

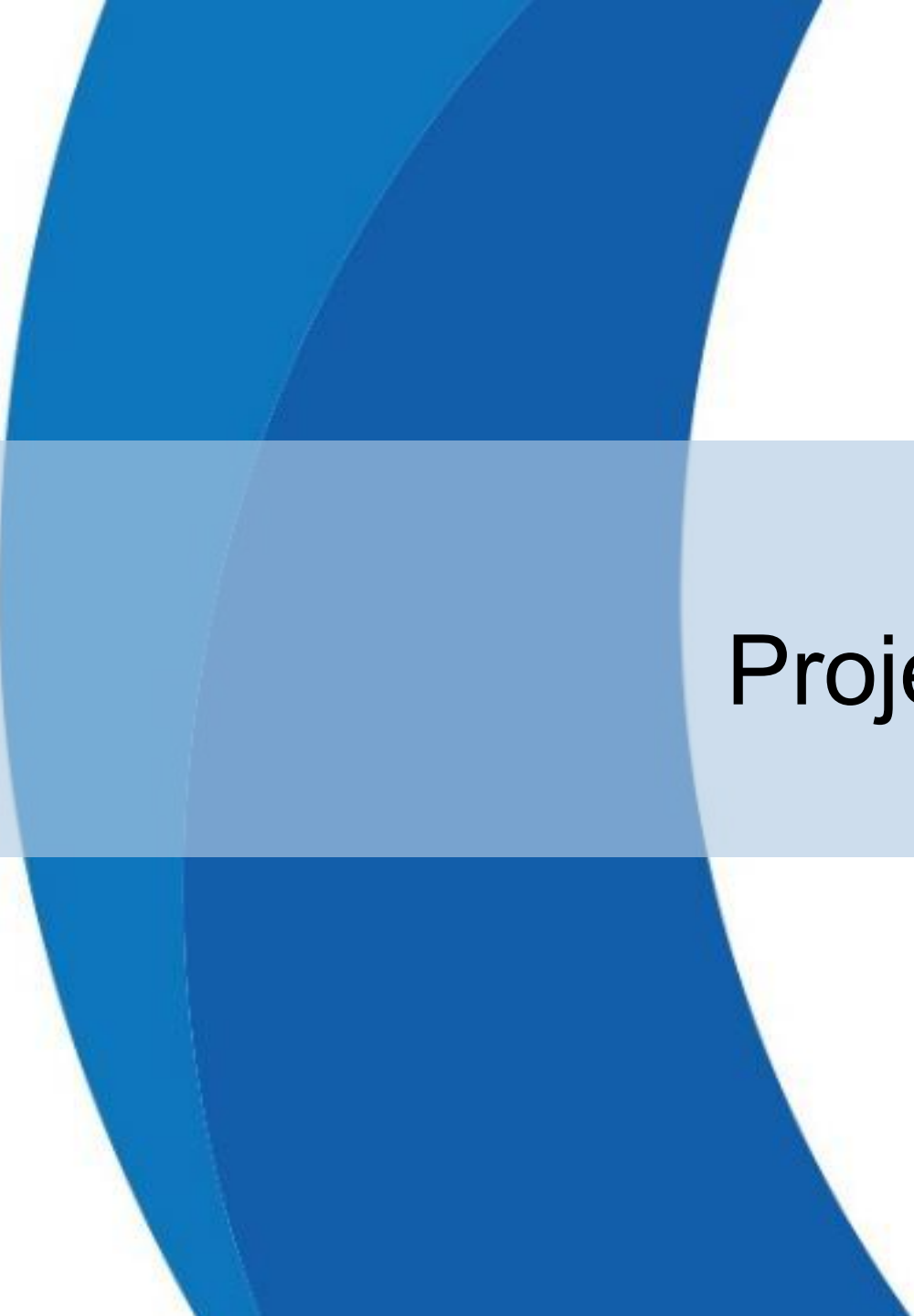
Tennessee Model User Group

Enhancing Travel Forecasting Practices and Effective Use of Travel Forecasts in Long-Range Transportation Planning

April 28, 2026

Presentation Overview

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Project Goal and Objectives

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Project Goal

Develop a broad framework for applying different analytical approaches, supporting multimodal transportation planning and decision-making, to enhance travel forecasting, analytical processes, and long-range transportation planning frameworks.

