Presentation Overview

- Target audience
  - SimSub’s parent committees
  - FHWA reports to other committees at TRB
- Brief history of the TSSM
- Evolution of SimSub and Task Force
- Current state of the TSSM
  - Volumes I, II, III, IV
- Research needs statements
- Ownership and maintenance
  - Publishing challenges
Brief History

1963: TRB Committee on Traffic Flow Theory and Characteristics
1964: HRB Special Report 79 Introduction to Traffic Flow Theory
2001: Traffic Flow Theory Monograph
2005: Joint Simulation Subcommittee (SimSub) Established
2008: Woods Hole - Greenshields Symposium
2012: Fort Lauderdale – Joint Summer Meeting with HCQS Committee
2014: Original TSSM Development Contract (KAI Lead)
2015: TRB System Simulation Task Force Established
2016: Current TSSM Development Contract (Leidos Lead)
2018: Task Force not renewed
2019: TSSM draft conveyed to SimSub
“Creative Differences”

**DOTs, Pooled Fund Study**
- Software-specific guidance
- Step-by-step instructions
- Example problems
- Case studies
- Practicality

**FHWA, Academia**
- Software-agnostic guidance
- Understanding of principles
- Algorithm development
- Advance the practice
- Future-oriented

“Committees owning the manual should have a mix of backgrounds, because the DOTs need to provide funding. Researchers need to sell them on the importance of various research topics.”
Evolution of SimSub and Task Force

- **Simulation Task Force**
  - Created in 2015
  - Not renewed – thanks for your service
  - Certificates for all members

- **SimSub will manage TSSM**
  - New membership structure, appointment letters
  - New website developed by Taylor Li
  - Linkage to TSSM website
  - Responsibility for further TSSM development and maintenance
  - May create a research subcommittee to develop research needs statements
TSSM from the Current Project

• Complete First Draft
  • Volume I: Basic Simulation Concepts
  • Volume II: Model Development and Application
  • Volume III: Case Studies

• Additional Items from the Current Project
  • Research needs statements (RNS)
  • State-of-the-practice report
  • Stakeholder register
TSSM Structure

- Ch. 1: What is Simulation
- Ch. 2: Simulation Options
- Ch. 3: Principal Ideas
- Ch. 4: Use Issues
- Ch. 5: Defining the Problem
- Ch. 6: Data
- Ch. 7: Creating the Network
- Ch. 8: VC&V
- Ch. 9: Output Analysis
- Ch. 10: Post-Project Validation
TSSM Structure (continued)

• Ch. 11: Overview of the Volume
• Ch. 12: Freeway System Models
• Ch. 13: Arterial System Models
• Ch. 14: Freeway/Arterial Systems
Research Needs Statements (RNS)

- Simulating Work Zones
  - Research best practices, develop tools to simulate WZ dynamics
- Data Fusion and Assembly for Simulation Models
  - Research best practices, develop guide for data-driven simulation
- Simulating Mixed Traffic Flows
  - Trucks and autos, CAVs and non-CAVs
- Multi-Tool Analyses
  - Combinations of various types of software
  - Based on agency practice
  - Examples: parallel macro-, meso-, micro; embedded micro
- Simulation Models in Agency Decision-Making
  - How agencies use simulation in decision making
Ownership and Maintenance

• TRB publications are in flux
  • Publishing now managed by Sage
  • How to deal with the HCM, etc. in flux
  • TSSM is further back in the queue

• Suggestions for managing the TSSM
  • TRB SimSub: suggested, good for research, publishing obstacles
  • ITE SimCap: a possibility, but less academic involvement, good for advertising, research obstacles
  • AASHTO: does not seem best match; not safety or investment
  • There may be other options
Questions and Answers

Thank You