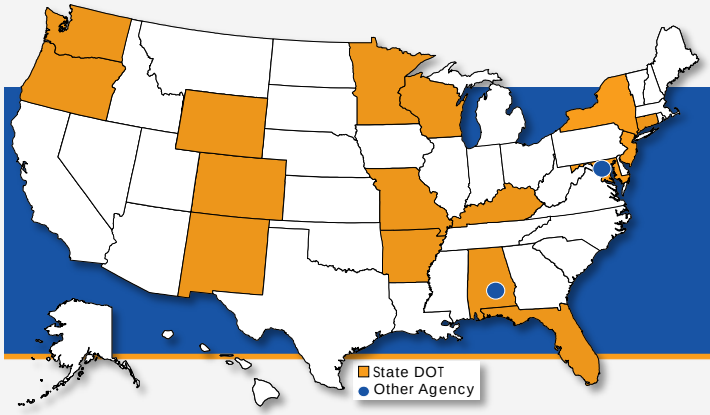
PLANNING SNAPSHOT 9:

LESSONS FROM HOV/HOT CONVERSIONS

NOVEMBER 2016



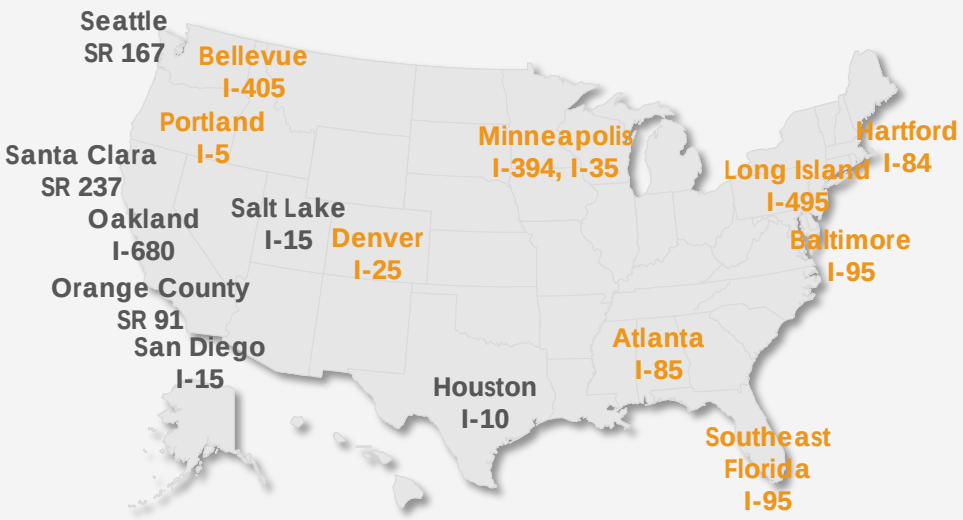
Funded through the NCHRP 8-36 Research Series, these snapshots are designed to tell you a little about the current state of a specific planning practice of interest today.

Managed Lanes What are some of the impacts, lessons, and outcomes of converting existing high occupancy vehicle (HOV) facilities to high occupancy tolled (HOT) lanes? This survey was distributed on behalf of SCOP, AMPO, and NARC. 13 state transportation agencies and 2 state tolling authorities responded – providing the insights and information shared in this planning snapshot.

MANAGED LANES IN THE US

There are nearly 350 HOV facilities in operation or planned across 20 states. Many of these HOV facilities are heavily used and become congested during peak periods. These conditions impact reliability, performance, and customer satisfaction. To address these issues, agencies have converted HOV facilities into HOT managed lanes, which allow single occupant vehicles to use the lane at a variable price based on demand. To date, more than a dozen HOT facilities exist that were converted from existing HOV lanes.

