

TRB HOV, HOT and Managed Lanes Committee

Mid-year Meeting Minutes

September 1st and 2nd

J.Erik Jonsson Woods Hole Center

Woods Hole, Massachusetts

Tuesday, September 1, 2009

Participants

Amy Grove, Lynn Purnell, David Ungemah, Beverly Kuhn, Jeff Roberta, Ching-Yao Chan, Don Samdahl, Jessie Yung, Greg Jones, Jim Edwards, Ginger Goodin, Chuck Fuhs, Katie Turnbull, Bill Finger, Luisa Paiewonsky, Ken Daley, Glenn Havinoviski, Ed Mark, Jeff Oneill, Kerwin Stocks, Randy Guensler.

8:30-9:45 a.m. Overview of Mid-Year Meeting Objectives – Don Samdahl

Self introductions were made, then Don covered objectives for the mid-year meeting. .

Breakout Sessions – Purpose

Don Samdahl introduced the purpose of the break-outs.

Ginger shared information from our committee's strategic plan:

- 1) continue to foster input to research and development
- 2) contribute to sharing of information dissemination
- 3) provide leadership and coordination with entities outside the TRB structure, reaching out and connecting

The main result we are looking for is a clear definition of key issues and research needs. Session moderators will give a quick overview of the topic we are leading. Two break-out groups were structured for the remainder of the first day. Short overviews were presented at the committee meeting focusing on overarching issues. Goal was to come out with specific actions and recommendations from each break-out group.

- Provide a setting for focused discussion and input by all participants on **key trends and challenges**
- Identify **research needs** for the topic
- Identify **outreach tools** for sharing information on the topic if appropriate (webinar, white paper, workshop, conference session, etc.) and
- Identify **professional organizations**, TRB committees, or other groups to coordinate with on the topic

The four break-out group facilitators then introduced the scope of their topics.

Beverly presented active traffic management needs and scope of congestion mitigation for their subcommittee. In an environment of limited funding, there are needs resulting from the first projects.

Jeff presented the safety, access control and design. Design and safety is foremost for this topic. How does geometric design affect safety. Enforcement is the biggest challenge on HOV and HOT lanes. Signing consistency is a goal.

Ginger presented public outreach topic and Jim Edwards discussed transit and carpool changes that are influencing HOV and HOT lanes.

10:00-11:45 a.m. Breakout Sessions on Planning and Design Topics

Safety, Access Control/Design, Signing, Enforcement - Jeff Roberta

Sue Chrysler, Myron Swisher, Steve Schijns, and Darryl VanMeter joined on-site participants in the break-out discussion.

Several projects were highlighted in the discussions. On the access discussion, I-495 is proposed to have 9 direct access interchanges in 14 miles. Jessie wanted both concurrent and reversible lane design needs addressed. Different facilities have different criteria.

Access length guidance

If there is not guidance, there is no support for individual facilities, or tools to be used. I-85 (Atlanta) will have designated access. None of the current HOT lanes offer continuous access.

HOT lanes and dynamic pricing and decision making must be made quickly by motorists, and decisions drive the operational pattern differently. There are different needs that should be looked at for each project. Research is needed to substantiate access and trip needs.

Signing Needs

Should signing show regional destinations? Ken: We have come up with three definitions to 1) single lane pricing—a guarantee no matter how long you drive, 2) variable pricing and indicative price for subsequent segment 3) surcharge based pricing over a base dynamically. Sue: The more complicated your tolling structure, the more complicated your signing. Even a two-segment price has more lines. Operators are not thinking through the implications (on signing); maybe they are on tolling equipment or algorithms. Get tolling operations folks involved early in the discussion. Jeff did not see how the complexity being addressed in the field. Ken: We are not dealing with our customers on the road, the web will change communication to users. Informing people of how to use roads will change. We need to spread our vision. It's a much larger task of giving people competence in making decisions before they hit the road. Sue: in the first work we did for TxDOT, you can't put all of this information on a sign. Jeff: SHRP reliability program, on how to convey travel time reliability information. Research on how to convey reliability information. More communication via the internet is needed. Trip planning software. Public underestimates the toll and overestimates their travel time savings. Average is 2 trips a week. Much more discretionary use. We have a different value proposition—when you need it. Other venues include 511, Intellidrive

or others. There are other ways to impart information. Some research is being documented on variable vs dynamic pricing, but some P3s require dynamic pricing to meet the LOS speed requirement. Sue: we cannot just assume information will be on their cell phone and portable media—something must be on signs. Human factor research is needed. TTI has a roadmap that has been developed, but no funding to move forward. That would be a place to start.

There is a need to update both the FHWA HOT lane guide and HOV Systems Manual. That was the original intent for creating the Systems Guide—to keep in evolutionary and updating various chapters. There is a need for supporting DOTs to address needs.

