MTMUG Meeting
September 2nd, 2015
Conference Resources

- **Main Website:** [http://trbappcon.org](http://trbappcon.org)
- **Final Program:** [http://trbappcon.org/2015conf/program.aspx](http://trbappcon.org/2015conf/program.aspx)
- **Public Agency Fellowship:** [http://trbappcon.org/2015conf/fellowship.aspx](http://trbappcon.org/2015conf/fellowship.aspx)
Trends in Complex Travel

Percent NHB Trips

Noteworthy Presentations
Noteworthy Presentations

Salt Lake City Application of New Methods for Improving Non-Home-Based Trips

**In Parallel**
- Generation: HBW, HBS, HBO, NHB
- Distribution: HBW, HBS, HBO, NHB
- Mode Choice: HBW, HBS, HBO, NHB
- Assignment

**In Series**
- Generation: HBW, HBS, HBO, NHB
- Distribution: HBW, HBS, HBO, NHB
- Mode Choice: HBW, HBS, HBO, NHB
- Assignment

![Graph](image)
Noteworthy Presentations

Linking Rural Development and Transportation Using a Land Use-Transportation Decision Support Tool
Noteworthy Presentations

Simultaneous Travel Model Estimation from Survey Data and Traffic Counts

**Genetic Algorithm**
Evolve parameters to maximize fitness vs. counts & survey

**Travel Model**
Apply the base model given a set of parameters as inputs

What if...
We didn’t ignore traffic counts until the end?
Noteworthy Presentations

Developing Travelshed TAZ Using ArcGIS

View road facilities and their catchment areas as akin to rivers and their basins in a hydrological system
Noteworthy Presentations

The Travel Impact of Autonomous Vehicles in Metro Atlanta through Activity-Based Modeling
Evaluation of Cellular-based Travel Data – Experience from Phoenix Metropolitan Region

Using Cellphone Origin-Destination Data for Regional Travel Model Validation

Preliminary Evaluation of Cellular Origin-Destination Data as a Basis for Forecasting Non-Resident Travel

All three studies compared AirSage data with a travel demand model:

- AirSage data matched model (and counts) closely when aggregated
- Errors:
  - At TAZ level
  - In trip purpose
  - By time period
  - In travel mode
  - Various other errors that require cleanup
- Useful for validation (e.g., trip length distribution, external analysis, etc.)
- AirSage data has potential because of large samples, but is different than what modelers typically use.
  - AirSage and land use data need to be reconciled before it is really useful
Better Trip Distribution Starts from Developing Travel Behavior Based Employment Categories (presentation not available)

- NAICS 2-digit codes typically used to group employment categories
- Yet, NAICS codes were not created for travel behavior
  - E.g., banks and bank corporate offices have similar codes but different travel behavior
- Proposed the following employment categories:
  - Industrial, Office, Service – low rate, Service – high rate, Retail
Establishment of Freeway Link Volume Validation Targets based on Traffic Count Distributions in Dallas-Fort Worth Region
Selected Findings from the Application of Accelerated User Equilibrium Traffic Assignments to Regional Planning Models

How to Put “Best Practice” into Traffic Assignment Practice

- Reviewed 5 best MPO models from the 30 largest MPOs
- Suggestions:
  - Tighter assignment convergence would improve stability of results \((1 \times 10^{-5})\)
  - Make sure travel times are accurate
  - Use counts for different time periods for validation
  - Use back-casting to check results
  - Feedback loops can improve travel times and many models stop too early
  - All models can be improved
Take Home Points

- No big data sources are to the point where they can replace travel surveys
  - But increasing model coverage and complexity is data hungry

- Increased model and data complexity is pushing the envelope for better data visualization

- Travel surveys were more abundant than I expected

- Dealing with NHB trips is a challenge
Take Home Points

- **Model validation tidbits:**
  - Back-casting is an important sensitivity test
  - Counts can vary by about 10% RMSE

- [tfresource.org](http://tfresource.org) is a useful and growing resource. [http://answers.tfresource.org](http://answers.tfresource.org) is the Q&A page.