Managed Lane Network
Responding Agencies and Additional Facilities

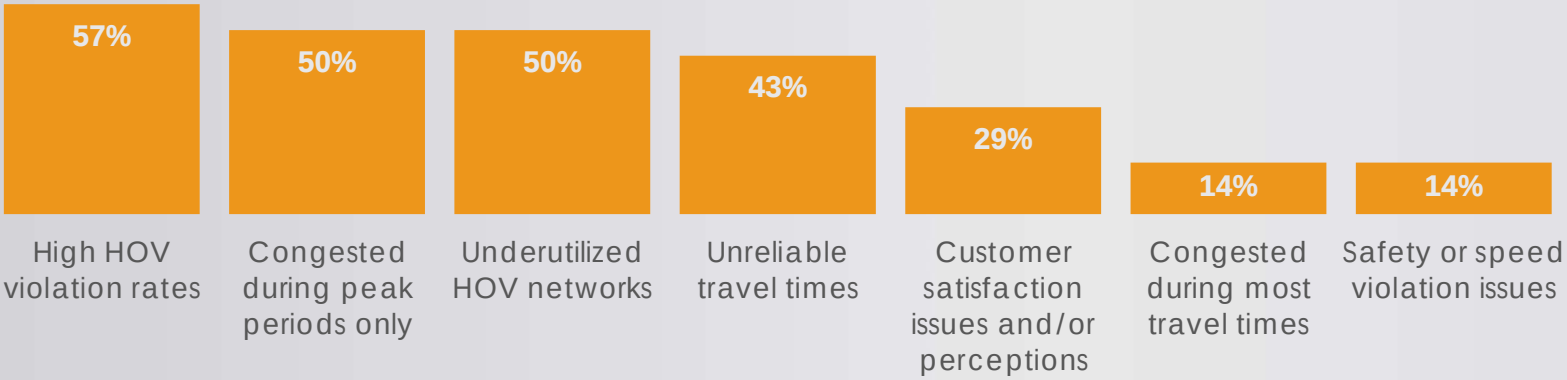


HOT Lane Network Characteristics of Responding Agencies

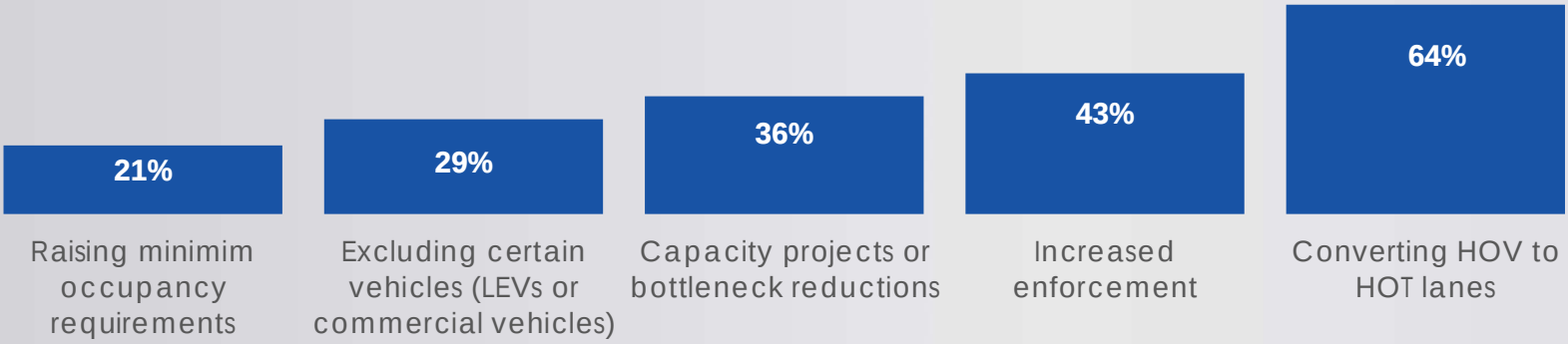
- 2+ HOV 2+
- 3+ HOV 3+
- Network less than 20 miles
- Network greater than 20 miles
- 1 HOT facility
- 2 or more HOT facilities

CURRENT ISSUES ON HOV FACILITIES

What are some of those issues your agency is facing with existing HOV-only facilities?