Enforcement Issues

Counting the number of people in the vehicle is the most important need for HOT lanes. There are a number of different practices to help with this function. CA has done a good job with HOV enforcement. Engineering, education and enforcement are the components. Engineering—there is good guidance in AASHTO HOV guide. Enforcement requires the staffing in the field, adequate fines and adjudication procedures. Education is communicating this awareness.

Declaration lane model is being applied in Texas and SR 91 in CA. Using technology to assist the driver is important. Carpool registration is a new approach to targeting the violators, to get special designation.

Switchable tags are being considered in VA and CA for various projects. Where are we going with this? Occupancy detection is still in “test” phase. We are co-sponsoring a workshop at the January 2010 annual meeting with another committee talking about re-inventing carpooling, to match drivers and riders. If this technology works for matching carpoolers, can it also work in confirming carpoolers. Maybe the HOV violation needs to be decriminalized.

In the longer term, what are the best enforcement practices? We are searching for behavior-based enforcement. We will never get 100%. There are some user groups that are problematic. If he has one passenger, he will pass the passenger on to the two passengers. If there are two passengers, they are free. But for rental cars, “I had two passengers so I should not pay the toll.” We are not too worried about the occupancy. There are other things we will need to address. Capital Beltway goal are 8% to start down to 3-4% leakage total for all sources. How do we get tolls from other states? What is the accuracy of the license plate database from the home and adjacent states? How will video system work? The way we have overcome this is LPR will charge you the toll. You have to have the switchable tag to get a zero toll. The toll system takes a photo of any tag which cannot be read and keeps a database. Ken: For one read you get a letter; one read per week you get a bill.

Identification of Research Needs

San Diego study of enforcement technology is being tested—fully automated and semi-automated mode. SANDAG is sponsor. One vendor was chosen for infrared

technology. Test will occur late 2009-early 2010. Detection rate is supposed to be higher than 90%. HOV-2 is the threshold for I-15, so this will be a good test.

Congestion Mitigation/Throughput Performance - Beverly Kuhn

Need for Better Modeling

In many regions across the country, corridors are heavily congestion, the infrastructure is old and bound with development, and there is a need to improve operations and maximize the opportunities. Many agencies have done lots of studies to determine growth and demand, but there is a need to have better modeling capabilities to predict the impacts of various operational strategies on travel demand. Current simulation and modeling tools cannot accurately predict what impact a managed lanes or other operational change may have on overall household travel activity. Furthermore, it is difficult to get demand estimates for operational strategies such as HOT lanes as well as to be able to forecast that demand ahead of time, prior to opening. It is also difficult to conduct a detailed analysis of the impacts of HOV and HOT lanes on greenhouse gases.

User Groups

Much was discussed with respect to the user groups of the HOV, HOT, and managed lanes facilities. The assembled group determined that we need to survey potential user groups to understand their specific characteristics and how they use the various types of facilities in the region. Difficulties arise in surveying carpoolers. Studies have shown that many HOT lane users do not use the facility every day, rather only a few days a week.

Outreach Issues

The group discussed the fact that the general public often does not perceive the operational issues in the way intended by the transportation profession. For example, much is made of the potential throughput gains of managed lanes facilities. However, clarification is often needed to distinguish between person throughput and vehicle throughput. Drivers tend to only see vehicles rather than vehicle occupancy. It is also important to convey the concept of travel time reliability rather than travel savings. Much is being done within the SHRP2 program on the subject of reliability and conveying the message to users, so we need to monitor those activities. Additional outreach needs to be undertaken to correct the frequent misconception that HOT lanes and other managed lanes facilities are large revenue generators.

Identification of Research Needs

An in-depth survey of users in corridors where HOV lanes have been expanded to HOT lanes and general purpose lane capacity was added in reconstruction. The intent needs to be to determine the impact the expansion and change in overall operations impacted carpools and the nature of carpooling, especially if the occupancy requirements changed as a result of the expansion. Those facilities that could be included in the survey are Houston (I-10), San Diego (I-15), Miami (I-95), and Virginia (I-495).

Noon Luncheon Session

Project Delivery – Who is Doing What and Why? David Ungemah, Ken Daley

David's presentation on delivery methods is provided as an attachment to the notes.

Ken's Presentation

P3-Chicago and Indiana were "bad" examples, securitized an existing asset. Security for I-595 comes from FDOT, so this example is quite a dumb deal versus optimizing risk. The principle of the private sector is to securitize it to the right sector. Risk negotiations get into the details. 3Ps walk away from a prospect based on risk allocation. This is very real. Since the global financial crisis, is there a private sector? Nobody could get any Greenfield tollroad funded today because there is debt involved; the private sector is out of business from the debt perspective. McQuarie has written down its assets to 40% due to some poorly performing tollroad deals overseas. Is there a private sector around? Yes. There are those that will drive this process. There will be a lot more rigor to put through future projects. There will be more risk placed back on the public sector for projects to happen. The biggest driver for the 3P model is investors.