Objectives:

- Identify how to effectively use travel forecasts for more agile transportation planning;
- Gain insight into promoting enhanced forecasting practices and their effective use;
- Develop an adaptive process to incorporate emerging mobility related data to enhance travel forecasts;
- Document forecasting issues and challenges;
- Create analytical tools; and
- Develop a prototype/playbook for
 - Continuous enhancement of travel forecasting practices,
 - Incremental improvement to travel forecasting outputs, and
 - Effective use of travel forecasts in supporting more agile transportation programming and planning.



Listening Session Overview

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- **Four virtual listening sessions held with nationwide attendance:**

- Session 1: December 18, 2025
- Session 2: January 28, 2026
- Session 3: February 11, 2026
- Session 4: February 18, 2026

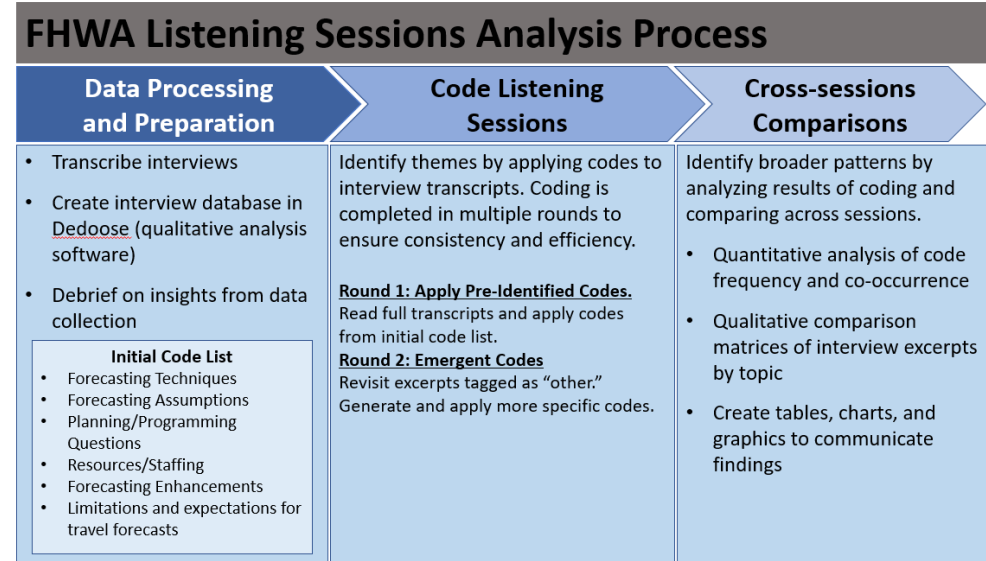
- **Targeted participants included:**

- Advanced modelers
- Conventional modelers
- Land use planners and modelers
- Visioning and scenario planning practitioners
- Safety and operations planners
- ITS and TSMO specialists
- LRTP and corridor planners
- Freight and intermodal planners
- Housing and community impact analysts
- Managerial decision makers

Types of Forecasts Reviewed	Maturity or Level of Development in Methods	Documented Application of Practice in Planning	Documented Integration with Other Methods	Availability of Standard/Automated Tools for agencies
Travel Models	High	High	Medium	High
Passive/Big-Data Simulations	Low	Medium	Medium	High
Qualitative Techniques	Medium	Low	Low	Low
Direct Demand Techniques (Including induced demand)	Medium	High	Low	Low
Air Quality and Noise Projection	High	High	Medium	High
Asset Condition Projections	High	Moderate	Low	High
Economic Growth Modeling	High	Low	Low	Medium

Listening Session Overview (Cont'd)

- **Dialogue style:**
 - Free-flowing conversation with guiding questions.
 - No right or wrong answers...speak from experience.
 - Attendees welcome to build on what others share.
- **Intent to Understand from Listeners:**
 - Activities during a typical long-range transportation planning cycle
 - Types of transportation-related forecasts and data used by decision-makers and users
 - Roles and perspectives in the planning process
 - Practices, issues, challenges and needs
 - Coordination/collaboration/consultation partners





Resulting Session Themes

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- Models as Tools, Not Decision Drivers
 - *Advocacy groups often challenge model assumptions when results conflict with preferred outcomes*
- Predictive vs. Prescriptive Planning
 - *What is likely to happen based on observed behavior vs. what stakeholders want to happen based on policy goals*
- Model Limitations and Gaps
 - *Participants identified several areas where traditional models struggle*
- Standardization, Collaboration, and Shared Resources
 - *Standardized modeling guidance;*
 - *shared open-source tools;*
 - *pooled funding for data and model development;*
 - *regional collaboration to reduce duplication*