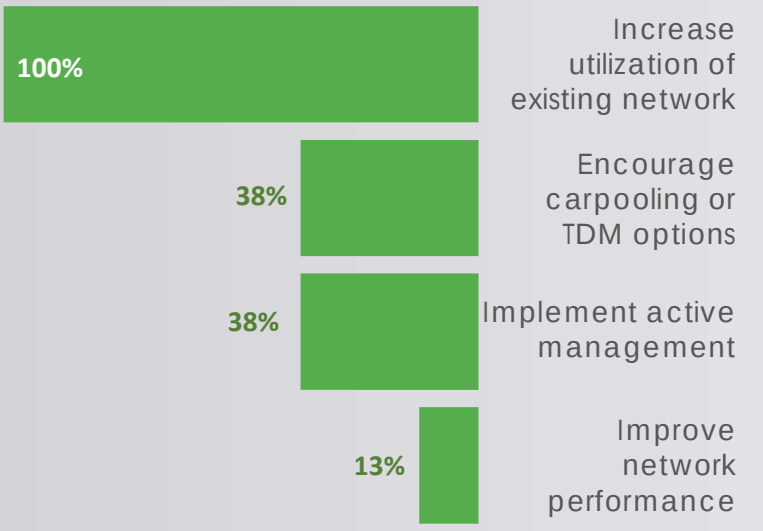
What solutions has your agency considered to address HOV network performance?



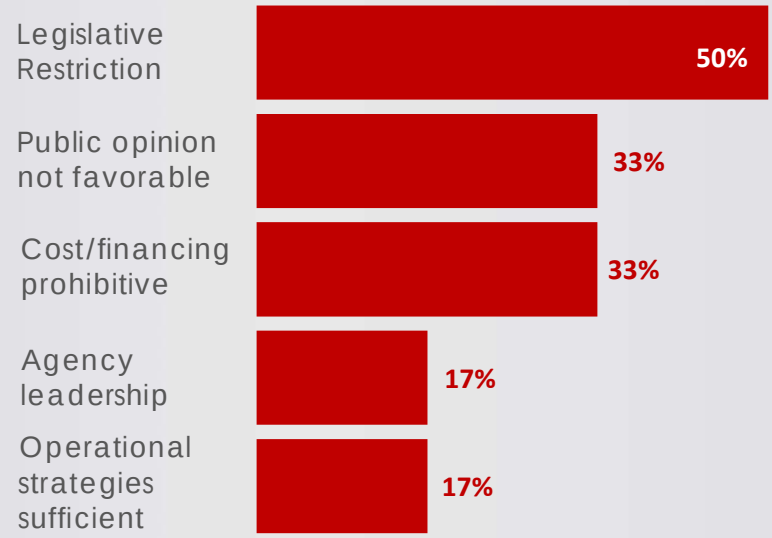
CONVERTING HOV TO HOT LANES

Over half of respondents have converted or are planning to convert HOV lanes into a HOT network.

Goals for Conversion



Reasons For Not Pursuing Conversion



KEY FINDINGS FROM HOV TO HOT CONVERSIONS

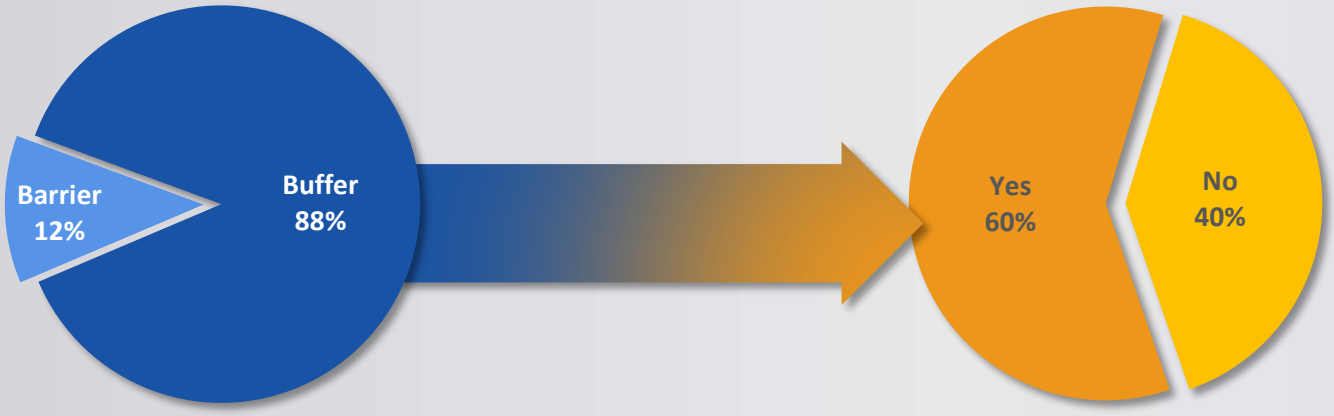
- HOT lanes with the ***HOV2+ free perform better*** than the HOV lanes alone.
- ***Lane performance is not compromised*** by HOT conversion.
- ***Transponders require better marketing*****.** One agency reported very low usage because many didn't have the transponder to take advantage of the lane.
- Carpooling has at times increased and then decreased. It appears that the ***price of gas is a more significant determinant*** of carpooling than the availability of HOV lanes.
- ***Throughput increased on HOT lanes*** compared to HOV operations only.
- ***Mean travel speeds in both HOT and GP lanes increased*** post deployment.