Ken then detailed their Capital Beltway managed lane project: \$1.9B, full traffic risk, owned by VDOT and leased to TransUrban. The consortium raised \$589M PAB, \$589M TIFIA to match state and private funds. There is no residual risk to the state of Virginia. There is no recourse funding involved. Looking forward some managed lane ventures are big projects. They are not research-oriented. It is going to be one of the success areas in transportation initiatives. Pension funds may invest equity and debt looking forward. Concessions with early paybacks and availability payments have no long-term alignment of objectives. 26 states have legislation to support tolling; 10 have a procurement process.

Using I-495 as an example, 91% of total revenues are covered in the peak period. There is a 13% revenue return rate proposed for Capital Beltway. Public can pay the HOV portion for free users, and the facility can preserve benefits for transit.

1:15-2:45 p.m. Breakout Sessions on Communication and Policy Topics

Community Understanding and Community Support of HOT Lanes – Ginger Goodin and John Doan (notes from Chuck Fuhs and Jim Edwards)

Participants: Jesse Glazer, John Doan, Carolyn Clevenger, Jeff Roberta, Bill Finger, David Ungemah, Don Samdahl, Lynn Purnell, Chuck Fuhs, Ginger Goodin, Randy Guensler, Greg Jones, Amy Grove, Kerwin Stocks, Jeff Stocks, Glenn Havinoviski, Luisa Paiewonsky

Ginger provided an overview of where we are at regarding community understanding. Project experience shows there is general resistance to HOT lanes, but after implementation there is an increase in public acceptance. After implementation, there is a need to monitor and report. The public learns from their initial experiences. They learn from listening about other projects. The practice has a loose compilation of best practices.

Need for Market Research

Education and outreach has been key... a bottoms up approach. Holistic approach to transit.

Using the media—using non-traditional outlets. NCHRP Synthesis. Best practice documents would be useful and make available to agencies.

John's four points:

- These projects are like a U shaped curve. Would you rather pay a toll or increase in gas or sales tax. I want to pay for what I use. Then everybody gets cautious, as you slide down the U. Stockholm experience is an example. After implementation acceptance sets in. No HOT lane has been opened and then closed. Then they want more of it.
- The grass-tops outreach. The folks at the top need to be champions and use political capital to try something new. Reach out to them early and often to cultivate champions.
- The idea of choice. HOT lanes, because many are conversions, are win-win in outcomes. HOVs are not negatively impacted. Some projects are going from HOV-2+ to HOV-3+.
- These HOT lanes are a nexus that bring together DOTs, MPOs and transit agencies. They are an opportunity and challenge to work together to operate a project.

Opportunities arise with funding windows. Nobody is keen on demonstrations; they want to see implementation. Seeing is believing. Going on a scan tour (or bringing experts in) is a great way of cultivating project champions. Also recognize that opposition that you get has an answer, but the opposition may not respect who is giving the answer unless it is one of their own. Elected officials need to hear this from their peers. Getting elected officials connected to others is helpful. Greg: there is some evolution in the champions. You don't need trailblazers after the first few projects. It's a different scenario now than it was five years ago. The Atlanta project is still blazing new territory locally, but the initiative is helped by experiences elsewhere.

Challenges

- Leveraging of systems approach will help.
- Another challenge is working with elected officials. Working relationship is more challenging, what the price will be, what users are needed.
- Do people trust enforcement will work.
- Equity issues: there is proof and research, but media is not on board.
- Different user groups, different sponsoring agencies, different partnering
- Performance and objectives are not being marketed. The message needs to get out to the public (over adding another general purpose lane)
- There is the challenge of what the public sees. A free-flow lane still looks empty.
- It's the reality and the perception. The concepts are not easily explained.
- You are making a choice, and a choice is being offered.
- The ability of folks that use public transit is a concept that people can buy into.
- Maybe use a traffic simulation model, what it would look like.

A relatively narrow dedicated lane requires limiting use. Safety and design features drives use. There is an understanding that the HOV lane is only designed to carry a certain number of people. The marketing effort takes a long time to gain acceptance, with some tweaks. Some graphic way of showing a comparison and report on it often.

Recommended Areas to be Addressed:

Education and Support of Project Champions and Elected Officials

- What are the lessons learned that help us short circuit the pain from false starts with elected officials?
- Seeing is believing when it comes to champions – take champions to projects or bring project operators to the project to meet with community leaders
- Opposition – bring in trusted peer (environmental supporter to environmental groups, elected officials to elected officials, for example)
- Equity/fairness – premium lanes, Lexus lanes,
- 2+ to 3+
- Person vs. vehicle throughput, performance reporting
- Reliability, performance guarantees, “keep me moving”

Tools and Messages to Increase Public Understanding

- Market research to assess public understanding quickly
- Lack of understanding of transportation funding
- If we can’t sell the rationale and framework, then how can we sell the project?
- Not done a good job of explaining throughput performance to the public in terms of person throughput.
- Communicating impact on the individual
- Equity/fairness; this resonates: moving transit (NC)
- Using simulation/animation to communicate
- Person vs. vehicle throughput, performance reporting
- Reliability, performance guarantees, “keep me moving”
- Perceived safety