Forecasting Theme/Issue	Overall Relevance to Statement of Work
Tension between predictive and prescriptive planning	Drives conflict between model outputs and policy goals; affects public trust and decision-making.
Misalignment among forecast types	Creates inconsistencies between land use, economic, revenue, safety, and travel forecasts; complicates LRTP development.
Limitations of traditional models	Models cannot fully represent safety, pavement, reliability, micro transit, nonmotorized travel, autonomous vehicles, or transformative land use changes.
Increasing uncertainty in travel behavior	Remote work, new transport modes, e-commerce, and demographic shifts reduce confidence in long-range predictions.
Need for transparency and defensibility	Litigation, public skepticism, and advocacy pressures require clear documentation and communication.
Growing reliance on big data	Big data improves observation but lacks transparency and forecasting capability.
Need for standardization and shared resources	Small MPOs and rural agencies cannot sustain complex models; pooled tools and guidance are needed.
Models as Tools, Not Decision-Drivers	Misunderstandings arise when stakeholders interpret model outputs as prescriptive or deterministic. Models rarely show dramatic regional impacts from individual projects, contradicting common public expectations.

Resulting Session Themes (Cont'd)

- Compliance-Based vs. Analytical Forecasting
 - *Compliance forecasting (air quality conformity; NEPA; LRTPs; grant requirements) vs. analytical forecasting (scenario planning; policy exploration; operations planning)*
- Resource Constraints
 - *Insufficient staff; limited funding for household travel surveys; inability to procure big data and model updates in same fiscal year; long runtimes and high computational demands of advanced models; difficulty supporting simple, routine analyses with complex regional models*
- Incremental Forecasting and Specialized Models
 - *Examples include incremental (pivot-point) models; specialized models for transit, freight, or pricing; sketch planning tools for scenario exploration; strategic models*
- Shifting Planning Context
 - *Some regions are no longer planning for growth but for system preservation and resilience; per-capita trip-making has declined in many areas; remote work and e-commerce introduce long-term uncertainty; climate, safety, and equity goals increasingly shape planning priorities in some regions and states*

Forecasting Theme/Issue	Overall Relevance to Statement of Work
Compliance-Based vs. Analytical Forecasting	Conflicts arise when a single model is expected to serve both the stability/defensibility required for compliance and the flexibility/sensitivity needed for analytical policy exploration simultaneously.
Incremental Forecasting and Specialized Models	Because it is difficult to support simple, routine analyses with complex regional models, agencies require specialized, incremental, and sketch planning tools to provide more actionable insights for specific applications.
Shifting Planning Context	Many regions are no longer planning for growth but for system preservation and resilience. As a result, agencies must shift from predicting a single future to managing a range of plausible futures.
Resource constraints	Limited staff, funding, and data access restrict model updates and innovation.



Ongoing Activities

Ongoing & Future Activities

- Draft Issues & Challenges Technical Memorandum under review
 - *Using listening sessions to categorize the existential and technical hurdles facing practitioners today*
- Practitioner Workshop
 - *Upcoming invitational session where agency leaders will refine the requirements for the framework based on the gaps identified in this report*
- Typology of Forecasting Situations
 - *Development of a classification system (e.g., "Low-Growth," "High-Transit," "Freight-Heavy") to help agencies choose the right tool for each specific mission*
- The Playbook (Final Output)
 - *A practical, modular guide for agencies to use when producing, interpreting, and communicating forecasts in a way that supports agile decision-making*

Scope Dimension	Specific Topics Explored in Listening Sessions
Technical Breadth	Covers travel demand models (4-Step, ABM), sketch planning (VisionEval), transit-specific tools (STOPS), and the integration of "Big Data" (LBS/GPS).
Multi-Asset Forecasting	Evaluates the state of forecasting for non-traditional metrics, including climate mitigation targets, safety performance, pavement conditions, and fiscal revenue resilience.
The Human Element	Analyzes the organizational constraints identified, such as staff turnover, the "half-a-person" modeling department, and the lack of standardized calibration baselines.
Decision-Support Context	Examines how forecasts are communicated to, and sometimes weaponized by, boards, advocacy groups, and the public.

Discussion/Q&A

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