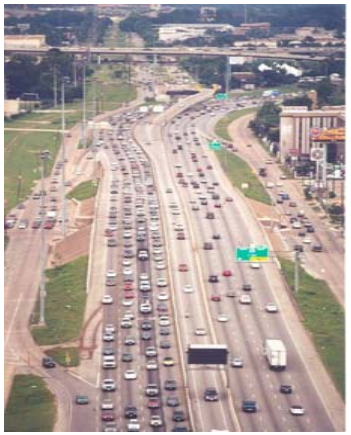
PROJECT DESCRIPTION

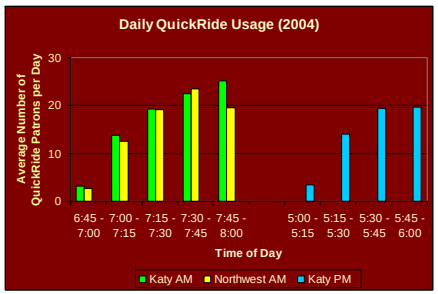


KATY (I-10) HOT LANE

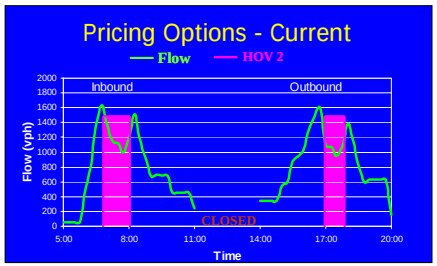
- 13 mile (20.9 km), one-lane reversible facility in the median of Katy (I-10) Freeway.
- HOT operations (QuickRide) began in 1998.
- Available during peak period (6:45 - 8:00 a.m. and 5:00 – 6:00 p.m.)
- Average travel time saving is about 17 minutes.

NORTHWEST (US-290) HOT LANE

- 15.5 mile (25.0 km), one-lane facility in the median of Northwest Freeway (US 290).
- HOT operations (QuickRide) began in 2000.
- Available only in the morning peak (6:45 - 8:00 a.m.).
- Average travel time saving is about 11 minutes.

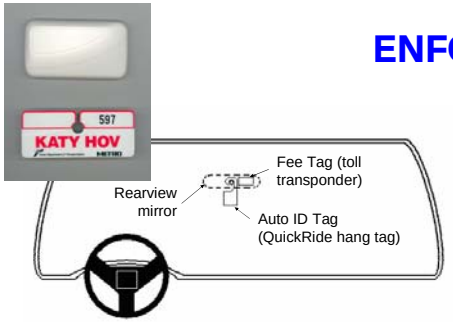


- The current QuickRide program receives approximately 217 uses per day
- Patronage has increased steadily since operations began in 1998
- Capacity is limited in the peak period, due to high demand from HOV3+ and buses



- Space exists on the HOT lane for additional vehicles outside of the peak periods.
- Congestion remains on the general purpose lanes outside of the peak periods.
- Therefore, the opportunity exists to sell excess HOT lane capacity to off-peak SOV travelers.
- However, several operation obstacles must be overcome, including:
  - ➢**ENFORCEMENT**
  - ➢**DYNAMIC PRICING**
  - ➢**COMMUNICATING WITH USERS**

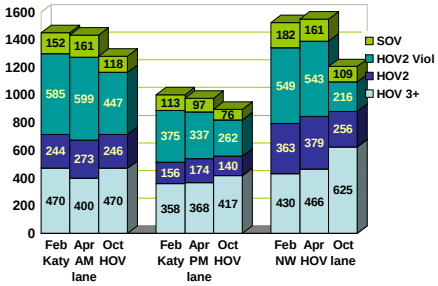
ENFORCEMENT



PROCEDURES FOR ENFORCING QUICKRIDE

- Enrollees must display windshield identification tags
- Identification tags and vehicle occupancy checked simultaneously by visual inspection at enforcement area

USAGE BY VEHICLE CATEGORY, 2002 and 2003



ENFORCEMENT CONCERNS

- High violation rates
- No method to confirm account status in the field
- Unauthorized HOV2s impossible to detect
- Accuracy of occupancy count difficult at some locations due to speeds
- Enforcement resources stretched
- Majority of customer complaints: violators

Field Test of Equipment for Enhanced Compliance, April 2004

- Trailer and gantry-mounted units with indicator lights were installed at the Eastern Extension enforcement area on Katy
- The equipment was supplemented with customer warning cards and a mass mailing reminding customers and apparent violators of operating requirements

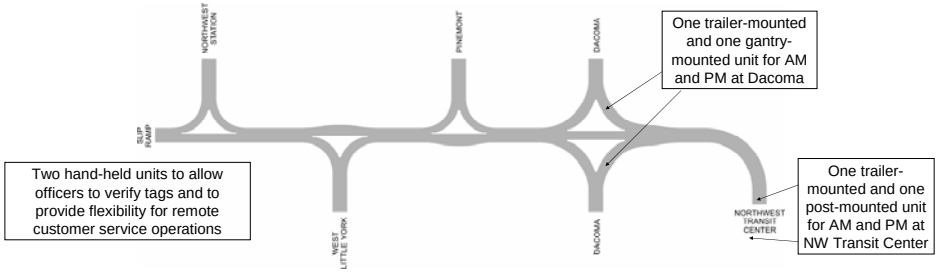
Trailer-mounted Enforcement Unit

Gantry-mounted Enforcement Unit

Changes in Compliance as a Result of Field Tests

Enforcement Location	AM Peak Violation Rate		PM Peak Violation Rate	
	April 2003	April 2004	April 2003	April 2004
I-10 Eastern Extension (test site)	67%	34%	53%	29%
I-10 Post Oak	61%	57%	56%	50%
US 290 NW Transit Center	55%	50%	Not operational in PM peak	