Operational Adjustments/Tweaks – “after the ribbon cutting” (this doesn’t make it into the literature)

- Different opportunity than roads and bridges to make adjustments
- The role of “tweaking” operations on public acceptance
- Performance management – use to respond or get ahead of it

Actions:

- Form a subcommittee to assemble information for early front-end loading – communications plans for all facilities in a centralized location/repository
- Obtain plans then formulate list of questions, working with geometric design outreach
- Make scan and peer review documents available
 - Poster session suggested
 - Webinar suggested
 - NCHRP guidebook

Role of Carpools and Transit in Managed Lanes/HOT Lane Systems – Jim Edwards (Bob Poole provided notes)

Session leader Jim Edwards led off by discussing the great political difficulty of “kicking the HOV-2s out” of the carpool lanes, in order to maintain performance levels required by the feds. Their region has \$20-30 billion of unfunded projects, so HOT lanes may be one of their few funding options, if this political difficulty can be overcome.

We had considerable discussion on transit and managed lanes. Have existing projects had a significant impact on transit use? It was noted that SANDAG’s initial HOT lanes bus service has low ridership, but their current expansion plan will add park & ride lots and direct access ramps. Likewise, the Minnesota I-394 project added no transit facilities, but their new I-35W project is adding park & ride. One participant noted that transit providers value reliability more than travel-time savings, per se. Denver’s I-25 project has bus performance standards, and others said that some kind of bus standards are part of the new Katy ML project in Houston and that something like that also exists for DART use of MLs in the Dallas area. As a possible research topic, we suggest a review of the state of the practice of transit use of Managed Lanes.

Consistency of policies regarding MLs was also discussed. For example, in the NYC metro area, there is no uniformity in how the various toll agencies charge carpools and vanpools. Others noted differences in ML policies—e.g., in metro DC, Virginia is going with HOT-3 while Maryland is going with Express Toll Lanes. In South Florida, I-95 MLs are HOT-3, but other planned MLs (e.g., on I-595 and I-75) are ETLs. One thought was to see if other metro areas besides Dallas/Ft Worth have developed regional ML policies and, if not, to present that one as a possible model.

A brief discussion raised the idea of whether HOT-3 and/or carpool registration will have any significant effect—positive or negative—on vanpooling. This could also be a research project.

There was also some discussion of transit-related infrastructure such as park & ride lots and direct access ramps. On the latter, it was noted that some of these ramps (e.g., in Houston) are not related to park & ride, but simply provide better access to the ML for vehicles at high-traffic locations. It was also noted that the new Minneapolis project will be expanding a downtown bus lane facility from one lane to two lanes—another example of supporting infrastructure that is not part of the ML itself.

There was a fair amount of discussion of possible larger-scale effects of MLs, or more likely, ML networks. For example, would a ML network reduce or increase a region's VMT? How about its VHT or hours of delay? We don't seem to have any good idea of what kinds of transportation system impacts such a network might provide. Related to this was some discussion of possible alternative vehicle mixes to obtain high ML throughput; if HOV-2s no longer get favored treatment, what plausible mix of HOV-3s, vanpools, and buses could provide the same or greater throughput? Has anyone modeled this? What policy changes might encourage such higher-occupancy vehicles? This might help overcome some of the political opposition to the HOV-2 to HOV-3 transition.

Another couple of transit points were raised, but not much discussed. First, we should pay more attention to the impact on transit operations (e.g., in current HOV lanes) of peak-of-the-peak congestion. This suggests that even if a HOT lane might operate with a largely pre-set time-of-day schedule, it might need the flexibility to have short-term higher rates during peak-of-the-peak to maintain reliable performance for buses.

Second, it was noted that several years ago APTA created some kind of ML committee or task force (Art Guzetti was involved); nobody in this breakout group knew if it still exists and, if so, what it is doing. It was thought worthwhile for this committee to make contact with APTA to find out more about this.

3:00-5:00 p.m. Full Committee Meeting

Participants:

Lynn Purnell, Beverly Kuhn, Jeff Roberta, Cheng, Bill Finger, Chuck Fuhs, Ed Mark, Ginger Goodin, Bob Poole, Greg Jones, Don Samdahl, Jessie Yung, Amy, Glenn, Jim Edwards, Jeff, Irwin, Randy from Ga Tech, Luisa Paiewonsky, Katie Turnbull, Rich Cundard, David Ungemah, Patrick Vu, Carolyn Clevenger, Jesse Glazer, Myron Swisher, John Doan

Committee Activities Update

Outreach/Webinars - Chuck Fuhs

In response to an earlier survey indicating greater interest in participation through web-based meetings and venues, information dissemination has focused on generating greater participation through webinars. The latest webinar hosted by design and safety subcommittee members Jeff Roberta, Myron Swisher and Chuck garnered much participation. Rich reported log-ons from 150 sites representing over 450 participants. But webinars are very labor intensive even with TRB hosting arrangements. Chuck solicited volunteer support. A subcommittee goal is hosting these meetings on a semi-annual basis addressing topics of interest.