EXAMPLE BEFORE AND AFTER CONVERSION IMPACTS

Pre-HOT/Express Lane		Post-HOT/Express Lane Implementation
17.5%	HOV/HOT lane utilization during peak period	32%
25% & 75%	Vehicles in HOV lanes & general purpose lanes	33% & 67%
19%	Vehicles registered as HOV 3+	26%
9%	Carpool rate in corridor (HOT and GP)	13%
88%	Single occupant vehicle rate in corridor (HOT and GP)	83%
3%	Transit use in corridor (HOT and GP)	4%

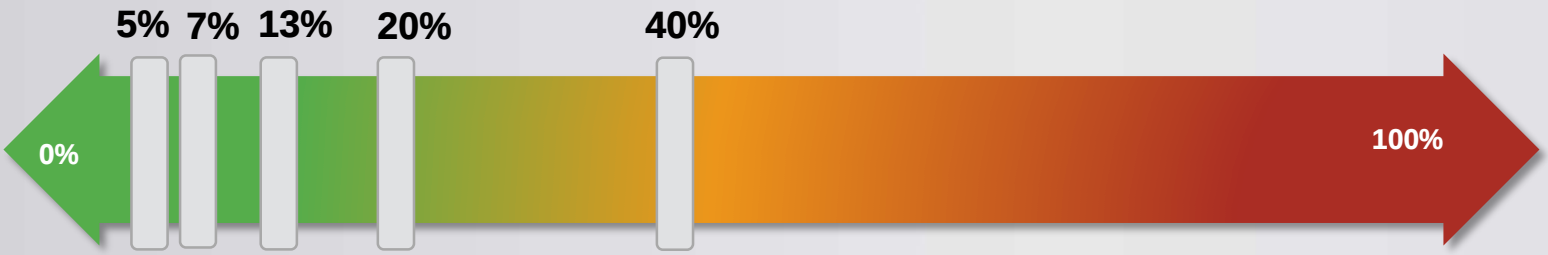
USER RESTRICTIONS

Are your HOV/HOT lanes barrier separated, or buffer separated from the general use lanes?

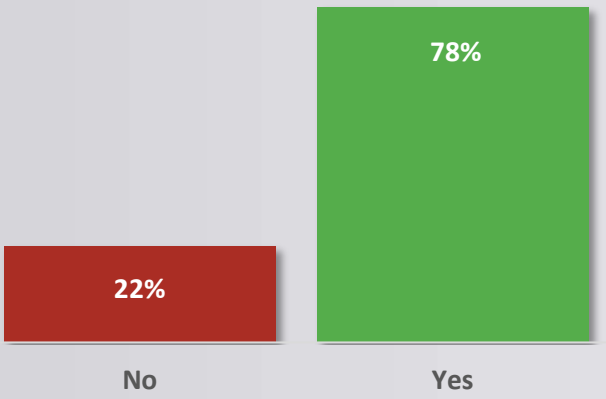


If buffer separated, have toll violations increased from drivers avoiding tolls?

What is a general estimate of toll avoidance or HOV violation rates on your network?



Are zero-emission (ZEVs) or partial/energy efficient vehicles (PZEVs) allowed in HOV or HOT lanes?

