



TRANSPORTATION POOLED FUND  
PROGRAM

# TECHNICAL SUMMARY

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### TOTAL STATE CONTRIBUTIONS

TO DATE:

\$1,940,000

### Mn/DOT CONTRIBUTIONS

TO DATE:

\$225,000

### PARTICIPATING STATES:

CA, GA, MD, MA, MN, NJ, NY, TN, VA, WA

### Typical Dynamic Message Toll Signs



Typical dynamic message toll signs, for use with HOT lanes, inform drivers as to whether lanes are open and of applicable tolls for single occupant vehicles.



# RESEARCH SERVICES

OFFICE OF POLICY ANALYSIS,  
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# Pooling Our Research: Reducing Congestion with HOV Toll Lanes

## Why a Pooled Fund Study?

As populations grow and traffic in urban areas increases, current highway infrastructure capacity is being outstripped by demand, and congestion is increasingly a problem. One critical method for combating congestion is the use of high-occupancy vehicle lanes. HOV lanes have minimum vehicle occupancy requirements set to provide an incentive for carpooling.

HOV lanes have been used to manage congestion in the United States for more than 30 years, and currently there are more than 130 HOV facilities operating on more than 1,000 miles of freeway within 27 metropolitan areas. The Minneapolis-St. Paul metro area HOV facilities are among the few to have implemented high-occupancy tolling. HOT lanes allow vehicles with only one occupant to use an HOV lane for a toll that varies dynamically based on peak travel times in the HOT lanes. This toll is collected automatically via electronic transponder and is also enforced with the help of advanced electronic systems.

HOV facilities present state highway agencies with significant operational challenges, including enforcement, safety, pricing and general policies. Because these challenges are similar among states, in 2002 the High Occupancy Vehicle/Managed Use Lane pooled fund study was established to help states cooperate in addressing them.

## What is the Pooled Fund Study's Goal?

The objective of this pooled fund study is to identify and address the key issues and challenges common to public agencies responsible for managing and operating HOV facilities, including issues related to planning, design, implementation and management.

## What Have We Learned?

HOV/MUL projects focus on critical program, policy, technical and other issues that arise throughout the life cycle of an HOV facility. They involve such activities as conducting research and operational tests, preparing technical guidance and recommending practices, and developing training and pursuing technology transfer initiatives. Recently completed projects include:

- [HOV Facility Performance Monitoring, Evaluation and Reporting Handbook](#), which developed guidance on evaluating the need for HOV facilities, initiating and sustaining them, and managing the information generated by monitoring and evaluating their performance. Minnesota HOV lanes served as a useful model for other states.
- [Automated Vehicle Occupancy Technologies Study](#), which identified, compiled and systematically evaluated the latest concepts, methods and technologies available worldwide for automated vehicle occupancy detection.
- [Implications of Pricing on Existing HOV Lanes](#), which developed a technical document that identifies the technical, institutional and organizational implications of converting HOV to HOT lanes, and provides guidance on planning and implementing pricing techniques.

*TPF-5(029): High Occupancy Vehicle/Managed Use Lane Pooled Fund Study. Since 2002, this study has allowed states to address key challenges common to public agencies responsible for managing and operating HOV facilities by providing an avenue to collectively develop more efficient HOV operations methods.*

*“This project is extremely important to Mn/DOT, informing our efforts as we continue to develop our HOV system and expand it into other corridors.”*

—Jim Kranig,  
Director, Mn/DOT  
Regional Transportation  
Management Center

*“This pooled fund study allows Mn/DOT to benefit from information gained both from networking with DOTs facing similar challenges and from the many handbooks developed by its projects.”*

—Brian Kary,  
Freeway Operations  
Engineer, Mn/DOT  
Regional Transportation  
Management Center

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Mn/DOT’s enforcement methods for HOV sections of I-394 include double white stripe pavement markings, police patrols and various electronic methods for determining whether vehicles with a single occupant have a MnPass transponder to pay tolls.

### What’s Going On Now?

On an ongoing basis, this study provides member states with an opportunity to share information and best practices to improve the current state of the practice related to the management, operation and performance of HOV facilities. Current projects include:

- [HOV Lane Hours of Operations and Eligibility Requirements](#), which is developing a handbook of best practices for assessing specific policy-level choices and trade-offs related to setting and changing HOV lane eligibility, operating periods and access restrictions.
- [HOV Lane Safety Considerations Handbook](#), which is developing a technical document addressing issues and best practices for safety enhancements of HOV facilities.
- [HOV Lane Enforcement Handbook](#), which is developing a handbook that provides an update of the state of the practice on HOV enforcement, expanding previous reference material and focusing on the use of advanced technologies for enforcement.

### What’s Next?

This pooled fund study is expected to continue to at least 2015, with members meeting annually to prioritize, develop and select new projects. Projects to begin soon include:

- Identification and Analysis of Current Dynamic Pricing Schemes, to identify, review, compare and synthesize the current dynamic pricing schemes for HOT lane operations.
- Benefit/Cost Analysis of Value Pricing Projects, to provide transportation agencies and legislators with a summary of the societal benefits and costs associated with value pricing projects around the nation.
- Dynamic Speed Design Elements, to investigate the design and applications of dynamic speed control devices.

With one of the first metropolitan HOV systems in the country to be converted to HOT systems, Minnesota is a role model and stands to benefit from this pooled fund’s continuing development of more efficient methods for HOV operations management.

*This Technical Summary pertains to the ongoing Pooled Fund TPF-5(029), High Occupancy Vehicle/Managed Use Lane. Details of this effort can be found at <http://pooledfund.org/projectdetails.asp?id=17&status=6> and <http://hovpfs.ops.fhwa.dot.gov>.*

*For more than 25 years, FHWA’s Transportation Pooled Fund Program has been providing state DOTs and other organizations the opportunity to collaborate in solving transportation-related problems. The TPF Program is focused on leveraging limited funds, avoiding duplication of effort, undertaking large-scale projects and achieving broader dissemination of results on issues of regional and national interest.*