The HOT lane information is available but not always posted on the committee's website. Patrick Vu is wanting to help on HOT lane information posting on the weblink.

Annual Meeting - Don Samdahl

Dave Schumacher is handling paper reviews this year. 20 papers were distributed to our committee this year's annual meeting. Rich indicated that we will get two podium sessions if we share with another committee.

Don requested the group to identify potential topics for a podium session? Other opportunities include abstract solicitation for the congestion pricing poster session. Frank Spielberg's bus operations committee will transfer some papers over to poster sessions due to the volume received. Glenn noted that the I-95/395 project will have sensitivity and is not a topic for the annual meeting.

Our committee is helping sponsor a workshop on Sunday with the Rideshare/TDM committee called Reinvigorating Carpool Formation: Exploring political, policy and practical solutions to carpooling, along with visioning for ridesharing. The workshop will examine strategies for achieving this vision. It will be held on Sunday 1:30-4:30 p.m., January 10, 2010. We received a request from their committee to co-sponsor. Myron Swisher volunteered to help serve as our committee's link to this workshop.

Podium Session Discussion

Jim reported on the subject of Transit and HOT lanes, and knowledge of carpools and what drives them. Vanpools are regulated, but there is not much information. David reported on a discussion of the congestion pricing committee in which planning for transit occurs when HOT lanes are implemented. Frank Spielberg?, David Ungemah, Don Samdahl and Jim Edwards will put together a program for this session. Look at papers that might be slotted in to this program. Frank did not see many papers which were on target.

Ed Mark asked that we reach out to the Freeway Operations Committee. Convergence of ITS technology may be appropriate to consider with respect to active traffic management strategies. Better management for planning and operations to link these two subject areas, and communications links. Glenn Havinovski volunteered to coordinate with this committee.

There is a need to generate a podium session for this year's conference theme. Ginger Goodin, Katie Turnbull and Bob Poole and John Doan will work on the context of bold ideas for challenging times. Thoughts generated included looking at systems of managed lanes and moving toward financing systems that assume the entire roadway system will be taxed in some form, with links to financing. Look at what our subject area will look like 20 years hence.

Deadline for all of these topics is the end of September. Don Samdahl will serve as a point of coordination for each of these topics. Rich Cunard will receive these proposals (must be received by September 24). The front office TRB leadership will review the big and bold ideas. There are a lot of committees working on this. There will be a smaller list culled from this set of proposals. All committees are limited to what can be accepted.

FHWA and Pooled Fund Study Activities - Jessie Yung

Jessie Yung reported on the following activities primarily associated with the Pooled Fund Study activities:

- A scan investigation of various cities involved in HOT lane development was performed this year with results posted in the next few months.
- Greg and Jessie have co-hosted various HOT peer exchange workshops in different cities over the past year. Workshops were held recently in the Bay Area and Pittsburgh. Five more slots are available over the next 18 months. There's a training course available which will be finalized in the next few months.
- A task order on outreach and education materials at the executive and practitioner level is underway along with a video on HOT lanes. Materials include case studies and fact sheets and checklist and screening criteria, for which there is a white paper that is available.
- FHWA will host the first national pricing conference. They are polling this and other committees for co-sponsoring. They want to have representatives from different committees to help shape the agenda. The current date is December 2009 in Houston. They are looking for a central location. Bob suggested moving the date to February or March 2010 after the annual meeting since timing to arrange for the conference is only a few months away, and participants will have trouble getting authorization to attend on short notice.
- SAFETEA LU will expire September 30, 2009, and authorized hybrids will be excluded after this date. An extension will not include hybrids unless specifically mentioned in the extension language. Jessie did not know if the terms will be extended or expire. Some states want to see the exclusion expire; others would like it to continue.
- The quality of HOV data on the FHWA pooled fund website was questioned by some participants. Jessie indicated that the website on HOV data is old and cannot be transferred to a newly created website due to 508 compliance issues. This problem will hopefully be fixed shortly.

Committee and Subcommittee Reports

Bus Transit Systems

This committee agreed to work together on a joint session for the 2010 annual meeting.

They had a joint meeting with the BRT conference in May. They plan on a joint meeting or venture in May 2010 in Cleveland. They are promoting papers on bus system restructuring on arterial HOV lanes, not freeway.

There is interest in fitting transit within a HOT lane. One of the ways of achieving equity was adding bus service to pricing, but turning this into reality has been difficult. Looking at express bus operations and access to HOV lanes represents a source of integration, to achieve better bus utilization. UPA programs have examples of this, such as the I-35W corridor in Minneapolis which

will have a performance study. The 2011 annual meeting would be appropriate for a workshop on these UPA projects.

Transportation Demand Management (TDM)

David Ungemah reported that they met earlier this week in a separate location. Don Samdahl reported on the topics their committee has for the annual meeting.

