Statewide Modeling Peer Exchange

Co-sponsored by TRB SWM subcommittee, FHWA and ODOT

Columbus, OH

June 15-16, 2022

Participants

- 14 Presenting States, 6 Federal Presenters
- 62 Total Attendees, Half in Person, Half Virtual

Peer Presenters

Kalin Pacheco, California Department of Transportation (Caltrans)
Sacramento, CA

Erik Sabina, Colorado Department of Transportation (CDOT)
Denver, CO

Anson Gock, Delaware Department of Transportation (DelDOT)
Dover, DE

Terry Corkery, Florida Department of Transportation (FDOT)
Tallahassee, FL

Habte Kassa, Georgia Department of Transportation (GDOT)
Atlanta, GA

Sheng Chen, Illinois Department of Transportation (IDOT)
Springfield, IL

Jeff von Brown, Iowa Department of Transportation (IDOT)
Ames, IA

Scott Thomson, Kentucky Transportation Cabinet (KTC)
Frankfort, KY

Jesse Frankovitch, Michigan Department of Transportation (MDOT)
Lansing, MI

Greg Giaimo, Ohio Department of Transportation (ODOT)
Columbus, OH

Alex Bettinardi, Oregon Department of Transportation (ODOT)
Salem, OR

Janie Temple, Texas Department of Transportation (TxDOT)
Austin, TX

Peng Xaio, Virginia Department of Transportation (VDOT)
Richmond, VA

Chris Chritton, Wisconsin Department of Transportation (WisDOT)
Madison, WI

Federal and Other Presenters

Danny Jenkins, P.E., Office of Highway Policy Information
Federal Highway Administration

Joe McGill, Office of Data Development and Standards
Bureau of Transportation Statistics

Maren Outwater, P.E., Principal
RSG

Birat Pandey, Office of Freight Management and Operations
Federal Highway Administration

Jeff Purdy, Freight Management and Operations, Office of Operations
Federal Highway Administration

Ed Strocko, Office of Spatial Analysis and Visualization
Bureau of Transportation Statistics

Presentation Summary

- Background

- Agenda & Deliverables

- Next steps

Background

Previous SWM Milestones

- 1976-first SWM (KY)
- 1998 – first SWM conference in Irvine
- 2004 – SWM Peer Exchange in Longboat Key, FL
- 2008 – Atlanta planning conference, two SWM tracks
- 2013 – Columbus PAC, SWM workshop
- 2017 – NCHRP SWM Synthesis
- 2018 to ongoing – Travel Forecasting Resource section on SWM
- Various key reports – validation, long distance travel, others
- 1997 to ongoing – TRB SWM subcommittee
- 2022 – SWM Peer Exchange

SWM Factoids

- About 40 states have up to date SWMs – see graphic next page, TF Resource though is not up to date.

- See TFR site: https://tfresource.org/topics/Statewide_models.html

- See subcommittee web site: TRB Statewide Modeling Subcommittee (trbappcon.org)

