



Modeling Managed Lanes



An Initial Discussion

presented to

MTF Model Advancement Committee

presented by

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Objectives

- **Develop managed lane forecasting tools for use by MPOs and Districts in corridor and multi-modal planning studies**
- **Compatible with FSUTMS as it evolves**
- **Complement travel forecasting activities of Turnpike and other Express Toll Authorities – planning, design, investment**





Conceptual Requirements

- **Flexible** – Able to accommodate most or all “flavors” of managed lanes within a unified approach
- **Behaviorally Sensitive** – Includes variables that are important to selection and use of a managed lane
- **Policy Sensitive** – Has the ability to test different Managed Lane Policies (e.g., tolls, hours of operation, eligibility)
- **Ease of use** – Model implementation compatible with FSUTMS and a reasonable runtime
- **Understandable** – No “black boxes”

Managed Lane “Flavors”

- HOV - only
- Express Lanes
- Truck Only
- Reversible lanes
- HOT – SOV pay
- Dynamic Tolling
- Open Road Tolling
- Dedicated Facilities
- Pre-pay and/or Pay per use (toll booths)
- ITS Solutions (Traffic calming, speed advisories, incident management)



Behavioral Variables

- Time savings
- Cost
- Trip characteristics (purpose, party size, etc.)
- Employment type (on-time requirements)
- Income/Value of time
- Time of day
- Person and household characteristics
- Situational effects





Managed Lane Policy Dimensions

- Eligibility – HOVs free? Truck Use?
- Toll schedule– Fixed or variable, dynamic or pre-set, max/min constraints, credits, re-investment?
- The end of toll booths?
- Objective: Maximize revenue or Maintain level of service?



Data Requirements

- **Willingness to Pay – Measures of value of time, stratifications by income, trip purpose, household characteristics, and others**
- **Stated Preference and/or Revealed Preference Surveys**





Implementation Platform

- Route Choice / Static Assignment
- Mode Choice
- Activity-Based Models
- Dynamic Traffic Assignment
- How does this meet the “ease of use” criteria?
- At what level is it compatible with FSUTMS?



Managed Lane Modeling Development

	Phase I	Phase II	Phase III
Type	Route choice	Mode & route choice	Mode & route choice (with second order effects)
Model Type	Trip-based, static assignment	Trip-based, static assignment	Activity-based & static assignment, and/or DTA
Features	Dynamic toll estimation, willingness to pay curve, toll policy	Feedback of toll LOS skims to mode choice, sensitive to multi-modal shifts	Detailed household and person attributes for toll choice
Uses	LRTP & corridor planning	Multi-modal corridor evaluation	Policy sensitivity testing
Data Requirements	SP/RP survey for WTP curve or logit estimation	SP+RP survey for mode choice estimation	SP+RP survey for mode choice estimation
Availability	Summer, 2012	2013	2014-2015



Questions and Discussion