Freeway Operations

No report on coordination. Bill Finger was concerned that some of the other committees may be getting concerns expressed that HOV or HOT lanes have not eliminated congestion, and they need to be aware that these solutions are intended to manage, not eliminate congestion.

Congestion Pricing

No report on coordination

Subcommittee Reports

Geometric Design and Safety

Jeff Roberta reported on the subcommittee's efforts to host the first of several webinars on HOT lane design and access held in late July. Other topics will be prioritized for subsequent webinars.

Active Traffic Management

Beverly Kuhn reported that the first issue has been reaching consensus on a definition of ATM, then identifying research needs, webinars and outreach. The subcommittee is getting much participation and attendance, indicating a high level of interest. Ginger asked if there is any website repository for information. Bob Sheehan is helping in this work over at FHWA.

Multi-modal Pricing Implementation:

David Ungemah distributed minutes of their meeting (4 pages). Intent is to bring several topics forward for synthesis topics within NCHRP. There is a big emphasis on operations. Minutes on the Congestion Pricing website.

Large Group discussion of HOV Policy Evolution and Purpose of HOT Lanes

Chuck led a discussion of the evolution of HOV and HOT lane policies leading up to an identification of current issues

Policy evolution

- Eligibility--HOV-3, to HOV-2 in 1987 based on FHWA policy
- Hours of operation influenced access policies
- HOT lane conversions were driven by ETC technology starting with demonstrations in the mid 1990s.
- Hybrids and motorcycles allowed by federal policies through three transportation authorizations.
- Role of FHWA, constituent states and advocacies have all affected local and federal policies.

- Agency sponsors have changed over time, and today are reflecting more diversity, particularly at the local levels.
- Advocacy positions toward HOV and HOT lanes have changed (Sierra Club, EDF, AAA)
- Funding has become a bigger hurdle for all projects including managed lanes.
- Most HOV lane systems in recent years have focused on addressing transit enhancements and gaps

Purpose of HOT lanes

- 9 projects now, 4-5 more 2010-11
- Many small and big projects, many more being studied (about 2/3 are conversions, other 1/3 are extensions, gap closures and new projects).
- Purpose for implementing pricing as primarily been better lane management, revenue generation, more modal choices
- Policies that have resonated on one or more HOT lane projects:
- Pricing to reflect demand (typically dynamic)
- Guaranteeing benefits (45 mph threshold) in federal UPA and CRD grants-has become policy from SAFTEA-LU
- Where revenue typically goes—generally in the same corridor (for transit) and transit enhancement linkage (LA examples cited)
- Who funds, how it is delivered and operated: Role of P3s is being investigated on corridors carrying from 30 to 300k ADT
- Access control –typically limited
- Who carries transponders: tolled traffic only or all
- 1 vs 2 directional lanes
- Staying 2+ or increasing to 3+
- Consistency (networks)
- Paradigm shift in operation, maintenance, enforcement
- Transitioning (some slow—SLC/Houston, some fast: Miami/Seattle)
- Flexibility of design: 1 vs 2 lanes.
- What about hybrids---some projects are full with hybrid lanes.

Discussion

- Is pricing a long range or short range tool? Where does displaced demand go to? You need to address where the demand goes?
- Patrick: What is the motivation? Are we trying to address mobility, funding, air quality? Does it depend on the context. Federal policy may dictate? HOT lanes may survive if we move to cordon or congestion pricing.
- Daryl: Being able to utilize the pricing concept will depend on local success of keeping managed lanes free-flowing. The elected leadership will want this same for the other lanes. The management philosophy relates to moderate demand. This is the future of managed lanes.
- Bob: What people are willing to pay for is more complicated. Everybody's value of time are different. Maybe we have peak/off peak pricing for all lanes. There is a wide range of the value of time. The choices are more complicated.
- What is happening in the off peak is also interesting, some level of demand.

- Those that are physically separated operate better.
- Are these lanes safer, or as safe. There is enough data to determine this.
- Most projects are not operated
- Legacy implications have impacts 5 and 10 years from now. Federal policies can implicate local policies.
- The highest priorities need to be on issues that implicate decisions in the future.

Other

Ginger reported that the committee has lost its co-chairs for our research subcommittee. Ginger is soliciting volunteers in getting research topics loaded on the TRB research database. The HOV pooled fund study group has helped fund a number of research topics. Ginger will make some targeted outreach for volunteer interest. No names identified at the meeting.

