

Design and Operation of the I-30 Tom Landry Managed Lane Value Pricing Project in Dallas, Texas

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OVERVIEW

Project Overview

The I-30 West Managed Lane is the first value pricing project in the Dallas area along I-30 Tom Landry Freeway corridor. This corridor is a general purpose freeway with a managed HOV lane in the median. The facility opened in 2007 with its initial phase as an HOV lane. In general, the western section is concurrent flow operation on the inside median, the center section is 2-lane reversible, and the eastern section is 1-lane reversible.

The Dallas region has an aggressive managed lane policy to test various operational and pricing strategies. The I-30 corridor serves as the region's value pricing test bed where strategies can be tested before being applied in other corridors. A key element of the managed HOV lane is a tolling gantry design that allows carpools and single-occupant vehicles to be tolled at variable rates based on occupancy while maintaining the free-flow operation of the lane.



KEY REGIONAL MANAGED LANE POLICY

Fixed Schedule Pricing Policy

- A fixed-fee schedule will be applied during the first six months of operation; dynamic pricing will be applied thereafter.
- The toll rate will be set up to \$0.75 per mile cap during the fixed-schedule phase.
- Toll rates will be updated monthly during the fixed-schedule phase.
- Single-occupant vehicles will pay the full rate.
- High-occupancy vehicles of two or more occupant and vanpools will pay the full rate in the off-peak period.

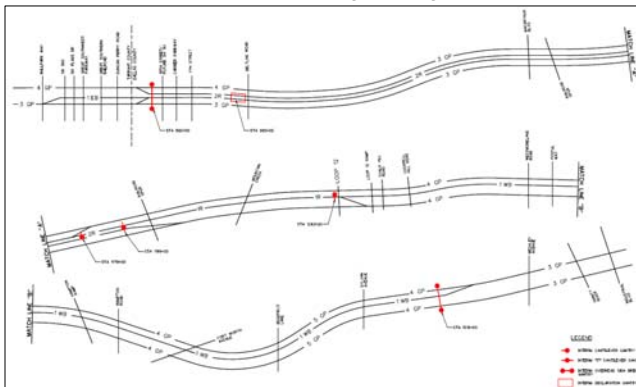
Dynamic Pricing Policy

- Market-based tolls will be applied during the dynamic-pricing phase.
- The toll rate will be established to maintain a minimum average corridor speed of 50 miles per hour. An escalating operating cap will be applied to minimize toll exposure.
- High-occupancy vehicles of two or more occupants will receive a 50 percent discount during the peak period (6:30 a.m. – 9:00 a.m. and 3:00 p.m. – 6:30 p.m.).
- During the dynamic-pricing phase, tolls will be rebated if the average speed drops below 35 mph. Rebates will not apply if speed reduction is out of the control of the operator.

PHASES OF DESIGN

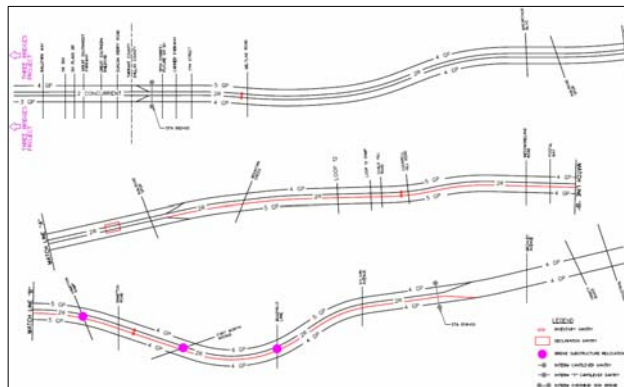
Phase 1.5 – Interim Tolling

Reversible managed HOV lane with varying lengths.
Add toll collection to the existing managed HOV lane



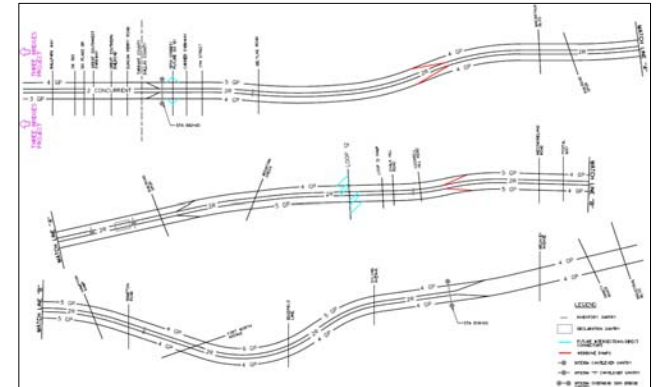
Phases 2 & 3 – Lane Extension

Extend 2-lane reversible managed HOV section and widen general purpose lanes over Trinity River Bridge



Phase 4 – Improved Access

Add wishbone ramps and direct connections at the Loop 12 interchange for NB to EB and SB to WB



Research sponsored by:

US Department of Transportation
Texas Department of Transportation



Research conducted by:



TOLL GANTRY DESIGN FIELD TEST

Description of Field Test

- Full scale mock-up of the toll gantry design with temporary pavement markings and pylons
- Conducted at the TTI Riverside Facility in College Station, TX
- Project team and staff from participating agencies able to drive through the design at highway speed
- Unable to simulate vertical curvature or overhead signing



Question to be Answered by Field Test

- How does the lane shift at the gantry work?
- Does the design encourage/discourage passing?
- What is the comfort at high speed?
- What is the comfort with a vehicle platoon?
- How is visibility behind a large vehicle?
- Do the pylons assist the design?
- Do we agree with HOV being in the right lane?



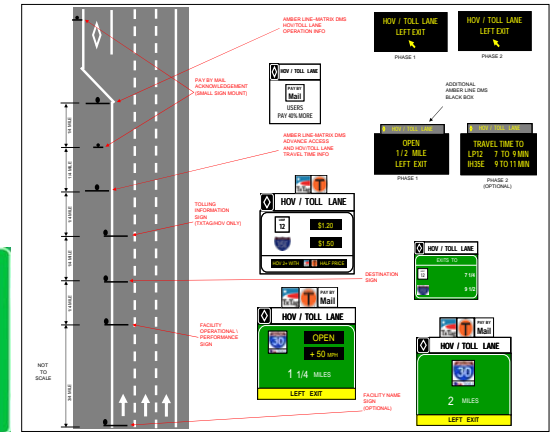
Field Test Findings

- Lane shift design was comfortable at highway speeds
- Design may discourage passing maneuvers
- Pylons effective traffic control
- Visibility of the gantry when following a platoon of vehicles was a concern
- Design Revisions = adjust gore taper and include more emphasis on the overhead sign design

SIGNING CHALLENGES

Signing Information

- 1) Managed lane is ahead
- 2) Distance to the managed lane entrance
- 3) Managed lane is open or closed
- 4) Managed lane entrance is a left exit
- 5) Distance to Managed Lane destinations/exits
- 6) Location of the actual managed lane entrance
- 7) Means of payment



ACKNOWLEDGEMENTS

Participating Agencies

- Texas Department of Transportation (TxDOT)
- Dallas Area Rapid Transit (DART)
- North Texas Tollway Authority (NTTA)
- North Central Texas Council of Governments (NCTCOG)
- Texas Transportation Institute (TTI)

Key Project Team Members

- Stephen Endres, P.E., Project Manager, TxDOT
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