

NCMUG Vision: To provide a forum for sharing knowledge and experiences of using state-of-practice transportation modeling tools, techniques and innovations appropriate to answer transportation planning and policy questions for the State of North Carolina and promote its implementation across the State.

2024 Fall NCMUG Meeting

Wednesday, Nov 13, 2024

1:00 PM-4:30 PM ET

**Long Leaf conference room
Central Pines Regional Councils
4307 Emperor Blvd., Suite 110
Durham, NC 27703**

MS Teams Meeting Link: [Link](#)

Meeting ID: 221 867 168 776

Passcode: xFKtkf

Agenda

Moderator: Roberto Miquel, WRA

Welcome and Introductions

Model Development and Long-Range Plan Updates (15 minutes)

NCDOT, Triad Region, Triangle Region, Metrolina Region

Post-pandemic Travel Survey and Travel Model Updates in the Spokane Region (45 minutes)

Robert Wertman, RSG

Jeff Frkonja, Market Leader, RSG

Learning Objectives:

- Identify shifts in travel behavior post-pandemic.
- Understand new data's impact on telework and mode choice trends.
- Learn how survey findings updated the travel demand model

Abstract

RSG performed a household travel survey February through April 2022 for the Spokane Regional Transportation Council and used the survey, plus other data, to update the region's travel demand forecast model. The survey found different trip behavior by purpose after the pandemic than prior, as hypothesized, and RSG updated the model accordingly. For example, prior to March 2020 only 28% of regional workers teleworked at least once per week whereas by spring of 2022 that proportion had increased to 34%. The survey also captured mode options (e.g. ride hailing services) not previously accounted for. The presentation will cover the high points of the survey findings and their incorporation into the updated model.

Bio

Robert (Bobby) Wertman, RSG

robert.wertman@rsginc.com, RSG

Bobby has led many MPO/Regional model development efforts, focusing on advanced travel demand models and integrating passive data into modeling frameworks. A skilled project manager, he understands the unique challenges of small to medium MPOs and provides value-added resources. His extensive experience includes managing household travel surveys, regional and statewide travel demand models, and various MPO planning activities required by MAP-21, FAST, and the IJIA Act. Proficient in GISDK, R, SAS, STATA, and ArcGIS. Bobby implements forecasting and land use models at statewide, regional, and corridor levels using TransCAD, PTV Visum, and UrbanSim. Additionally, he actively serves on the TRB Committee on Transportation Planning Analysis and Application and has been pivotal in planning the TRB Transportation Planning Applications Conference since 2016.

Jeff Frkonja

jeff.frkonja@rsginc.com, Market Leader, RSG

Jeff Frkonja has experience managing and executing complex analysis-informed planning projects including travel forecasts, transit ridership forecasts, land use forecasts, demographic and transportation data analyses, and survey analyses. He is proficient in applying a variety of technical tools including travel models, geospatial analysis in ESRI and open-source platforms, the FTA STOPS model, and more. He is experienced in transportation benefit/cost analysis and planning- and project-level roadway tolling/pricing forecasting. In addition to his technical skills, he successfully led challenging public engagement processes, designed and managed complex planning processes, and facilitated needs assessments and public meetings. He has experience supporting Environmental Justice and other equity planning tools using travel forecasts and demographic analysis. He is an experienced project manager in both plan-based and Agile paradigms.

“All for One Network, and One Network for All” (45 minutes)

Jonathan Avner, WRA

Learning Objectives:

- Understand benefits of a statewide integrated transportation network.
- Recognize challenges in implementing network integration.
- Explore case studies from Ohio and Maryland’s network models.

Abstract

This presentation will discuss the benefits of developing a statewide integrated transportation network that harmonizes the network features and characteristics of MPO models and a statewide model network by focusing on the themes of efficiency, accuracy, and consistency. Such an integrated approach to a network database will make it possible for stakeholders across the state to maintain and update their own model specific datasets from current up-to-date network data and provide them the opportunity to publish their own project coding back to the integrated network. This has the potential to not only facilitate local and statewide transportation planning and modeling, but to also facilitate the prioritization process by enhancing project coding consistency in North Carolina. This presentation will discuss not only benefits such as enhanced scalability of networks, alleviating the burden on staff to code networks, and increasing consistency across the state and its MPOs, but also challenges such as dealing with different attribute naming conventions and needs, variations in the required level-of-detail of the network, and developing an editing environment that is accessible to the user base. This presentation will draw on examples from work currently being done for the Ohio Department of Transportation and the Maryland State Highway Administration.