Committee Meeting Adjourned

Wednesday, September 2, 2009

Participants at Woods Hole: Luisa Paiewonsky, Don Samdahl, Bill Finger, Ching-Yao Chan, Lynn Purnell, Jeff Roberta, Beverly Kuhn, David Ungemah, Chuck Fuhs, Ginger Goodin, Katie Turnbull, Jim Edwards, Greg Jones, Bob ____, Jessie Yung, Carlos____, Amy Grove, Glenn Havinoviski, Ed Mark, Randy Guensler, Kerwin Stocks
On phone: Patrick Vu

9:00-10:30 Small Group Report-out on Day 1 Topics- Identify Key Trends and Research Needs

Following is a list of issues and research needs expressed in an open discussion:

- Discussion indicated that there was a federal/local disconnect on some policies such as hybrids and impacts these users have on HOV and HOT lanes. Eligibility policies: hybrids, motorcycles, and related issues need further investigation. HOV2 vs HOV3: when and how? For sustainable performance. Look at eligibility in total. And registration. Who constitutes an HOV?
- Safety and how well HOV and HOT lanes are performing has become important, and based on the long HOV lane track record, there appears to be plenty of operational data from which to perform safety-related studies from.
- Intelligent vehicle/ML interaction: data collection/monitoring, test bed for ITS and environmental actions. Greg: Looking ahead to more intelligence in the vehicle to interact with human factors. We are looking for ways of managing the roadway better.
- HOV lanes as TCM for air quality. Patrick: HOV original intent was for air quality in Atlanta; now we are focused on traffic and demand management. Legacy purposes are still with us, and sometimes they are competing. Some of these lanes were built for different purposes (transit/FTA vs fwy operation). Are HOT lanes representing

common or dissimilar needs. USDOT is updating their strategic plan for Intelidrive and next steps for environmentally friendly approaches. ITS techniques are looked at to protect the environment. One focus area is on travel and trip planning—giving green trip options. Identify standards for NEPA process, which needs to be explored for HOV2 to HOV3 (coded as a CE). This topic affects managed lane operational strategies to raise occupancies. FHWA would need to do this—should be a nationwide analysis. Needs to be focused on a DOT and EPA process.

- Degradation in LOS is an issue. Does a variable eligibility policy matter? Jessie: move toward with active traffic mgt concepts affecting ETL and HOT lane treatments. Transitioning from 2+ to 3+: different types of approaches. Consider modeling different combinations, but still get enough revenue to finance projects. Explore quantitatively. Higher occupancy vehicles sans buses do not deadhead. Instantaneous carpooling also a consideration.
- Land use connections to HOV and HOT for separate busway and guideways, Seattle area TOD around Redmond P&R, 290 apartments next to P&R in Houston, Salem MA and El Monte center cited as examples. This topic needs some surveying. May be a TCRP synthesis. More flexible vehicles, security treatments. Patrick: Get public relations and marketing folks involved. See where APTA is on this topic. Best practices is needed on marketing. Katie Turnbull volunteered to draft up a synthesis scope.
- Truck only managed lanes research—what is being learned from recent studies and projects. Bob mentioned several studies including one Chicago study. Truck-only lanes need more advanced research. The whole goods movement field is needing attention; investments being made in LA need to be monitored.
- Arterial systems for managed lanes needs further development. Land use changes on arterial systems may be greater than on freeway examples.
- Managed lanes as discrete lanes or managed facilities with ATM strategies. Lee County FL flyover ETL study was cited, in which they are looking at a series of virtual managed lanes via these tolled flyover grade separations at major intersections. Miami and Broward Counties are now looking at this approach. Virginia looked at these as well. TOT lanes did not make sense at corridor level in Atlanta, due to financial constraints. For it to be feasible, mandatory or voluntary use did not show feasibility. I-81 truck lanes (initially intended to toll all lanes) went down because truckers said they would take alternate routes.
- What is the impact of HOT facilities on different user groups? Small businesses in particular. Two axle under 26,000 lbs use I-394. This information could be tracked through case studies. Differentiate vehicle use. Some origin-destinations are so different that they fall through the modeling. Impacts on commercial operators need to be considered.
- Design and safety concerns: there needs to be an understanding between access management, tolling strategies and how the lanes are used and communicated to the motorist and end user. Access management and tolling locations need guidance. When do we provide information and where. How accurate does the information need to be. Information conveyance. Simplicity factor needs to be considered, per human factor findings. How do you toll it. Do you toll by segment, by roadway, by some other basis. How do you toll, how do you sign?

For a number of topics, consider case studies first, then comparative analysis.

- Transitional experiences
- Separate eligibility from market component
- Diversity within coalition grounds

