



# A LOOK AT THE FIRST BEHAVIORAL-BASED NATIONAL FREIGHT MODEL IN THE UNITED STATES

## The new national freight model will transform the future of freight forecasting in the United States.

The United States now has a working behavioral-based national freight model to evaluate, by shipment mode, the economic and business relationships across all industries and firms. The final model and its software (rFreight) are open source, which means all states and regions have access to it. **Practitioners at the state and regional level will be able to derive immediate benefit from its use.** The national freight model will help practitioners account and plan for most changes that have occurred in recent years through its powerful scenario modeling capabilities. It will also offer additional clarity into future freight movement patterns and promote the stability and resiliency of the national transportation network.

### HOW CAN IT BE USED?

- 1 Obtain long-distance freight movements from the national freight model for statewide models
- 2 Analyze how national economic changes might affect freight movement in or through a state
- 3 Develop a statewide freight model using the national freight model's open-source platform
- 4 Evaluate freight investment studies at a multistate (megaregional) level
- 5 Assess private sector and global trade decisions on the Transportation Infrastructure Investment Plan

## The national freight model includes new models and offers innovative capabilities to states and regions.

The national freight model project has successfully completed its first two phases, which researched how to design and build the model. The third phase will transform the study team’s research into a model that Federal Highway Administration can use in concert with practitioners to forecast freight movement.

### ► NEW INNOVATIONS

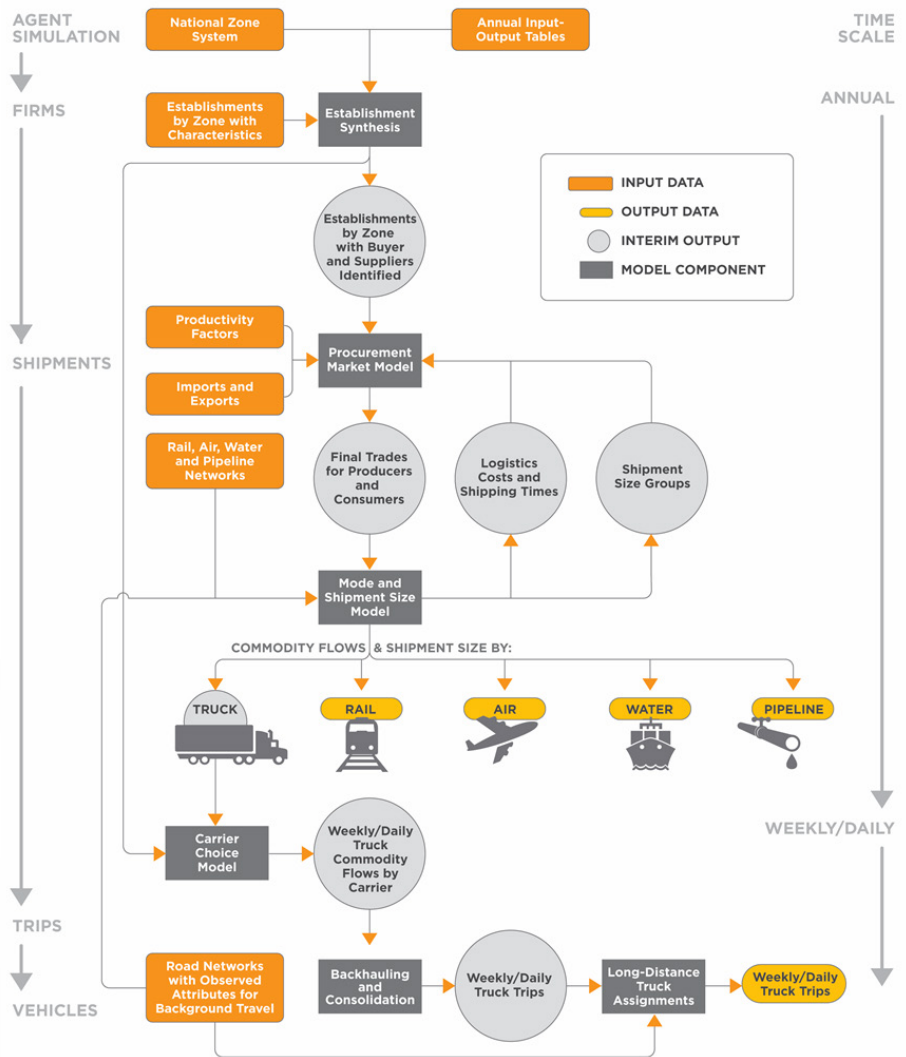
The national freight model includes new **firm synthesis, carrier, and backhaul consolidation models**. It also includes the only mode choice and shipment size model in existence that has been estimated with US data; others have used similar data but from outside the United States.

### ► NEW DATA

The national freight model uses data from the **Commodity Flow Survey (CFS)**. The 2012 CFS was used as the latest available detailed CFS, although preliminary 2017 data are now available. The CFS offers a tremendous amount of data on goods shipped across the United States.

### ► NEW SCENARIOS

The national freight model’s **disaggregate structure** means that it can simulate individual shipments at a firm level. This specificity means the national freight model can more effectively model scenarios related to trade wars or supply/demand changes due to COVID-19.



**Questions? Let’s discuss what the future of freight modeling looks like.**



**MAREN OUTWATER, PE**  
Maren.Outwater@rsginc.com  
619.269.5263



**ERICA WYGONIK, PHD, PE**  
Erica.Wygonik@rsginc.com  
802.359.5585



**COLIN SMITH**  
Colin.Smith@rsginc.com  
802.359.6415