

Modeling Managed Lanes

Project Progress Update

presented to
Advanced Traffic Assignment Sub-Committee

presented by
Steve Ruegg

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Managed Lane Modeling Development



	Phase I	Phase II	Phase III
Type	Assignment-Based	Mode Choice + Assignment	Discrete Choice
Model Type	Trip-Based, Static	Trip-Based, Static	AB 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	Incorporates detailed HHLD characteristics for toll choice
Uses	LRTP & Corridor Planning	Multi-modal corridor evaluation	Policy Sensitivity Testing, and TP Planning
Data Requirements	SP/RP survey for WTP curve or logit estimation	SP+RP survey to estimation and calibrate MC logit	HIS supportive of AB models
Availability	Summer, 2012	2013	2014-2015



Phase I Review



- Assignment-Based Dynamic Toll Assignment
- Final Report Produced: “Managed Lane Modeling Application for FSUTMS: Phase 1” October 2012
- Report responds to comments from the ATA committee.
- Model script is operational, tested and available for application

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Phase I Review -- Implementation



- Successfully applied for Tampa-Area dynamic tolling demand estimation
- SP toll survey planned for JAX-Tampa corridor will supply additional willingness to pay data to support model estimation
- Implementation assistance is available, and a managed lane modeling webinar is scheduled for April 19, 2013
- Committee/MTF endorsement requested

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Time of Day Implications



- All Managed Lane Model Applications work best with time of Day stratification – allowing for dynamic toll estimation
- For Phase I, Hourly Demand is most desirable
- For Phase II, the mode choice model works best with 2-4 period stratifications
- Our TOD model development has developed a fixed and demand-responsive TOD models. For Phase III, the activity scheduler will serve as a framework for dynamic toll modeling, as well as provide period-specific parameters



Update on WTP Curve Derivation



- A key input to the model is a willingness to pay (WTP) curve
- WTP relates the market share willing to pay a toll with the marginal cost per time saved
- As a part of a joint CO Systems Analysis/Turnpike effort, both SP and RP surveys will be collected
- Observed WTP curves will be developed from this data



Phase II Managed Lane Modeling -- Status



- Phase II began this summer
- Phase II is focused on
 - Toll Choice implementation within Mode Choice
 - Integration with Phase I assignment-choice application

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Phase II Work to Date

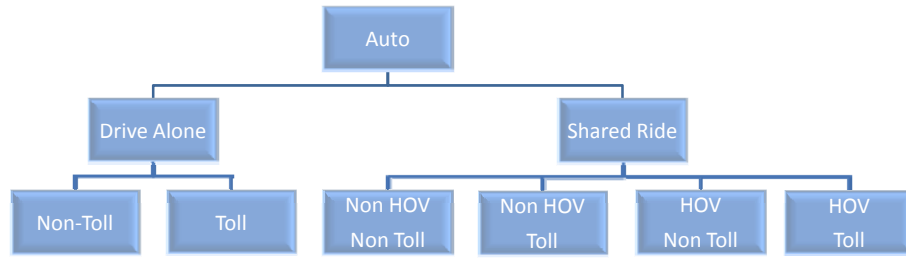


- Mode choice application implemented in XCHOICE command
- XCHOICE application tested
- Test Case Network developed for Toll and HOV applications – Olympus Model base
- Develop Skim Scripts supporting HOV/Toll combinations
- Test MC application
- Develop feedback integration with Assignment
- Test feedback application

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New Mode Choice Structure – Phase II



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Utility Equations

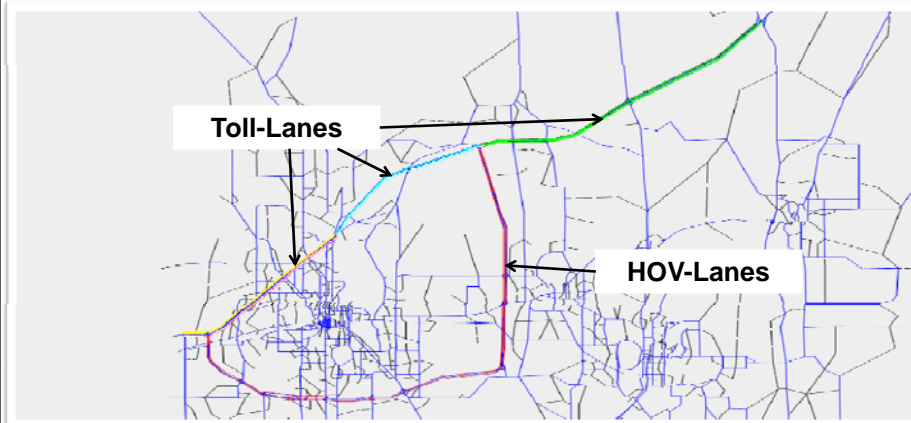


- Use of a time-savings screen
- Separate terms for time savings – Toll VOT coefficient
- Separate term for toll values
- Constants for HOV and TOLL “modes”
- Suggested ranges of coefficients and constants
- Consistency with WTP curves used in assignment

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Prototype Network



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Next Steps



- Integrate Phase I dynamic assignment with mode choice feedback
- Test final configuration and develop general ranges for key constants and parameters
- Documentation

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Questions?

