Preferential Treatment Through a Free or Discounted Toll on Managed Lanes

Consider these benefits in making a decision:

- *Person Throughput* – Offering HOV3+ free, with varying degrees of HOV2 paying, can result in significant person movement increases, in some cases the equivalent of an additional lane of traffic.

- *Emissions* – The research results indicate that the peak-hour emissions of CO_2 were reduced by introducing carpool preference policies. There is a negligible difference between the different carpool policies when considering other typical peak-hour emissions.

- *Revenue* – In general, revenue declines as exemptions increase, meaning preferential treatment of carpools result in lower toll revenue over conditions where all users pay.

Facts about Managed Lanes

- Successfully operating managed lanes requires operating lanes in ways that keep traffic flowing—whether during day-to-day operations or isolated incidents.
- In addition to optimizing capacity, managed lanes may generate revenue while increasing mobility.
- Managed lanes may move more people through preferential carpool policies and reduce CO_2 emissions.
- Texas cities that currently have toll roads and HOV lanes support the concept of "managed lanes" because of the ability of those lanes to offer faster travel and trip reliability.
- HOT lanes are a form of managed lanes where carpools and other high-occupancy vehicles receive a toll-free trip while lower-occupant vehicles pay the full toll.

Texas Department of Transportation

Texas Transportation Institute

Project Team:
TTI: Ginger Goodin, Mark Burris, Casey Dusza, David Ungemah
UTA: Jianling Li, Stephen Mattingly, Sia Ardakani

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Texas Transportation Institute

For more information, please contact:
TxDOT Research and Technology Implementation Office
(512) 465-7403

How Do Carpools Fit Into Managed Lane Policies?

RMC Project: 0-5286
TxDOT-RMC Product: 0-5286-P2
Project Title: Role of Preferential Treatment of Carpools in Managed Lanes Facilities

Texas Department of Transportation (TxDOT) Research Management Committee project 0-5286, *Role of Preferential Treatment of Carpools in Managed Lane Facilities*, identified the benefits, drawbacks and tradeoffs of giving carpools preferential treatment on managed lanes. Texas Transportation Institute (TTI) researchers conducted a survey of freeway users in Houston and Dallas, generating more than 4600 responses. Relevant information from the survey addressed the following key questions.

Why do people carpool—or not?

- The most common reason for forming a carpool is to have access to the high-occupancy vehicle (HOV) lanes, particularly for work/commute trips.
- Family members make up the vast majority of carpools. However, their choice to carpool over other options mirrors the choices made by acquaintance carpools.
- The most important reasons why drivers do not form carpools relate to inconvenience.

What are the reasons for interest in managed lanes?

In priority order:

- Able to travel faster than general purpose lanes
- Travel time reliability
- Less stressful than the general-purpose lanes
- No large trucks
- Able to travel alone and still use managed lanes
- Able to use transit on managed lanes
- Able to use carpool/vanpool on managed lanes

What are the reasons drivers are not interested in managed lanes?

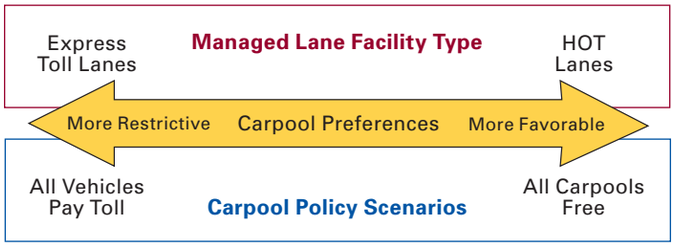
In priority order:

- I do not want to pay the toll cost, or I feel my taxes have already paid for the roads.
- I have flexibility to travel at less-congested times.
- I already use a carpool, bus or train and will not change.

See the full survey results at **www.houstontravelsurvey.org.**

Managed Lane Policies

Determining the right policy for carpools depends on project objectives and what you are trying to achieve in your region and with your particular facility. In most cases there is a balancing of tradeoffs that takes place; for instance, you may want to maximize revenue while also providing an incentive for ridesharing through toll discounts. In the figure below, alternative carpools policies are mapped according to typical objectives they accomplish:



Demand Management Considerations

Given the prospect of funding shortfalls and the need to recover operations, maintenance and capital costs where possible, any added lanes TxDOT considers are being evaluated for tolling. However, one managed lane policy does not fit all facilities.

Different demand management techniques include:

- Variable pricing
- Access control
- Vehicle-type requirements, including preferential treatment for carpools

In the table below, the coded dots represent a policy's probability of success based on what objective you are trying to accomplish.

Carpool Policy Scenarios

Managed Lanes Performance Objectives	All Vehicles Pay	HOV3+ 50% HOV2 Pay	All HOV 50% Toll	HOV3+ Free HOV2 Pay	HOV3+ Free HOV2 50%	All Carpools Free
Person throughput	○	◒	◒	●	●	●
Revenue generation	●	●	●	◒	◒	○
Emissions reduction	◒	◒	◒	◒	◒	◒
Operational performance	◒	◒	◒	◒	◒	◒
Enforcement and operational simplicity	●	◒	◒	◒	○	◒
Public perception and support	○	◒	◒	◒	◒	◒

Relative success in achieving performance objective: High ● Medium/Neutral ◒ Low ○