Bio

Jonathan Avner

javner@wrallp.com, Vice President, WRA

Mr. Avner is a nationally known expert in the development and application of travel demand models with 25 years of experience. He has experience in many aspects of transportation planning including travel demand model development and applications as well as corridor, county-wide, regional, and statewide transportation planning projects and use of models for project prioritization. Jonathan leads WRA's travel demand modeling practice, which provides model development and applications for MPOs, state DOTs, and local entities for both systemwide and subarea/corridor applications. His team focuses on the use of model and model related data to help address clients project and policy related questions. Jonathan serves as Project Manager or Task Lead on several of WRA's travel demand modeling tasks where his technical skills and ability to work with the client make him well regarded.

Break (15 minutes)

Innovative Applications of Big Data (LOCUS) in Forecasting and Planning (45 minutes)

Nikhil Puri, Cambridge Systematics

Moby Khan, Cambridge Systematics

Learning Objectives:

- Learn innovative approaches to transportation problem-solving using tailored demand modeling and big data analytics.
- Understand the importance of high-quality, validated big data for actionable transportation solutions.
- Explore use cases in model development, including model validation, rail applications, freight, transit, and resiliency, along with the benefits and limitations of big data sources.

Abstract

Nikhil Puri and Moby Khan will present on innovative approaches to solving transportation problems through tailored demand modeling and analytical solutions using a suite of big data products developed by LOCUS, a Cambridge Systematics entity. The presentation will emphasize the need for high quality big data that is validated in a robust manner, while also being actionable and practical to solve today's unique transportation challenges. We will present an approach to model development using big data, and several use cases spanning topics such as model validation, Corridor ID rail applications, freight, transit, and resiliency. Finally, we will help unpack the benefits and limitations of the data source used.

Bio

Nikhil Puri

NPuri@camsys.com, Practice Lead (Principal), Cambridge Systematics

Mr. Puri, a Principal and National Practice Lead at Cambridge Systematics, brings over 20 years of experience in managing complex transportation planning, modeling and data analytics projects across the U.S. He brings a unique perspective having managed projects addressing multimodal demand and revenue forecasting, congestion alleviation, feasibility studies, corridor projects, and the development and application of regional travel demand models that rely on big data. His most recent work has focused on finding innovative solutions using Location Based Services (LBS) data on rail, transit and highway related projects. He is a member of the TRB TDM committee and serves on the Board of ITS-NY.

Moby Khan

mkhan@locusdata.io, Director of Product at LOCUS

Moby Khan is the Director of Product at LOCUS, a wholly-owned subsidiary of Cambridge Systematics, Inc. (CS). He has over 12 years of experience in transportation data product development, transportation planning, model development, survey design, data analysis, discrete choice modeling, and Geographic Information System (GIS). In his current role at LOCUS, he is leading the development of data products in the transportation domain using various sources of big data such as telematics data from vehicles, location-based services data from cell phone devices, land use data, count station data, weather data, socioeconomic data, etc. Previously, he served as a Senior Travel Demand Modeler at CS where he developed and applied different types of travel demand models for regional and statewide studies.

Equity and Travel Demand Models: Translating philosophies of justice into actionable model outputs (45 minutes)

Dr. Matthew Palm, Ph.D., University of North Carolina at Chapel Hill

Learning Objectives:

- Learn to apply equity metrics derived from travel demand model outputs.
- Explore state-of-the-art tools for assessing transportation equity, including access sufficiency, poverty measures, and logsum.
- Understand how distributive justice theories can enhance interpretation of equity outcomes in transportation planning.

Abstract

Transportation policymakers are increasingly focused on ensuring that infrastructure benefits are fairly distributed across the regions they serve. Travel demand models play a crucial role in evaluating the equity impacts of transportation plans and programs. Recent research offers guidance on how to derive rigorous, theoretically-informed equity metrics from travel demand model outputs. This presentation reviews state-of-the-art tools, from access sufficiency and poverty measures to the use of logsum as an equity indicator. It also introduces new approaches to identifying needs across regions. Many analysts face challenges in translating these results into clear answers to questions about whether the outcomes are truly “equitable.” This presentation will also delve into how framing results in terms of distributive justice theories can provide a more robust foundation for interpreting model outputs, ultimately supporting more inclusive and equitable transportation planning.

Bio

Dr. Matthew Palm, Ph.D.

palmmatt@unc.edu, Assistant Professor and Cities Pardue Fellow,

Department of City and Regional Planning, University of North Carolina at Chapel Hill

Dr. Matthew Palm is an Assistant Professor of City and Regional Planning at the University of North Carolina, Chapel Hill, and the academic lead of the Innovative Pilots and Policies working group within Mobilizing Justice, a Canadian research initiative focused on advancing transportation equity. He has previously held research fellowships at the Universities of Toronto and Melbourne. His work on affordable housing and transportation has been published in the U.S., Canada, and Australia.