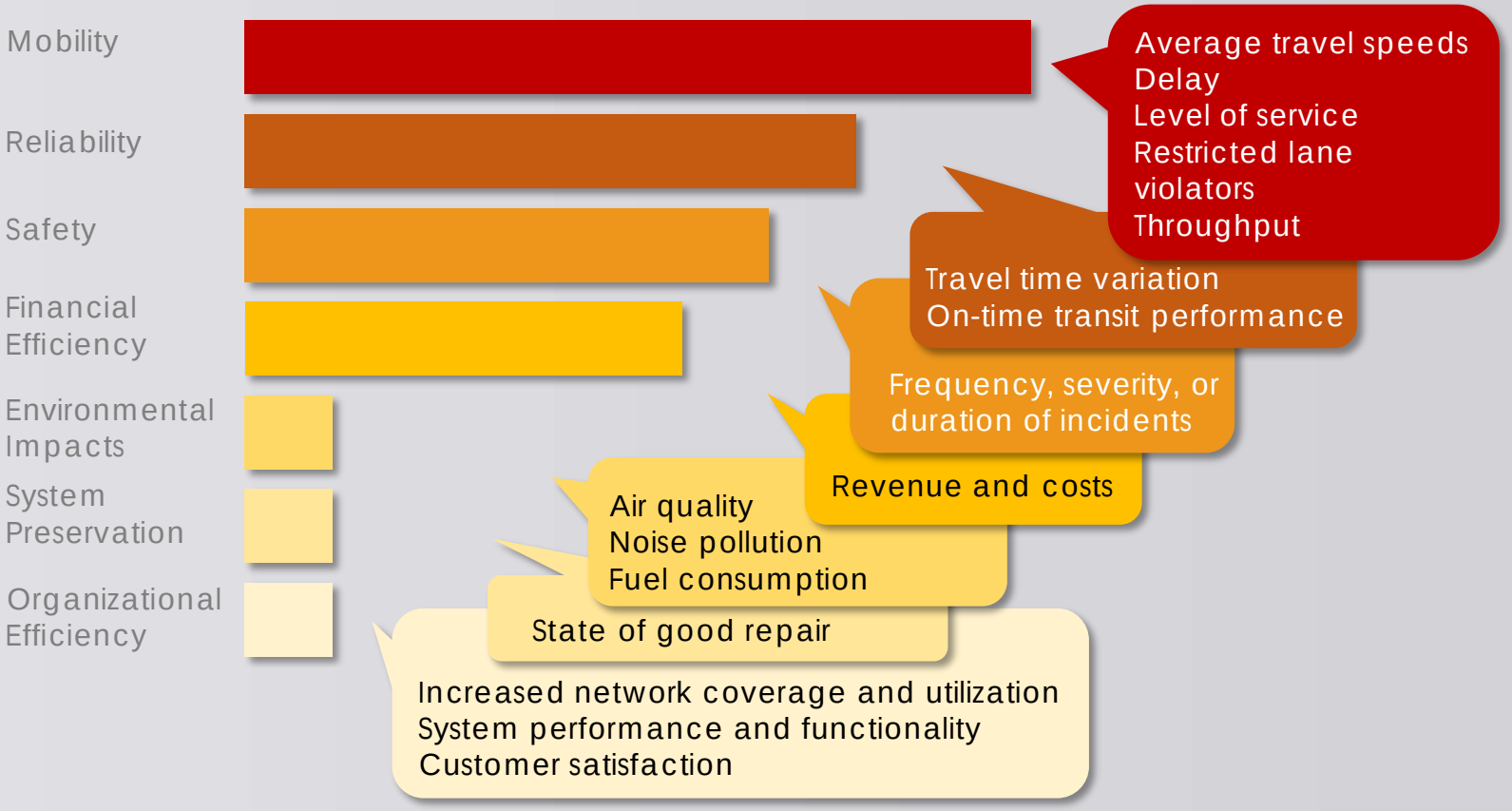


How are exemptions monitored or enforced?

- HOV and motorcycles are **visually monitored.**
- Plug in electric vehicles are allowed with a **permit or license plate** tag.
- All exemptions must register their vehicle and be issued a **license plate, transponder, or decal** based on the jurisdiction.

PERFORMANCE IMPACTS

What performance measures are used to track HOV/HOT lane network performance?



FINANCIAL OPERATIONS

Have HOT lanes been able to pay for themselves since opening?

"A single HOT lane does cover operations, but not the capital costs to implement."

How are the revenues raised from your HOT lanes been used?

DEBT PAYOFF

"**Pay off debt**, pay for transportation improvements in the corridor."