- See surveys collected by Peer Exchange for data such as:
  - Zones, staffing, pop/emp/software
  - Type model, applications, data sources
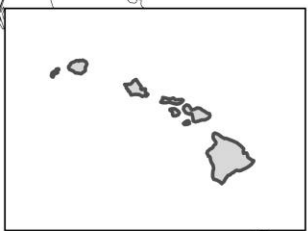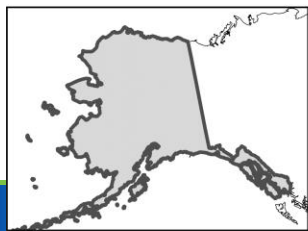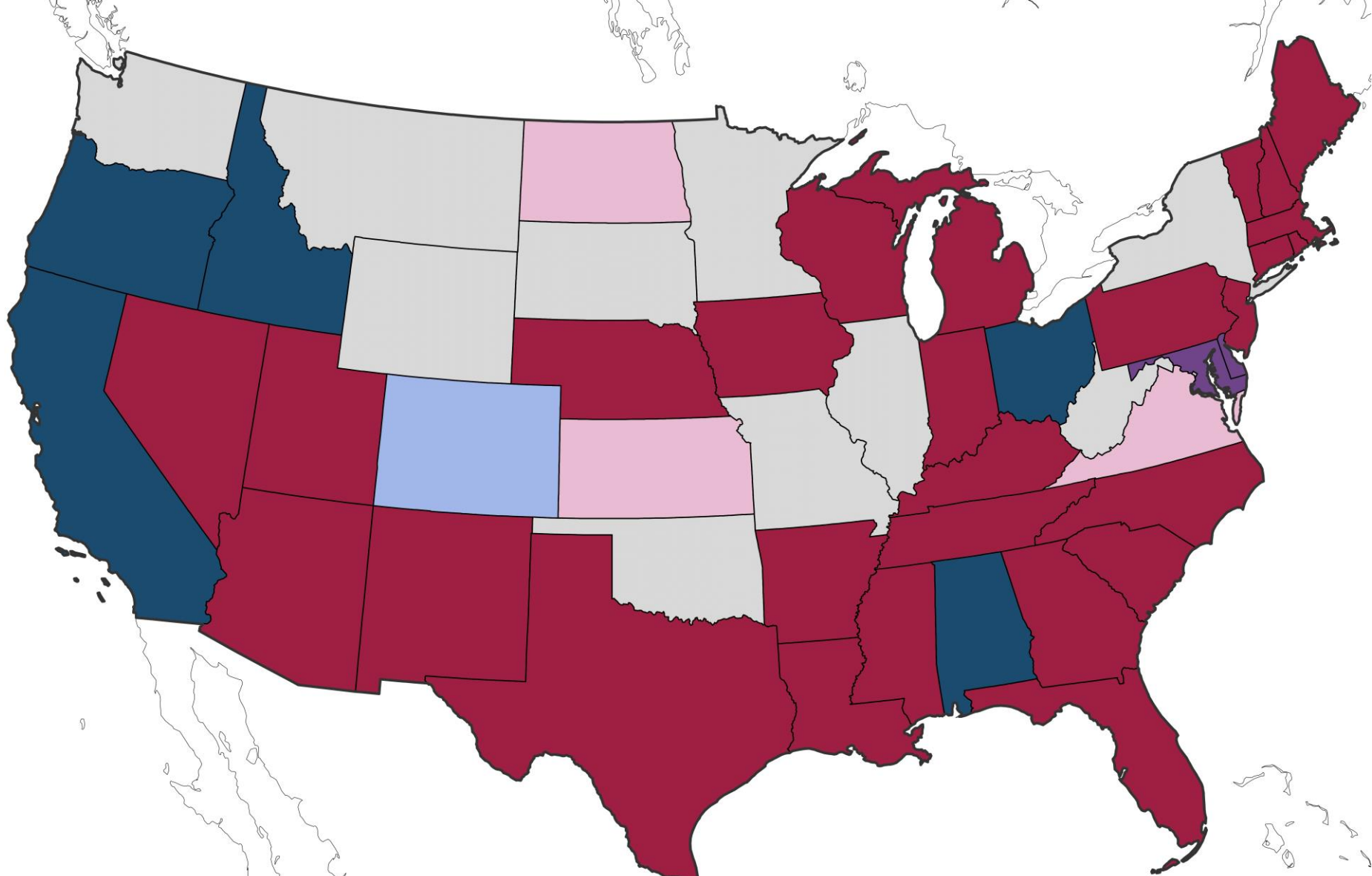
FULLY OPERATIONAL:
- Four-Step Model
- Activity-Based Model

IN DEVELOPMENT:
- Four-Step Model
- Activity-Based Model

Operating Four-Step Model and Developing Activity-Based Model

No Statewide Model

Why a Peer Exchange Now?

