

**Resolution – HPTE #275**

**Approving Express Lanes Master Plan Workshop August 22, 2018 meeting minutes**

**BE IT RESOLVED**, that the August 22, 2018 Express Lanes Master Plan Workshop meeting minutes attached hereto, are hereby approved by the High Performance Transportation Enterprise Board of Directors.

Signed as of October 17, 2018

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Don Marostica  
Chair, HPTE Board of Directors

# Colorado High Performance Transportation Enterprise **Express Lanes Master Plan**

## **Workshop #1**

August 22, 2018 | Colorado Transportation Management Center

# Workshop Summary

The first workshop for the CDOT HPTE Colorado Express Lanes Master Plan study convened a broad range of CDOT and HPTE staff, HPTE board members, and stakeholders to discuss the Express Lanes Master Plan study as it gets underway. Nearly 50 attendees joined the workshop, representing CDOT, HPTE, and stakeholder organizations from throughout the state.

The following is a list of workshop attendees (HPTE consultants are highlighted):

## Stakeholder Attendees

Rami Harb, Atkins	Wendy Pettit, CDOT	Kelly Brown, HPTE
Mark Andrew, CDOT	Erik Sabina, CDOT	Nick Farber, HPTE
Megan Castle, CDOT	Rocky Scott, CDOT, HPTE	Piper Frode, HPTE
Robert Frei, CDOT	Herman Stockinger, CDOT	Anthony Meneghetti, HPTE
Shannon Gifford, CDOT, HPTE	Lisa Streisfeld, CDOT	David Spector, HPTE
Kathy Gilliland, CDOT, HPTE	Daniel Hutton, Denver South EDP	Margaret Bowes, I-70 Coalition
Aaron Greco, CDOT	Jim Eshelman, DRCOG	John Liosatos, Pikes Peak Area COB
Kay Hruska, CDOT	Ron Papsdorf, DRCOG	Rick Sonnenburg, Pikes Peak Area COG
Paul Jesaitis, CDOT	Jessica Carson, E-470	Douglas Monroe, RTD
Mike Lewis, CDOT	Nicole Doheny, EY	Cathy Bird, Smart Commute Metro North
Lily Lizarraga, CDOT	Scott Ladner, EY	Thad Noll, HPTE, Summit County
Martha Miller, CDOT	Nnaemeka Ezekwemba, FHWA	
Debra Perkins-Smith, CDOT	Bill Haas, FHWA	
	Vershun Tolliver, FHWA	

## Consultant Attendees

Nick Amrhein, WSP	David Ungemah, WSP	Scott Thomas, Apex Design
Russell Koff, WSP	Alan Eckman, AECOM	Anya Lofgreen, CIG
Scott Pitera, WSP	Corey Lang, AECOM	Julie Skeen, CIG
Chris Swenson, WSP	Sam Moss, Apex Design	

The title of the workshop was **Goals, Objectives, and Evaluation Criteria**. Participants were provided with a general overview of Express Lanes, a history of their deployment in Colorado, and the impacts that have been observed on all transportation modes along Express Lane corridors.

After discussing the range of design and planning considerations for Express Lanes, the workshop's culminating modules invited participants to identify key statewide corridors that the project

team should either consider or NOT consider for Express Lane deployments. Finally, attendees worked together in small teams to identify and prioritize a series of goals and objectives that should be used to guide the Express Lane planning process forward.

This document provides notes on the workshop's modules in an effort to capture the comments, questions, and guidance that attendees submitted during the event. The following sections describe each module's highlights, and the final section lists several "parking lot" items – questions or comments that were raised by attendees to be given further consideration and study by the project team.

The workshop's agenda, presentation materials, and photos are provided as an Appendix to the workshop notes.

## Module 1: Common Understanding of Express Lanes

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HPTE Project Manager Nick Farber welcomed attendees to the workshop and provided the context for the day's gathering. Farber highlighted HPTE's statutory mandate to "aggressively pursue" innovative means of more efficiently financing important transportation projects, and the role that Express Lanes can play in achieving the state's transportation priorities.

