

# Statewide Needs Assessment for Next-Generation Travel Demand Models

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# Have we not identified MTF priorities already?

- Our focus is on long-term enhancements (versus the more immediate needs identified by the MTF priorities survey)
- Our focus is on comprehensive re-thinking of the travel-demand model system (versus the component-level improvements required for meeting immediate needs)

# Preamble

- This presentation is based on a “scope-development exercise” (not an undergoing project) for long-term, statewide travel demand modeling needs assessment in Florida
- The exercise started around March/April and is in the process of refinement now
- Feedback /inputs to this scope are welcome

# Introduction

- FSUTMS
  - Statewide framework for travel demand modeling in Florida
  - Follows the familiar, trip-based, 4-step approach
  - Some regions have modified the standard FSUTMS framework to suit their needs (e.g., lifestyle-based trip generation of Tampa Bay model)
  - Recent MTF survey identified several near-term modeling priorities
- Some regions are moving to (or considering the shift to) more advanced models
  - Tampa Bay moving to tour-based/activity-based model
  - North Florida (Jacksonville)
- Recognition that current model may not adequately serve emerging planning/policy needs

- Some questions of interest while considering “new” models:
  - What are the components of these models?
    - Activity/tour generation instead of trip generation
    - Destination choice instead of gravity models
    - Disaggregate modeling and micro-simulation
    - Highly disaggregate temporal (time-of-day) resolution
    - Intra-household interactions

- Some questions of interest while considering “new” models:
  - Can the desired structure be same for all regions in FL?
  - Can complex models be developed and used in all regions?
    - What are the resource requirements and limitations?
  - How to transition from current practice to new models?
  - What are the tangible benefits?

# Why a Needs Assessment?

- To address the issues identified earlier, it is critical to first identify all the reasons for which we want to use the models
- With varying populations, and planning/policy needs and priorities, a single model structure may not suit all regions
- A highly complex model may not be necessary for all regions
- Even to determine the level of complexity , we need to be aware of the specific modeling needs
- Development of a statewide modeling framework akin to FSUTMS (or even assessment of the feasibility of such a statewide framework) needs to be cognizant of statewide modeling needs

# Objectives of the Proposed Scope

- A. To conduct a thorough assessment of the transportation planning and policy needs and priorities in different regions of Florida
- B. To identify requirements of the next-generation travel demand models to address the planning/policy needs in each region of Florida
- C. To develop conceptual structure(s) of the next-generation travel demand models to be developed in different regions of Florida

# Proposed Scope

- A. Conduct a thorough assessment of the planning and policy needs and priorities of different transportation agencies in Florida
  - The near-term needs identified by MTF (CS) survey are relevant
  - A further, detailed understanding of the long-term needs may be helpful
    - What are all the planning/policy needs in near and longer terms
    - What model outputs are expected for each planning/policy application?
    - How detailed (e.g. temporally) should be the outputs?
    - What is the current practice and what are the difficulties experienced?
    - What is the priority of the application needs?
  - A detailed (and prioritized) list of needs will help in:
    - Determining the level of model complexity (or simplicity) for each region
    - Understanding what model features are necessary (or not necessary)
    - Assessing the need for the development of a state-wide standard
    - Laying out a transition plan from current practice to advanced models

# Proposed Scope

- B. For each identified need, identify the required model components, and desirable modeling aspects.
  - Specifically, for each geographic region, develop a matrix identifying the appropriate model features for each planning/policy need
  - In the matrix, rows represent the needs, and columns represent the modeling aspects/features.

The modeling features include, for example:

- Unit of analysis (TAZs, individuals)
- Prediction method (aggregate methods, micro-simulation)
- Spatial resolution of model inputs and outputs (TAZ, parcel)
- Temporal resolution of model inputs and outputs (3-5 time periods, more)
- Travel representation (trip-based, tour-based, activity-based)
- Trip purpose resolution (work/non-work, detailed travel purposes)
- Interpersonal interactions (No, partial, extensive)
- Traffic assignment (dynamic, static)

# Proposed Scope

Example matrix (to be developed for each geographic region)

	Unit of Analysis	Prediction Method	Spatial resolution	Temporal Resolution	Household Interactions
LRTP updates					
TDM strategies					
Toll studies					
HOV/HOT lanes					
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# Proposed Scope

- C. Develop model scope (or conceptual model structure) for different regions in Florida
  - Recommend required model features for different regions in Florida
  - Assess data needs and data availability
    - Can existing Florida data sources be used to develop required models
    - Assess the use of upcoming NHTS data
  - Based on needs, priorities, the model features matrix, and data availability, recommend model scope for each geographical region

# Supporting Tasks for Proposed Scope

- Synthesize information on existing travel demand model needs assessments
- Identify travel demand modeling stakeholders to be surveyed/interviewed and prepare survey/interview scripts
- Survey/interview stakeholders from different regions in Florida
- Identify requirements of next-generation travel demand models for different regions in Florida
- Identify data needs, availability, and constraints
- Develop conceptual structure(s) of the next-generation travel demand models to be developed in different regions of Florida

# Thank you

Questions/comments/suggestions welcome