Actions based on Discussions from Break-out Moderators

- Bob: Synthesis for transit planning is needed as this relates to HOV lanes and HOT lanes being considered.
- Jim: A revenue synthesis is needed for existing and planned HOT lanes. Experiences are needed for O&M definitions, set-aside revenues for transit operations, buy-back provisions and capital and local legislation and policies affecting these. Another topic growing in importance is macro-level effects on ML for VMT.
- Operational complexities being addressed: tolling structures and how they are communicated (for a network) are needing attention before these networks are implemented.
- Public education—what resources would be available on the internet or through in-car technologies, transit models for scheduling and pricing information, while also simplifying. Big need now for human factor research. Get feedback from other agencies on managed lanes. There is a laboratory environment. The user has specific information needs that may conflict with the intent of the facility. These issues run concurrent with other committees: MUTCD, Congestion Pricing, Freeway Operations. What is already underway?
- Design of facilities: need a synthesis incorporating a detailed inventory of Concept of Operations and design specifics, and changes made to address issues that arose on various HOV and HOT lane projects. What issues could have been fatal to the project? Synthesis would cover limited versus continuous access needs, dual versus single lane treatments, operational safety and performance and special needs for transit.
- Enforcement: An inventory of enforcement models and police activities, based on a survey is needed, particularly for HOT lanes.
- Outreach to projects and agencies: David and Jeff wanted to lead this effort in a synthesis of design, operations and marketing outreach.
- Urban managed lanes policy inventory: who has what. Bob suggested this. Some states or areas have them, others don't. Agency sponsorship varies from one location to another. A collection of different policies would be helpful.
- Flexibility in design and operation: What are decisions now that constrain us in the future. Better understanding of why to use managed lanes. Before/after synthesis samples
- Paying for reliability and speed-2 year project and guidance. What is the message and conveying reliability. User understanding is needed. There is a valuation to the trip planning index. This could be a webinar topic.
- Transponders: are employers subsidizing or individuals? The experience needs to be captured in surveys. TDM committee may be able to address. David will take this to the TDM committee.
- HOV system manual update is needed (Jessie's idea). We need state DOT project champions and reach out to them. White paper from the committee on what we are

doing, where we want to go. Bold ideas, longer term. Input could come from the TR News article about to be published on HOT lanes. Need champions and a tight group on the committee to address. Carlos: When you are pricing a lane and manage throughput, you price some out on the non-toll lanes. Who are you pushing out and what is the real effect?

Don indicated that some of the questions overlap with the same projects, so we need to coordinate outreach to the affected agencies and project sponsors.

Next Steps

- Goal is two webinars per year. Webinar synthesis on what came out of this mid-year meeting, which could be scheduled this fall.
- Katie Turnbull and Luisa Paiewonsky will help examine interest for a managed lane system manual.
- Survey/inventory needs to be developed and get volunteers for telephone interviews.
- Are we looking for separate items or a consolidated interview?
- Don suggested pulling all of the actions together and taking next steps by January annual meeting.
- Identify agencies and contacts for the HOT lane projects (Chuck Fuhs and Ginger Goodin)

10:45 -11:15 *Special Topic: Technology Trends and Managed Lanes -* Ginger Goodin

Ginger gave a powerpoint presentation (attached) of the latest in trends related to managed lane technology. The FCC allocated 5.9mgh (wider band than for toll reader and has ¼ mile range) for safety and mobility information first, with standards. Tolling has been cut loose from this platform because nobody is pursuing it. Georgia and North Carolina are the only two states pursuing a parallel deployment. This new approach can allow tolling by lane.

Discussion

Following the presentation there was a recommendation to consider a technology lead for the 2010 annual meeting podium session related to managed lanes. Jessie suggested a need for somebody to link with Freeway Operations on the technology side—Glenn Havinoviski volunteered. Greg: there is interest in enforcement strategies that work better. We need to track and monitor developments.

11:15-12:00 *Review of Committee Strategic Plan* Strategic Plan

Ginger held a discussion on a review of the committee's strategic plan. We are half way through the three-year cycle for this committee. On the research and development side, the committee is looking for a champion to lead this subcommittee. Actions are to "engage committee members and friends in the development of problem statements". The role in this function is to maintain a database of research problem statements. A

wide variety of users review the database—academic community, DOTs, other agencies. We have a number of ideas from this mid-year meeting to be considered.

We should document and place these ideas on the database. Research synthesis topics for TCRP and NCHRP have been identified and coordinated with the pooled fund study group.

Information and dissemination goals from Committee strategic plan appear to be met:

- We are hosting conferences (Minneapolis 2008)
- Maintaining the website
- Maintaining a comprehensive database of projects periodically
- Hosting webinars (at least one per year)
- Topics for the annual session and coordinating with other committees
- Hosting workshops (as part of the next annual committee)

Areas needing attention:

- Support joint committee on active traffic management
- Liaisons with other committees and functions and identify lead persons—and the committee liaison needs seem to be expanding, to serve as links
- There are also other professional organizations we need to be linking to on a regular basis—IBTTA, ITE, etc.

Mid-year Meeting for 2010

Katie suggested a meeting with planning and economics committees in Minneapolis, July 11-13. Congestion pricing committee meets during that meeting. There will be local projects operating to tour. Rich indicated that there are 35-40 committees meeting at that time, so there is a good opportunity for networking.

Next Conference

The next conference is planned tentatively for 2011, on either east coast or west coast. Subject sites include Atlanta, Charlotte, Bay Area, Los Angeles and Miami. Next step will be to task a group to come to the 2010 annual meeting with a suggestion. In attracting attendance, San Diego would be a suitable site.

Meeting Adjourned