple access

## Pricing Parameters

- Distance-based dynamic pricing for SOVs to maintain LOS C
- New 8-mile Middle Segment operates on a 24/7 basis
- Existing 8-mile South Segment as follows:
  - Monday – Thursday  
Southbound: 5:30 a.m. – noon  
Northbound: 1 p.m. – 7 p.m.
  - Friday a.m.  
Southbound: 5:45 a.m. to 11 a.m.
  - Friday p.m., Saturday, Sunday  
Northbound: 5 p.m. on Friday to 5 a.m. the following Monday

Toll free for:

- HOV 2+ carpools
- Transit buses
- Emergency vehicles
- Motorcycles
- Clean air permitted vehicles
- Toll Rate - \$0.50 to \$8.00
- No transponder required for HOVs. SOVs must mount a transponder on their vehicle



## Unique Features

- A BRT system operates in the managed lanes. Transit stations and park-and-ride lots are located along I-15 and will be connected to the managed lanes with direct access ramps. These ramps allow BRT buses, carpools, and I-15 FasTrak® customers to bypass freeway on-ramps.
- A moveable barrier maximizes express lane capacity by configuring the lanes with the flow of traffic. This accommodates increased congestion during peak hours and handle incidents and special events.

## Project Support

Public feedback has shown that I-15 FasTrak® customers, transit riders, and other corridor commuters overwhelmingly support the FasTrak project and its expansion on the I-15 Express Lanes.

## Project Website

<http://www.keepsandiegomoving.com/I-15-intro.html>  
<http://fastrak.511sd.com/index.aspx>  
<http://www.sandag.org/index.asp?projectid=67&fusecation=projects.detail>

# “SR 167 HOT Lanes Pilot Project” – SR 167, Seattle, WA HOT Lanes Project



U.S. Department of Transportation  
Federal Highway Administration

## Project Goals

SR 167 is a pilot project with the following goals (established by the legislature):

At a minimum, the department shall provide facility use data and review the impacts on:

- Freeway efficiency and safety;
- Effectiveness for transit;
- Person and vehicle movements by mode;
- Ability to finance improvements and transportation services through tolls; and
- The impacts on all highway users.

The Washington Department of Transportation shall analyze aggregate use data and conduct, as needed, separate surveys to assess usage of the facility in relation to geographic, socioeconomic, and demographic information within the corridor in order to ascertain actual and perceived questions of equitable use of the facility.

## Project Length

9 miles southbound  
11 miles northbound

## Number of HOT lanes

1 in each direction

## Midpoint Access

Northbound: 6 access locations  
Southbound: 4 access locations

## Lane Separation

Double white line

## Daily Traffic

Approximately 2,000 tolled trips per weekday

## Capital Costs

Approximately \$18 million

## Operating Costs

Approximately \$2.4 million, annually

## Revenue

Approximately \$316,000,  
May 2008 – April 2009

## Project Description

The project is located approximately 12 miles southeast of downtown Seattle. An existing nine-mile HOV lane was converted to a HOT lane between Renton and Auburn. The project began operating in May 2008.

## Pricing Parameters

- Dynamic pricing based on real time conditions
- Operates: 5:00 a.m. – 7:00 p.m., 7 days per week
- Toll free for:
  - HOV 2+ carpools
  - vanpools
  - Transit buses
  - Motorcycles
- Toll Rate - \$0.50 to \$9.00
- No trucks over 10,000 gross weight pounds

## Unique Features

- Lane is open to general purpose traffic at other times
- Shield used to cover transponder when carpooling

## Project Support

During the first 12 months, customers opened about 1,500 new *Good To Go!* accounts per month. The transponders are good for travel on the SR 167 HOT lanes and the Tacoma Narrows Bridge. In the 2009 SR 167 user survey, nearly two-thirds of respondents stated they were either very likely or somewhat likely to use the HOT lanes in the future.

## Project Website

[www.wsdot.wa.gov/projects/sr167/hotlanes](http://www.wsdot.wa.gov/projects/sr167/hotlanes)



## Project Contacts

Patty Rubstello  
WSDOT – Toll Division  
[rubstep@wsdot.wa.gov](mailto:rubstep@wsdot.wa.gov)  
(206) 4641299

Tyler Patterson  
WSDOT – Toll Division  
[patter@wsdot.wa.gov](mailto:patter@wsdot.wa.gov)  
(206) 716.1134

# "I-15 Express Lanes" – I-15, Salt Lake City, UT, HOV to HOT Conversion Project

## Project Goals

The conversion of the I-15 Express Lanes to the Express Pass payment system in fall 2010 will eliminate the \$50/month flat fee for SOVs and replace it with a four-zone dynamic pricing scenario. This will allow UDOT to better manage traffic on I-15, by ensuring that carpooling remains a viable alternative to the general-purpose lanes. Revenues will be used to operate and maintain the Express Lanes facility.

## Project Length

38 miles

## Number of HOT lanes

Two lanes, one in each direction

## Midpoint Access

Multiple access locations (14) spread throughout the facility.

## Lane Separation

Painted stripe

## Capital Costs

\$125 million for EXPRESSLink expansion

## Project Contact

Catherine Cutler  
ccutler@utah.gov  
(801) 887-3449

## Project Description

The I-15 Express Lanes in Salt Lake City, Utah, are HOT lanes that allow solo drivers to use the lanes for a fee. Implementation of this fee began September 2006 with a decal system. In early 2010, installation of an electronic payment system is scheduled, with the system expected to go live in fall 2010. A 4.1-mile extension of the corridor, called EXPRESSLink, is due to be completed at the same time.

## Pricing Parameters

- Toll free for:
  - 2+ carpools
  - Buses
  - Emergency vehicles
  - Motorcycles
  - Select clean-fuel vehicles
- Toll Rate - \$50 per month for SOVs
- SOVs must show Express Lanes decal

## Unique Features

- Flat monthly fee paid for access by SOVs, provided extra capacity is available.

## Project Website

<http://www.udot.utah.gov/expresslanes/>

