

# HOVpf

## PURPOSE

Growing traffic congestion has become an increasingly troublesome issue in urban areas throughout the nation, and state and local agencies are exploring new ways to manage new and existing highway facilities more effectively. Of special interest to transportation practitioners is the high occupancy toll (HOT) lane concept, an increasingly popular and common type of managed lane facility that adds electronic tolling to an existing HOV facility.

How best to balance the desire to preserve existing HOV privilege with having enough excess capacity to sell to single occupant vehicles (SOVs) is a major challenge in planning and design of an HOT lane conversion.

## PRE-PLANNING ISSUES/CHALLENGES

- How should HOV exemptions be modified to accommodate SOV toll buy-ins?
- What should the minimum operating standard for HOT lanes be?
- To what extent should access (ingress/egress) be limited to segregate traffic and preserve LOS performance goals on the HOT lane?
- How much are system implementation and ongoing operating costs for HOT lanes?
- What are the trade-offs between implementing a HOT lane and a toll lane with no HOV exemption?
- What legislative barriers need to be removed in order to convert an HOV lane to HOT lane?
- How should toll revenues be used?
- Who should own and operate the HOT lane?

## Converting High Occupancy Vehicle (HOV) Lanes to High Occupancy Toll (HOT) Lanes: A Guidebook

### Project Fact Sheet – January 2008



A number of issues need to be examined when introducing pricing concept on existing HOV lanes. Many of these issues are similar to those associated with HOV facilities or other transportation improvement projects. Some are unique to the special characteristics of priced lanes. The products developed in this study address several important considerations in the planning and implementation of HOT lane conversions:

- **Geometrics** – What special design elements, beyond traditional HOV elements, may need to be considered when converting HOV lanes to HOT lanes?
- **Eligibility** – With new vehicle eligibility requirements enabled by SAFETEA-LU, what criteria may need to be assessed and changed?
- **Toll Collection** – What are the key elements that address how motorists can enroll and participate in the toll program?
- **Legislation** – What are common legislative elements may need to be addressed including the legal authority to charge fees or tolls, to enforce occupancy levels or variable fee structures, and mandated use of automated enforcement techniques?

## GUIDEBOOK OBJECTIVES

- **Public Involvement** – What are common methods, tools, and strategies for effective education, outreach and marketing need to be considered?
- **Institutional and Organizational Relationships** – What are the most important considerations that need to be addressed early in the planning process related to the roles and responsibilities of the various agencies, and resources to manage, operate and enforce the facilities?
- **Enforcement** – What special enforcement practices and equipment are needed beyond HOV lanes for HOT lanes?
- **Performance Monitoring** – What are the key elements of an ongoing performance monitoring programs to help identify the benefits accrued?
- **Incident Management** – What are the primary elements of an incident management program in terms of detection, verification, response? What is involved in returning the facility to normal operations and communicating necessary information to motorists to help manage the situation?

## PRODUCTS

The purpose of this project is to develop products that provide guidance and recommended practices on planning and implementing pricing techniques when converting existing HOV lanes to HOT lanes. The main product is a comprehensive technical manual providing guidance on planning, design, operational requirements, applicable techniques, cost analysis and estimation to transform HOV lanes into HOT lanes, technologies for operations, and needs, techniques, costs, and other pertinent implications. For a non-technical audience, the accompanied Primer identifies key aspects of HOV to HOT lane conversion, issues for agencies to consider, the benefits or value, successful practices, and lessons learned.

These products are available at the HOV Pooled Fund Study web site at <http://hovpfs.ops.fhwa.dot.gov>.

- Review and synthesize literature related but not limited to design, operations, safety, enforcement, pricing techniques, technologies and Intelligent Transportation Systems (ITS) applications;
- Identify and discuss current practices, techniques, implications, issues to consider, and challenges to implementing pricing techniques on various types of HOV lanes;
- Identify the range of appropriate settings/thresholds for pricing operations designed to minimize the impact to HOV operations;
- Identify standard measures to be applied in determining the point at which HOT lanes reach the maximum operational threshold, as well as, the conditions that may warrant increasing the fees or phasing out HOT lane operations;
- Identify methods and develop procedures for performance measures;
- Identify issues and considerations related to enforcement, including but not limited to enforcement locations, design issues related to such locations, enforcement techniques, and safety;
- Identify outreach strategies to gain acceptance and support from elected officials, community leaders, and general public; and
- Develop strategies, design criteria, safety and enforcement considerations, tools and techniques to practitioners engaged in the planning, design, implementation, operation, and performance monitoring of pricing on existing HOV lanes.

## CONTACT INFORMATION

Federal Highway  
Administration  
Ms. Jessie Yung  
(202) 366-4672  
jessie.yung@dot.gov

HNTB Corporation  
Mr. Gregory A. Le Frois, PE  
(973) 237-1650  
glefrois@hntb.com

HOV Pooled Fund Study  
Dr. Ming-Shiun Lee  
(612) 373-6335  
ming\_shiun\_lee@urscorp.com

Booz Allen Hamilton  
Mark Chang  
(415) 263-3752  
chang\_mark@bah.com