Overview

- Purpose of the Handbook
- Project Process
- Chapter Overview
- Questions
Why develop a TDM Handbook?

» Produce easy to reference guidelines for the developing, validating, and applying travel demand models
» Provide a resource for public agency staff (MPOs) and consultants
» Clarify expectations and requirements
» Encourage and share good practice
## Project Process

<table>
<thead>
<tr>
<th>Step</th>
<th>Activities</th>
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</thead>
<tbody>
<tr>
<td>Initial Stakeholder Outreach</td>
<td>Held conference breakout session, Prioritized topics</td>
</tr>
<tr>
<td>Annotated Outline</td>
<td>Delivered draft outline, Incorporated comments</td>
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<tr>
<td>Prepare Draft Handbook</td>
<td>Wrote draft</td>
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<tr>
<td>WVDOT Review</td>
<td>Provided comments and revised draft</td>
</tr>
<tr>
<td>Stakeholder Input</td>
<td>Revised draft sent to stakeholders, Collected comments</td>
</tr>
<tr>
<td>Final Draft</td>
<td>Incorporated comments, Produced final document</td>
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Tour of Delivered Handbook

Completed in April 2017

Provides coverage, guidance, and recommendations over a spectrum of modeling topics relevant to WV practice.
Chapter 1 - Introduction

Handbook usage and intent

Acceptable practice
  » Minimal standard for modeling in WV
  » Defined to accommodate most current practices

Recommended practice
  » Desired standard for modeling in WV
  » Defined to align with the state of the practice
Chapter 2 – Travel Demand Model Usage in West Virginia

- Summary of eight WV MPO models
- Discussion on desirable frequency and type of model improvements
- Guidelines provide some flexibility to align with special requirements (e.g., accommodate other-state requirements in multi-state MPO areas)
Chapter 3 – Validation Process and Guidelines

- All individual models should be evaluated
  - Issues with upstream model components can propagate through the model system

- Validation is not determined by pass/fail or some target values alone
  - Based on model purpose, timeframe, intended use

- Models should be reasonably sensitive
Chapter 4 – Data Needed for Modeling

- Recommended practice
  - TAZ definition
  - Socioeconomic data assembly
  - Network data assembly

- Validation and calibration data
  - Survey practices
  - Emerging sources
Chapters 5 – 8 – Typical Model Component Guidance

- Trip Generation
- Trip Distribution
- Mode Choice
- Trip Assignment

- Tailored to WV, recognizing unique requirements
- Provides specific validation guidance for modeled versus observed VMT and RMSE by facility type
Chapter 9 – Truck and Freight Models

Regional and statewide tools

Recommended practice

Common data sources
  » Vehicle registration data
  » Commercial vehicle surveys
  » Vehicle classification counts
  » Truck GPS data (e.g. ATRI, StreetLight)
  » Commodity flow data
Chapter 10 – Statewide Travel Demand Models

Types of statewide models

» Passenger: common approach is four-step with similar trip purposes and long-distance trips segmented
» Freight: several approaches (e.g., four-step; commodity)

How are states using statewide models?

» Air quality, tolling, intercity demand, and project evaluation

Potential data sources

» Public, commercial, and/or emerging data

Model validation

» Aggregate trip rates; % by trip purpose; avg. trip length; avg. auto occupancy for recent implementation examples
Chapter 11 – Microscopic Simulation Models

- Data from regional models can seed a microscopic simulation model application
- Subarea extraction method highlighted

- Chapter highlights some WV examples
Chapter 12 – Model Application and Analysis

- Typical planning applications
  - Long-range transportation planning
  - Air quality conformity analysis
  - Evaluation of transportation system

- Data from regional travel models
  - Traffic volumes and origin-destination flows
  - System performance (e.g., VMT, VHT)
  - Travel time and speeds
  - Need for post-processing for project forecasts

- Analysis when no travel demand model
Future of the Handbook

- Structured to permit updates as regulations, requirements, or practice changes
- Includes chapters that address features that could be desirable to have in the future
  - Statewide model
  - Detailed truck/freight models
  - Mode choice
- Recognizes that one size does not fit all – flexibility is written into it
Questions/Contacts

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