RESERVES

"Revenues in excess of that needed to cover operating costs are set aside for renewal and replacement costs . **Our goal is to maintain a 90 day operating reserve**."

CORRIDOR INVESTMENT

First to cover operating costs. The dual lane system **will generate enough funding to actually invest in other improvements** in the corridor.

TRANSIT

"After operations costs are covered, **half of the revenue is shared with transit**."

PUBLIC OPINION

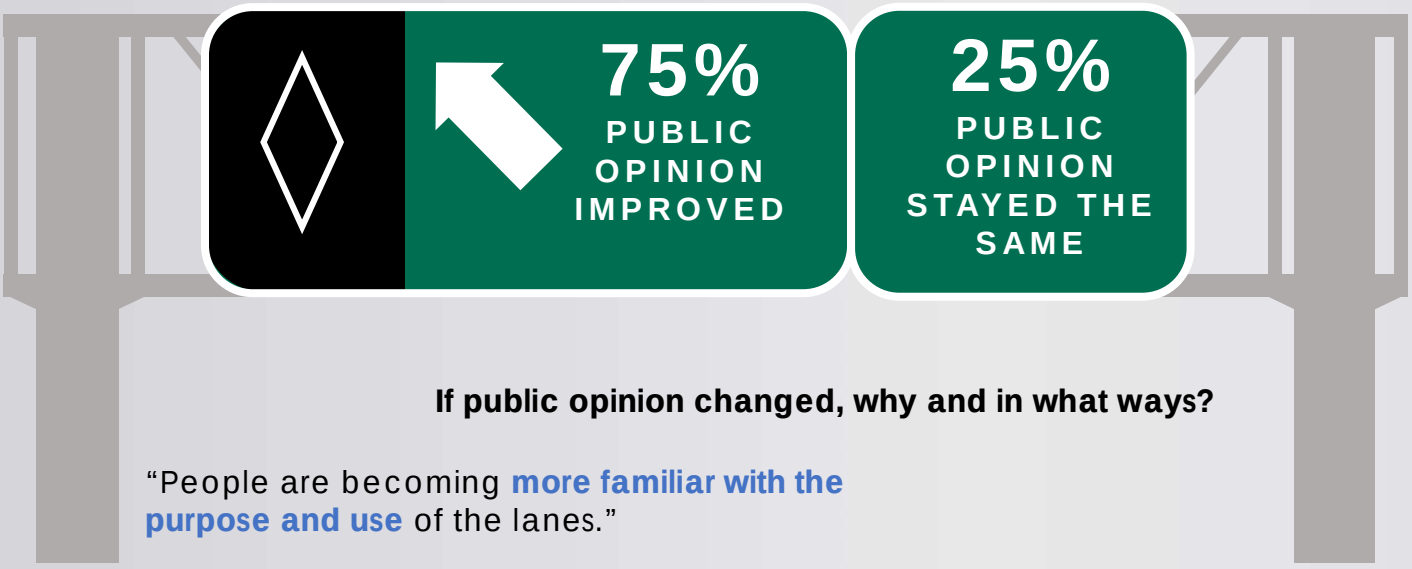
Most agencies have seen improvements in public opinion since converting HOV lanes to HOT lanes.

What was the public response before and after the conversion?

"Most complaints came from the **restricted access**. On a different facility, **the response has been somewhat negative amongst GP lane drivers but positive to those who are using the HOT lane.**"

"There was significant dissatisfaction with the HOV policy alone prior to the conversion. After conversion to HOT **the public has accepted tolling SOVs as a better operations method** than the HOV policy alone."

"Public response prior to the lane opening was mixed. The conversation began to change as usage statistics were shared with the public and the media. **After a "learning curve" of about 3 to 6 months, public perception was neutral and positive for those that chose to use the lanes**."



If public opinion changed, why and in what ways?

"People are becoming **more familiar with the purpose and use** of the lanes."

"Prior to opening, **the public thought HOT lanes would open the door to widespread tolling** on the system. That has not happened, and **they see the improved performance of the lanes as a better way to manage the facility**."

"**Users have found value in the reliable trip time that the HOT lane provides**. Usage of the lane with regard to trips taken continues to reach new levels. Each year total trip count has grown. In addition we currently have a 92% customer satisfaction rate."