Following this introduction, workshop participants introduced themselves, including several individuals who joined the meeting by conference call.

Module 1 was led by David Ungemah of the WSP consultant team, who also introduced the purpose of the workshop. He noted that the basis of the workshop is to **determine what Express Lanes can offer and how they can function best for the state of Colorado**. Ungemah described the economic principles of congestion pricing, the experience of Express Lanes from Colorado and throughout the nation, and relevant design, policy, and transit considerations for Express Lanes.

The following key points were made in Module 1. Additional presentation materials from the module are provided in the Appendix.

### Overview of Express Lanes

- Express Lanes offer users a lane-based choice for travel, rather than a route-based choice that is offered by toll roads.
- Express Lanes have existed in Colorado since 2006 and now operate on three corridors, with an additional five corridors currently under construction.
- Polling shows that most people do not use Express Lanes often.
- Colorado has distinction of being the state with the most Express Lanes that are not in urban areas.
- Across the country, the number of Express Lanes is doubling every three to five years.
- FHWA has partnered with HPTE and CDOT on all Express Lane projects.

- Principles of supply and demand dictate the foundation of variable pricing, which is the best method of managing speed and travel times on Express Lanes.

### Design and Policy Considerations

- The configuration and design of Express Lanes can vary so as to best fit the context of a given roadway.
- Most Express Lanes were converted from HOV lanes and many newer Express Lane facilities do not offer free travel for HOV users.
- Transit systems can be integrated into Express Lanes.
- Many options exist for Express Lane pricing and signal systems
- Express Lanes do not always pay for themselves.
- The Express Lane Master Plan will seek to answer how Express Lanes can contribute to transportation solutions in Colorado.

### Requirements for Express Lanes

1. Corridor must have regular congestion, otherwise there is no reason for users to pay a toll.
2. Corridor must have at least three travel lanes, otherwise either vehicle flow or lane enforcement will become a problem.
3. There must be an operational commitment on behalf of the Express Lane operator. In many ways, operating Express Lanes are more akin to operating a transit agency, given that there are paying customers with invoicing / billing considerations, travel time management, etc.

### Express Lane Performance in Colorado

- Express Lanes have resulted in faster speeds on all corridors.
- Question: How would performance compare to adding general purpose lanes?
  - Performance would be similar in early years, but over time it would degrade. Example of T-REX project that now suffers from substantial congestion.
- Colorado was first state to have equivalency between toll rates and transit fares (I-25 and U.S. 36), so that the price of traveling the Express Lanes during peak periods is not less than taking public transit.
- Travel time reliability.

# Module 2: Public Acceptance Landscape

Module 2 was led by Julie Skeen of the CIG consultant team and focused on the **history of public opinion with Express Lanes; managing communications; and equity and fairness considerations**. The module began with an interactive exercise in which participants were invited to use their mobile phone to text any number of words that come to mind when the public is asked to describe Express Lanes. The words were shown on the presentation screen in real time, and included a mix of positive and negative associations, such as “fast,” “reliable,” “unfair,” and “expensive,” and set the stage for a discussion about the challenges to public acceptance faced by Express Lane projects.

The following are highlights of Skeen’s presentation. Additional content from the module is provided in the Appendix.

## Feedback from the Public

- In Colorado, most people do not have experience with Express Lanes.
- The feedback from the public is mostly a mix.
- Statewide survey in 2017 revealed that a majority of the public is opposed to Express Lanes.
- Support increases when projects emphasize choice, when details are shared on how toll revenue will be spent, and after users experience the benefits.
- Opposition increases if “free” capacity becomes tolled, when there is a lack of information, and as projects near opening.
- Emphasizing “choice” is a key to achieving more support.

## “Equity” vs. “Fairness”

- Planners are often focused on achieving “equitable” outcomes, but the public’s understanding of “fairness” can often be in conflict with equity considerations.
- Geographic equity is important to the public – where are the lanes being placed and where does the funding go?
- Examples of incentives and disincentives that other states have implemented to incorporate equity into Express Lane projects:
  - LA has a low-income assistance program.
  - Toll credits for transit use.
  - Toll credits for communities that have no choice but to pay a toll.

