

Transit Model Update

presented to
MTF Rail & Transit Committee

presented by
Rosella Picado, Parsons Brinckerhoff

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Project Objectives

- Improve the preparation of transit demand forecasts in Florida to a point consistent with State and federal expectations
- Incorporate state of the practice techniques and tools in FSUTMS through a prototype model application



Project Scope



- Recommend model specification updates
 - model structure, parameters, market segmentation
- Demonstrate recommendations through development of a prototype model
- Document best practice guidelines for:
 - on-board rider survey synthesis of practice
 - model calibration and validation
 - user benefit analysis
 - quality control
- Develop and deliver 'Case for the Project' workshops

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Products



- Model update recommendations:
 - Technical memo for each proposed enhancement
 - Presentations (including workshop at the last MTF)
- Case for the Project Workshops
- Best practice guideline documents
 - on-board rider survey synthesis of practice
 - model calibration and validation
 - user benefit analysis
 - quality control

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Products



- Software and Applications
 - USERBENC
 - PT functions/options
 - CRTPA and Olympus prototype model application
- Training
 - Transit Model Update Webinar
 - Comprehensive Model Course
 - Transit Modeling Course
 - Model Calibration Course (forthcoming)
- Reports available online at FSUTMS website
http://www.fsutmsonline.net/index.php?/transit_modeling/comments/transit_model_update_project

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Moving into Implementation



- Why a transit model update?
- What to update, when to update?
 - Integration into current model applications
 - Phasing
 - Timing within schedule of regular MPO activities
- Implications for non-transit applications
- Support and training
 - Available scripts, best practice guidelines
 - Staff training
 - On-call support

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Model Update Recommendations



- Improved Voyager PT functionality
- Additional trip market segmentation
- Implement auto availability choice model
- Implement destination choice models for trip distribution
 - Updated mode choice parameters
 - Implement travel time feedback

Better Identify Transit Markets

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Model Update Recommendations



- Improvements are modular
- Implementation can be selective or phased: choose only the modules that are most applicable to a region or particular study
- Phased implementation may simplify integration with current models, particularly if done in-house
- Schedule of implementation can be timed with on-going MPO planning activities
 - to support specific studies
 - to support long range planning

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Example 1

Travel time feedback and time of day segmentation

- Better identification of peak period (commute) and off-peak markets
- Consistency between supply and demand assumptions / outcomes

```

    graph TD
      A[Trip Generation (Daily)] --> B[Peaking Factors]
      B --> C[Trip Distribution (PK/OP)]
      C --> D[Mode Choice (PK/OP)]
      D --> E[Diurnal & PA/OD Factors]
      E --> F[Highway Assignment (AM/PM/MD/NT)]
      F --> G[Transit Assignment (PK/OP)]
      F -.->|travel time feedback| C
  
```

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Example 2

Auto availability and mode choice segmentation

- Better identification of captive and choice riders

```

    graph TD
      A[Auto Availability] --> B[Trip Generation]
      B --> C[Trip Distribution]
      C --> D[Mode Choice (stratified by car sufficiency & income)]
      D --> E[PA/OD Factors]
      E --> F[Trip Assignment]
  
```

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Example 3

Detailed trip purpose segmentation

- Better identification of important transit markets:
 - commute
 - college/university
 - midday

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FLORIDA MODEL TASK FORCE

Overall Model Implications

- All the proposed transit model improvements will have some impact on highway forecasts
- Greater impact due to:
 - destination choice
 - travel time feedback
 - market stratification
- Anticipate the need to re-validate the highway assignments

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Available Resources



- Scripts, tested as part of CRTPA and Olympus models
- Central office embedded staff support
- Best practices documentation
- Training webinars and courses
 - Transit Model Update Webinar
 - Comprehensive Model Course
 - Transit Modeling Course
 - Model Calibration Course (forthcoming)

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