





# Transit Modeling

## Upgrading Data, Model Formulation, Procedures and Tools to State of the Practice

*presented to*  
**Transit & Rail Committee**

*presented by*  
**Bill Davidson**

December 1, 2010

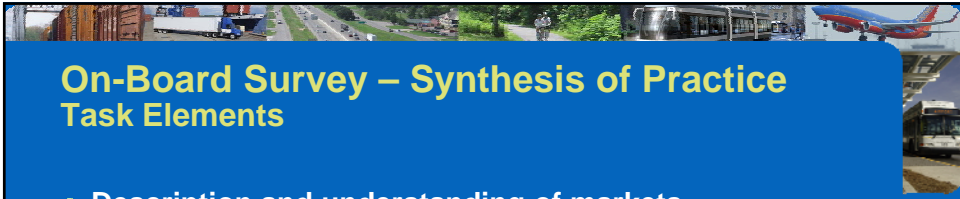


## Task Organization

- On-Board Survey – Synthesis of Practice
- Model Design & Development
- PT Transit Network Functionality
- Principles of Model Calibration & Validation
- User Benefit Tools
- New Starts: Building A Case for the Project

1

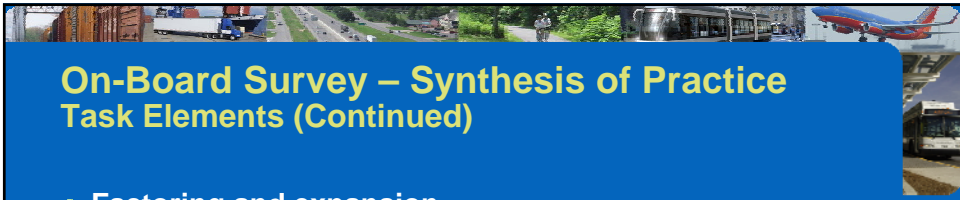




## On-Board Survey – Synthesis of Practice Task Elements

- Description and understanding of markets
- Evaluation and assessment of observed non-survey data sources
- Survey instrument design
- Sampling plan design
- Data retrieval techniques and logistics
- Data checking and cleaning

2



## On-Board Survey – Synthesis of Practice Task Elements (Continued)

- Factoring and expansion
- Data processing – targets, trip tables, and other calibration and validation data
- Role of Specialized surveys – park-and-ride, special event, etc.

3





## Model Design & Formulation Task Elements

- Test Case Selection → CTRPA
- Trip Generation
  - Trip Purpose Considerations
  - Special Markets
  - Market Segmentation
- Time-of-Day Stratification
- Trip Distribution
  - Destination Choice
  - Impedance Considerations

4



## Model Design & Formulation Task Elements (Continued)

- Mode Choice
  - Review & Update FSUMTS “Transit Model”
    - Nesting structure
    - Utility equation variables & coefficient values
    - Implied mode hierarchy
    - Transit access markets
    - Socioeconomic stratification
    - Trip purposes
  - Mode & Market Specific Constants
- Model Feedback
- Reporting and Analytical Summary Functionality

5





## PT Transit Network Functionality Task Elements

- AUTOCON & Drive Access Connectors
- Best Path Only – User specified number of connections
- Fare Consideration in Best Path Only
- Period Specific Line Level Keywords
- Improvements to PCWALK
- PT Refresher Course

6



## Principles of Model Calibration/Validation Task Elements

- Emphasis on Mode Choice Model Calibration
  - Beyond aggregate comparisons
    - Values of alternative specific constants
  - Understanding Markets
    - District level comparisons
    - Market Stratification level comparisons
  - Validation of Transit at the line and station level
  - Case Study Examples
- Upper Level Model Comparisons
  - Calibration Tests

7





## Use of User Benefit Tools Task Elements

- Linkage to reporting functionality
- SUMMIT as a diagnostic tool
- Quality Control Techniques
- Development of Additional User Benefit Analysis Tools

8



## Building A Case for the Project Task Elements

- Design and Develop a 1.5 day course
  - Power Point Presentation
  - Written Case for the Project
  - Review and analysis of real examples (0.5 day)
  - Data and information an actual project (0.5 day)
  - Team approach to development of Power Point presentation (0.5 day)
- Pilot Course Delivery
  - Instructors to include FTA

9