# Module 3: Design, Operations and Revenue Generation

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Scott Thomas from Apex Design led Module 3, focusing on the design, operations and revenue generation potential of Express Lanes. He described the array of access and operational considerations to developing new Express Lanes, touching on topics such as the selection of tolling systems, enforcement, incident management, vehicle capacity, and drainage and hydraulic needs.

Thomas's key points, as well as questions posed by workshop attendees are provided below. Additional content from the module is provided in the Appendix.

## Design Considerations

- Enforcement for Express Lanes is mostly “manual,” conducted by officers that watch vehicles and try to determine occupancy. Automated occupancy validation technology does not currently meet enforceability within courts of law; however, existing technology can be used to help assist officers with identifying likely violators.
- When new facilities open, incident management procedures must be updated.
- CDOT Transportation District 9 Commissioner Rocky Scott commented that connected vehicle technology will substantially increase the vehicle capacity of a given highway lane and suggested that Express Lanes / managed lanes are a natural testing ground for this technology.
- Express Lane deployments do not necessarily trigger extensive National Environmental Policy Act (NEPA) reviews, but careful planning and coordination can often result in a streamlined and predictable project development timeline. One participant raised this issue of whether projects that have completed their NEPA review without evaluating Express Lanes will be considered “grandfathered in” and would not be considered as potential future Express Lane projects.
- Traffic and revenue estimates are generally not required for Express Lane projects, as they are for toll road projects (unless financing is involved).
- A variety of project delivery mechanisms can be employed to deliver Express Lanes and have been used across Colorado.

Participants asked several questions related to the design of future express lanes in Colorado. One questioner asked what the possibilities are for using technology and Intelligent Transportation Systems (ITS) to help with congestion, and whether the Express Lanes Master Plan would take these technologies into account. The project team replied that, indeed, managed lanes will likely be the “test bed” of connected vehicles and these considerations will be incorporated into the master plan.

Another participant asked whether the study will account for induced demand from other transportation or development projects in the area of proposed Express Lanes. David Ungemah from the WSP consultant team responded that a more significant challenge than induced demand is how Express Lane users have been observed to change their behaviors over time. For example, some users develop a “temperance” to tolling, whereby they will accept the toll as a normal part of their commute, regardless of its price. Ungemah also noted that in some cases, an increase in price of the Express Lane had caused

an *increase* in demand. This counterintuitive behavior has been attributed to users interpreting an increase in price as a signal of worsening congestion downstream.

# Module 4: Statewide Planning Considerations

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The fourth module was led by Chris Swenson of WSP and covered various policies, project development guidance, and potential screening criteria for Express Lane projects.

## HPTE Policy Directives

- HPTE's policy directives set forth tolling as one of the main tools to manage highway capacity and accelerate project delivery.

## National Guidance

- Converting existing HOV lanes into Express Lanes is largely accepted by FHWA, as is constructing new capacity as Express Lanes.
- A questioner asked whether FHWA might consider allowing for the conversion of existing, general purpose lanes into Express Lanes. CDOT Executive Director Michael Lewis replied that such a policy is allowed per HPTE statute, but has not been done before (HPTE has to obtain the approval of every affected local government along a particular corridor).

## Evaluating Potential Express Lane Projects

There are four key considerations to determining whether Express Lanes are viable in a given corridor:

1. Legal authority.
2. Design feasibility – projects can almost always be designed, but the cost of potential designs can be prohibitive.
3. Operational feasibility – can shoulders be narrowed, etc.
4. Financial feasibility and public / political support – these two items will most likely determine whether a project can proceed or not.