Proposed Implementation of Enforcement Technology on US 290

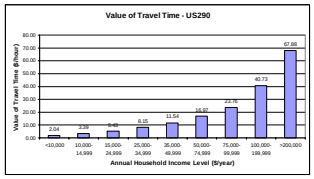


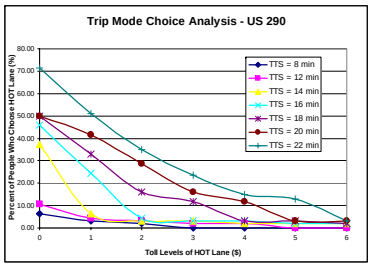
DYNAMIC PRICING

- There is limited capacity available since both HOT lanes are single lane facilities.
- Each freeway carries over 200,000 vehicles per day → a large potential number of HOT lane users.
- For the lanes to remain uncongested requires the ability to rapidly alter the price of entry.
- Therefore, dynamic pricing based on real time traffic conditions is required.
- To deliver dynamic pricing requires:

A. Understanding User's Willingness to Pay

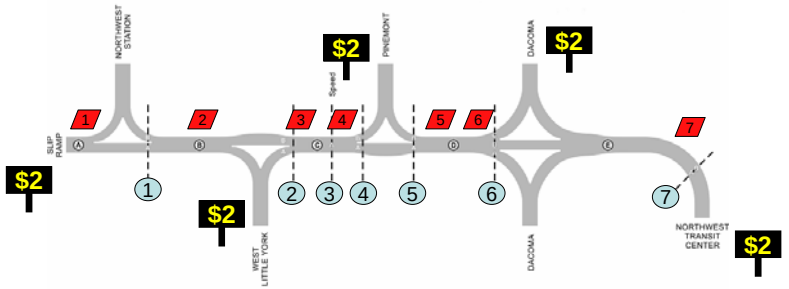
- A stated preference survey was used to gather information from:
  - SOV travelers in the general purpose lanes, peak or off-peak
  - HOV2 travelers in the general purpose lanes, peak or off-peak
  - HOV2 travelers in HOT lanes
    - Peak: QuickRide $2
    - Off-peak: free
  - HOV3+, bus, motorcycle travelers in HOT lanes
    - Always free
  - Casual carpool (slugs) in HOT lanes
    - Generally free





B. Deploying Required Technologies

- Multiple entry and exit locations increase the difficulty of:
  - Determining the current travel speed and flow rate on the HOT lane.
  - Estimating future travel speeds and flow rates on the HOT lane.
  - Determining the appropriate price based on those speeds and flow rates.



Speeds and flows from WaveTronix sensors via CDMA
Speeds from AVI readers via TranStar
} sent in real time to the traffic server

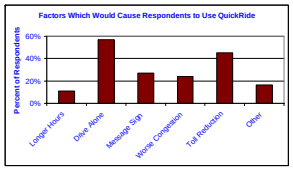
The traffic server determines the correct toll and sends this data to signs $2 in real time and to the QuickRide billing server on a daily basis.

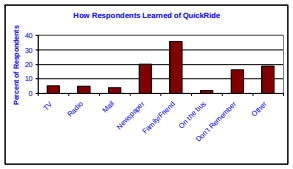
Transponder numbers and time of day are collected from AVI Readers and then sent to the QuickRide billing server on a daily basis. QuickRide bills based on this data plus stored price data.

USER COMMUNICATIONS

A. Understanding User Needs

- Used focus groups and surveys to identify critical information that travelers require prior to choosing to use the HOT lane.
- Determined how travelers found out about the current QuickRide program.





B. Public Education Plan

Goals:
- Increase awareness & image of QR
- Increase QR membership and usage

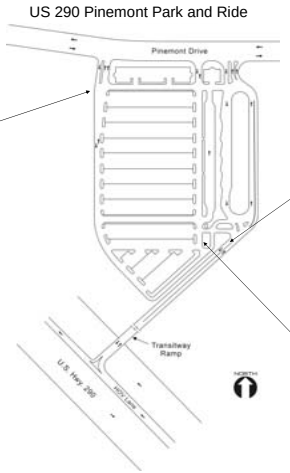
Recommended Outreach Efforts
- Graphic Identity
- Project Champions
- Public Relations/Media Blitz
- Website
- Kickoff Promotion/Goodwill Efforts
- Community Appearances
- Advertising
- Employee Training

C. Real-Time Communication

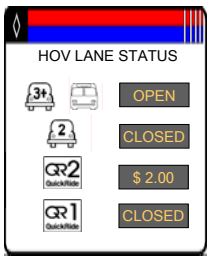
- General program information provided at non-critical locations
- Regulatory information provided in advance of price
- Lane status and current price provided where diversion is still possible

PROGRAM INFORMATION

US 290 Pinemont Park and Ride



PRICE



REGULATORY