- Key focus of the event is the interaction of Statewide/Megaregion models with National data sources
- Develop a common understanding to guide future direction

Agenda & Deliverables

Agenda

- Presentations by State Participants

- National Data Sources Overview/Status Presentations

- Needs Discussion/Development of Breakout Topics

- Breakout Group Discussions

- Report Back on Recommendations

State presentations

- 14 states: 10 in-person, 4 virtual.
- How does state use national data in their SWM?
- Example from Virginia shown below.

| Model Element	Data Source	Validation	Notes
Households, Population& Employment	-Census ACS Estimates -MPO Data -Weldon Cooper -InfoUSA -Woods & Poole	-Ensure Consistency in HH & Pop Numbers -Household Distributions	2018 American Fact Finder
Production Rates	-NHTS (National and VDOT) -MPO Models	-Resulting Trip Rates match Inputs -Trip Rates are reasonable to other data sets	
Attraction Rates	-MPO Models -NHTS (VDOT)	-Replicate estimates -Magnitude of Attractions	
Statewide Network	VDOT GIS Coverages (Speed Limits, Functional Class, # of Lanes),		Requested TrueShape Statewide Network
Freight Model	-IHS/Global Insight TRANSEARCH Commodity -Truck counts on highway(VDOT)	Commodity flow validation	Provided by VDOT
P A Balance	-NHTS (VDOT)	-Production / Attraction Balance -Geographic PA Balance	

Federal presentations

- Freight analysis framework, present and future, Birat Pandey

- Commodity flow survey and VIUS, Joe McGill

- Future BTS research on long-distance travel, Ed Strocko

- NHTS, Big Data OD, HMPS, Danny Jenkins

- NPMRDS and applications, freight microsimulation, Jeff Purdy

- National long-distance model, Maren Outwater

Total Trips by Origin State(s)
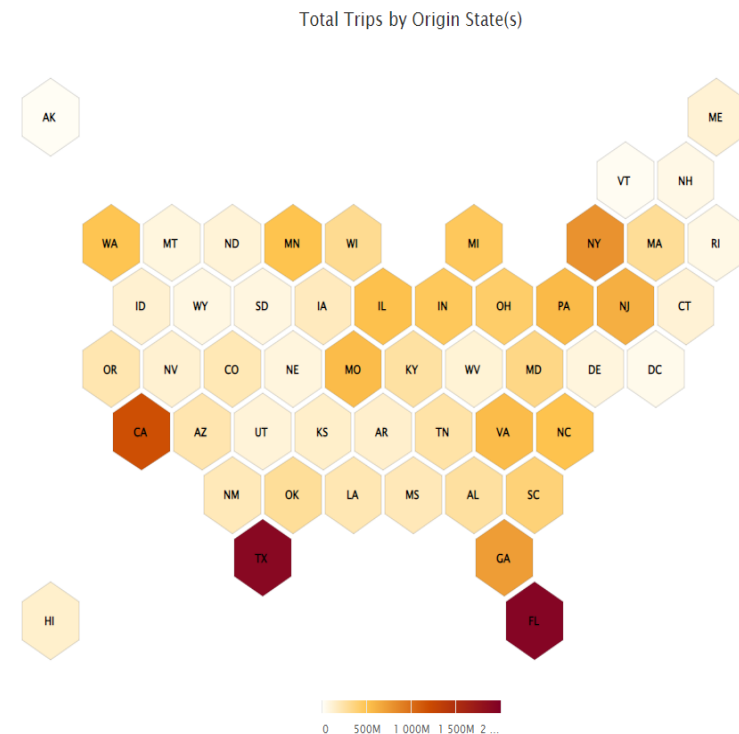
Research topics

