

MEMORANDUM

TO: Houston HOT Lanes Developer and Operator

FROM: TTI Researchers Mark Burriss (mburriss@tamu.edu), Bob Brydia (r-brydia@ttimail.tamu.edu), Linda Cherrington (l-cherrington@ttimail.tamu.edu), Sue Chrysler (s-chrysler@ttimail.tamu.edu), and Ginger Goodin (g-goodin@ttimail.tamu.edu).

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The TTI researchers listed above, aided by many other TTI researchers, have spent many hours during the last decade studying HOT lanes around the country – with much of that time focused on Houston’s existing and potential HOT lanes. Our most recent efforts included a three year project for the FHWA Value Pricing Pilot Project and TxDOT managed by David Fink. As part of this project we examined tolling, enforcement, communications, policy and technological issues surrounding the potential conversion of Houston’s 5 HOV lanes to HOT lanes. The details of our research are documented in eight technical memorandums available from us or David Fink. Below we have summarized some of the key points we believe to be critical for the success of these lanes. There are many more issues and details that deserve attention and are addressed in our reports that we would be happy to discuss with you.

Tolling

1. Use a single toll per HOT lane regardless of entry and exit point. Vary this toll by time of day, increasing the toll during periods of peak demand. This keeps the pricing system as simple as possible for users, but still maintains free flow on the HOT lanes.
2. Use a declaration lane approach to tolling. One lane is for vehicles who “declare” that they meet the HOV requirement and are not tolled. All vehicles in the other lane are charged a toll. This avoids the need for HOV vehicles to register to be eligible (like QuickRide) which can fail over time.

Communication with Drivers

3. The HOT lane approach signs should work as a system that can be applied to main lane or arterial approaches. The system of signs must address price, program, and regulatory (including eligibility) information.
4. The banner located at the top of the signs, as well as payment terminology and payment symbols should be consistent amongst the signs, including advance entrance signs, trailblazers, signs within the lane, and signs marking exits from the lanes.
5. Signs should be simple and uncluttered at HOV/TOLL lane entrance. Price signs should be placed where the driver can choose to turn around safely and not enter the HOV/TOLL Lane.
6. Clear signage is needed to explain who does or doesn’t need a toll tag.
7. The new [federal] Manual on Uniform Traffic Control Devices (expected early 2010) will contain guidance on managed lanes [that will apply to HOV/Toll lanes]. TxDOT Traffic Operations Division currently has draft guidelines available on request.

Enforcement/Policy

8. Utilizing HOT toll revenue for enforcement of Houston's HOT lanes should be a fundamental element of the operating agreement between TxDOT and METRO.
9. The cost of enforcement can also be recovered through fines and administrative fees for failure to pay a toll. The statutory ability to implement fines and administrative fees for toll evasion on HOT lanes differs by agency. The most effective system for HOT lane enforcement and cost recovery using fines and administrative fees may be achieved through an interlocal agreement between TxDOT and METRO. There may be some opportunities to strengthen enforcement if the Harris County Toll Road Authority is a party to the interlocal agreement.
10. Occupancy enforcement is and will continue to be the most resource-intensive activity for ensuring HOV compliance due to the requirement to perform visual observations. The proposed enforcement concept using declaration lanes, primarily at park-and-ride sites, is an effective approach to separating HOVs for occupancy verification. Attention is needed at a handful of locations to ensure there is sufficient area for downstream enforcement points where violators are detained and cited.
11. Effective HOT enforcement involves a continuum of activities that must be addressed, including presence of law enforcement, public education, penalties that serve as sufficient deterrence, and a supportive adjudication process.
12. Using a single toll per HOT lane simplifies enforcement operations. Multiple tolling points will require additional enforcement locations, including intermediate locations where space is limited and higher speeds impact accurate occupancy observation.

Technology

13. The communications system must be carefully designed to provide a back-haul pathway for all functions on the corridor generating data, which includes Electronic Toll Collection, License Plate Recognition, Automated Reversible Gate Operation, surveillance cameras, speed and volume counts, and more.
14. The total number of additional cameras deployed on the HOV/Toll lanes, which could number 50-75, could have a significant impact on TranStar operations, including tours, operator needs, and integration needs.

Feel free to contact any of us with HOT lane questions. We have a wealth of managed lane and HOT lane experience, both in Houston and around the country. We would like to help develop these HOT lanes so that the lanes provide the traveling public with the maximum possible benefits.