## Screening Analysis

To identify suitable corridors for Express Lanes, a number of potential screening criteria were discussed, including safety of operations, access, and impacts on other modes of transportation. Workshop attendees took part in an interactive session in which they brainstormed additional potential screening criteria, sending suggestions via text message that were projected on the screen in real time. Among the potential screening criteria that attendees offered were:

- Volume
- Connectivity
- Multi-modal
- Reliability

When asked how corridors could be evaluated from a political readiness perspective, an attendee from Summit County offered that discussions among local officials that have and have not

experienced Express Lanes in their jurisdictions is critical. He emphasized that when the public sees the benefits of the Express Lanes, they come to accept them.

Another attendee from the Boulder area suggested that “over-communication” and “transparency” in conducting the planning and screening process is paramount. She commented that many residents of the Boulder area are happy with the Express Lanes, but are not happy about the decision-making process that led to their development.

CDOT Commissioner Scott, and HPTE Director Spector, added that behavioral science should be considered when planning Express Lanes, and that planners should clearly communicate the “consequences of inaction.”

An additional screening criterion was suggested by CDOT Executive Director Michael Lewis: whether commercial vehicles benefit from the Express Lane project. He added that if Express Lanes negatively impact how goods are moved, then such impacts should be strongly considered.

## Module 5: Statewide Corridors for Study

Scott Pitera from the WSP team led module #5, in which participants were invited to consider the statewide corridors—both highway and arterials roads—that would be best or least suited for Express Lanes. The following feedback was received from workshop participants during this module.

### Corridors that should be considered for **INCLUSION** into the study's analysis

- Parker Road (SH 83)
- Powers Boulevard east of Colorado Springs
- US Highway 6
- Jefferson Parkway
- I-70 from Eagle to Vail
- US Highway 24 East and West
- Arapahoe Road from I-25 to Parker Road

### Corridors that should be considered for **EXCLUSION** from the study's analysis

- I-70 west of Frisco. Congestion there is not routine, but only as a result of weather.

In addition to the above corridors, the study team noted that they will also be developing more general guidance on how an arterial can be converted to an Express Lane, and how existing Express Lane facilities (such as the bi-directional lanes along I-25) can be enhanced and connected to other current or future facilities. Examples of these potential improvements include the Santa Fe Drive interchanges at I-25 and C-470.

## Module 6: Statewide Goals and Objectives

The final module of the workshop gave attendees the opportunity to propose and prioritize the goals and objectives that the evaluation team should carry forward as they conduct the study. Working together in small teams, the attendees brainstormed potential goals and objectives, and then worked to prioritize and vote for those that the group considered to be most important.

Among dozens of goals and objectives that the group discussed, the following table identifies those put forth as the top priorities, together with the number of votes that each received by the workshop attendees.

No.	Goal / Objective	Votes
1	<b>Multi-modal</b> – support shift away from SOV travel and towards more multi-modal options	28
2	<b>Public Acceptance</b> – strive to achieve greater public acceptance of Express Lanes	26
3	<b>Reliability</b> – enhance travel reliability along corridors	24
4	<b>Technological Capability</b> – plan for Express Lanes that can become a test bed for connective vehicle technology and other emerging vehicle technologies	18
5	<b>Financial Feasibility</b> – ensure that Express Lanes are financially feasible solutions for a given corridor	15
6	<b>Person throughput</b> – achieve more person throughout along key Colorado highway corridors	13
7	<b>System-wide</b> – ensure that new Express Lanes are developed with an eye towards creating an integrated network	9
8	<b>Long range</b> – Plan for a long-term horizon in which Express Lanes form a network throughout the state	9
9	<b>Connectivity</b> – create a network of Express Lanes	8
10	<b>Feasibility</b> – identify corridors on which Express Lanes would be feasible	8

# “Parking Lot” Items

The following items were identified as issues that the project team should further consider during the Express Lane Master Plan study process.

1. **Safety** – what safety issues do they remedy, or are there safety vulnerabilities of the lanes?
2. **Connected / Automated Vehicles** – how to Express Lanes serve the vehicle technologies of the future?
3. **Single vs. Dual Lane Facilities** – consider how the Express Lane facilities can expand from one to two-lane facilities when demand warrants it.