- Research topic brainstorming
- Breakout groups for five selected topics
  - Freight data – Rob Schiffer
  - Passive data – Jeremy Raw
  - Trip generation and SE data – Greg Giaimo
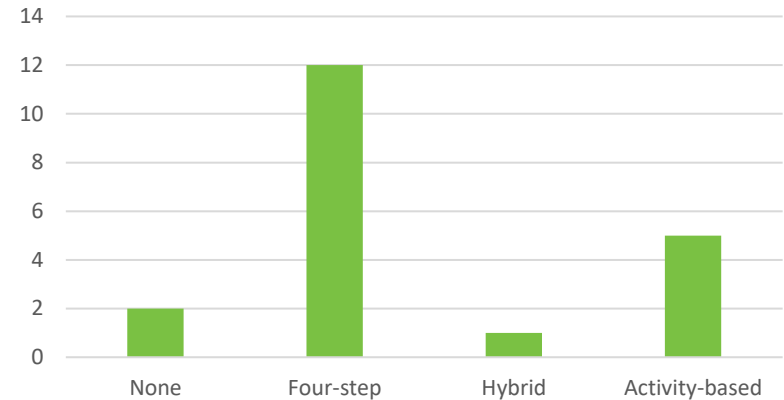 - Modeling Strategies – Rob Bostrom
  - National model – Greg Erhardt

4570 NUMAs
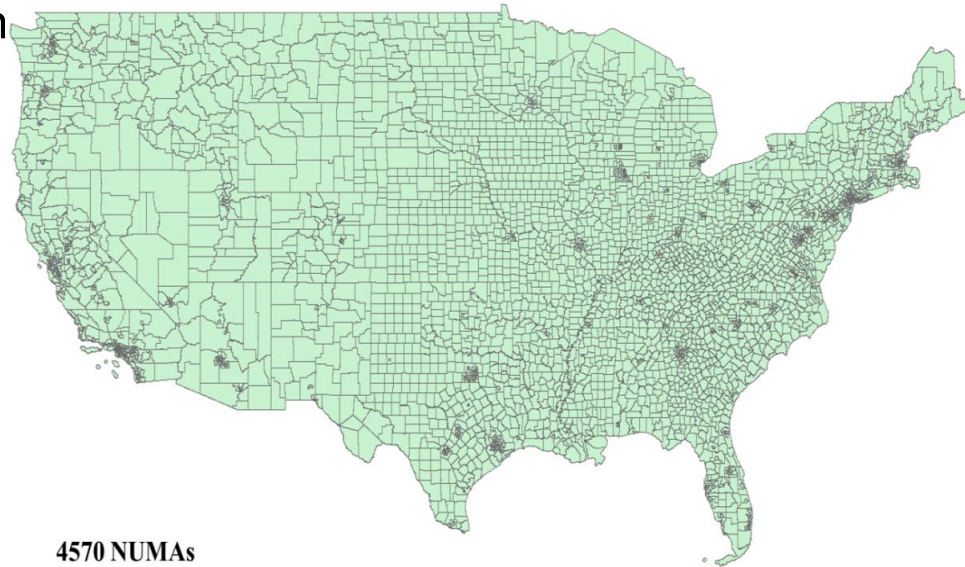
Deliverables

- Surveys for 19 states and Ontario
- Research recommendations
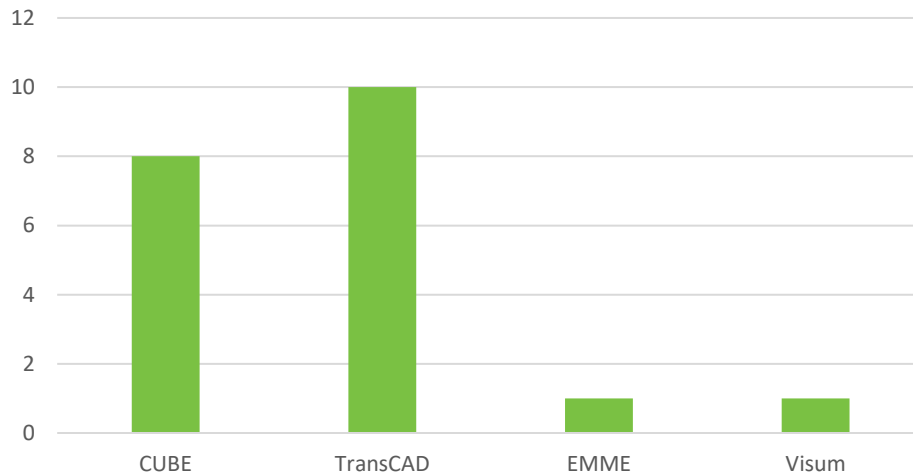- Final report

Statewide Model Survey
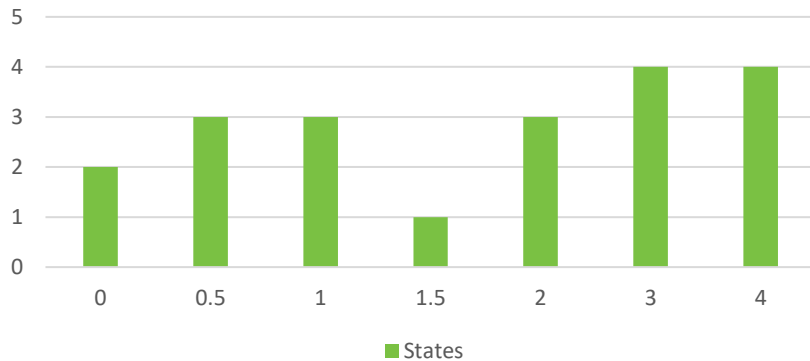
Research Recommendations

- Freight
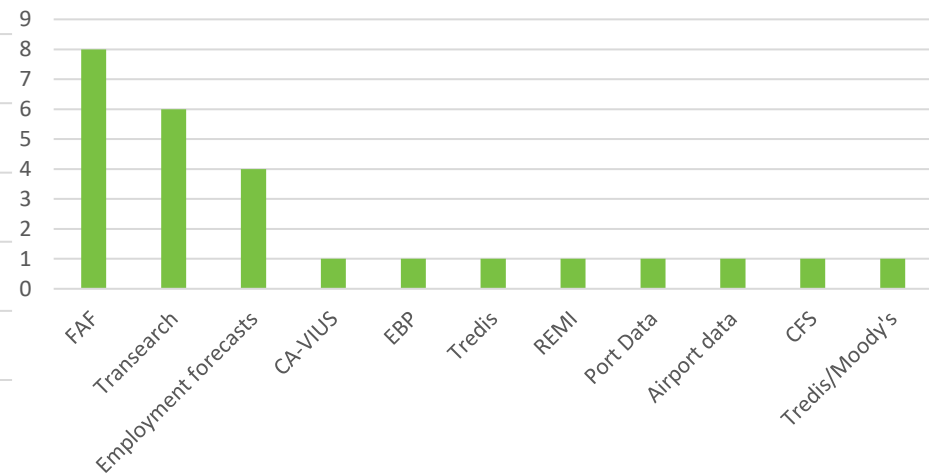 - Disaggregation of National Data to Useful Levels
  - Supply Chains, LTL, Delivery in Models?
  - Updated QRFM/VIUS
- Passive Data
  - Sources, fusion, licensing
  - Temporal instability of source data
  - Biases
  - Pooled nationally availably data (like NPMRDS)
- Trip Generation/Socio-Economic Data
  - Need for data outside the state border
  - Disaggregate employment data for freight modeling
  - Office/HQ vs. Production vs. Warehouse not always available but important
  - Teleworking propensity by industry
  - Production/consumption factors for freight disaggregation
  - Image recognition to develop floor areas, parking, seating, cargo bays, land use
  - Hotel rooms, parks and other recreation indicators
  - Census differential privacy impacts

Research Recommendations Continued

- Modeling Strategies
  - Model formulations
  - Managing expectation/uncertainty
  - Multi-resolution scale

- National Models
  - Provide consistent data to statewide models
  - Multi-level disaggregation
  - Passenger equivalent of FAF
  - Cross border/import export models
  - Standardized, simple short distance model to fill in rest of travel

Report and Implementation

- Final Report Released

  https://www.fhwa.dot.gov/planning/
  p/publications/other_reports/

- Implementation
  Discussions to Start at
  THIS MEETING!

Contents

Next Steps?