



*Center for Transportation Analysis
Research Capabilities Brief
Oak Ridge National Laboratory*

Statistical Data Analysis and Modeling

ORNL has a staff with extensive experience in statistical data analysis and modeling for transportation policy and planning applications. Our knowledge extends beyond traditional transportation network modeling, which includes analysis and integration of multiple large scale databases to study many aspects of our nation's transportation systems and examination of the safety, security, and mobility of our citizens and goods.

Tract ID	Household Size (Number of Persons)			Vehicle Miles of Travel		
	1 Person	2 Persons	3+ Persons	1 Person	2 Persons	3+ Persons
0224000300	7	27	47	66	19	39
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A GIS-based tool that transfers results from the 2001 National Household Travel Survey (NHTS) to the regional or local level. The tool enables users to download trip generation rate information at the Census Tract or Transportation Analysis Zone (TAZ) level for transportation planning activities.

ORNL's Capabilities

- Develop fuel consumption estimation models
- Build statistical quality and process control tools.
- Examine transportation equity issues, such as the mobility and safety of our aging population.
- Broaden the usefulness of data collected at the national level by statistically transferring it to meet local information needs.
- Estimate multi-modal passenger and goods movements in the country.
- Use real-time traffic data to examine highway delays and congestions.
- Assess economic impacts due to interruption of transportation systems.
- Conduct evaluations of safety programs.
- Integrate multiple data sources and statistical analysis tools for risk assessment and supply-chain modeling.

Questions ORNL Can Help Answer

- How much fuel is consumed by each off-highway sector in each state?
- Does transportation inequity impact the mobility/safety of a specific population?
- How would a nationally collected data set be used to reflect travel behaviors in smaller sized communities or regions?
- How many people will be at-risk if a hazardous incident occurred at a given location?
- What is the economic impact if a certain roadway (or rail link) is blocked or disconnected?
- What types of programs are most effective in improving truck safety and reducing truck accidents?

Center for Transportation Analysis
(CTA) Research Capabilities

- Asset Management
- Economic Modeling
- Geographic Information Systems
- Program Performance Metrics
- Remote Sensing
- Simulation Analysis
- Statistical Analysis
- Supply Chain Analysis
- Transportation Decision Support Systems
- Transportation Network Routing Models

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ORNL's Comparative Advantage

- Experienced staff focused on solving customer's problems.
- Use of state of the art statistical analysis software and techniques integrated with other visualization tools.
- Leverage our experience to provide increased value to the customer.
- Knowledgeable staff that provides unbiased analysis and recommendations.

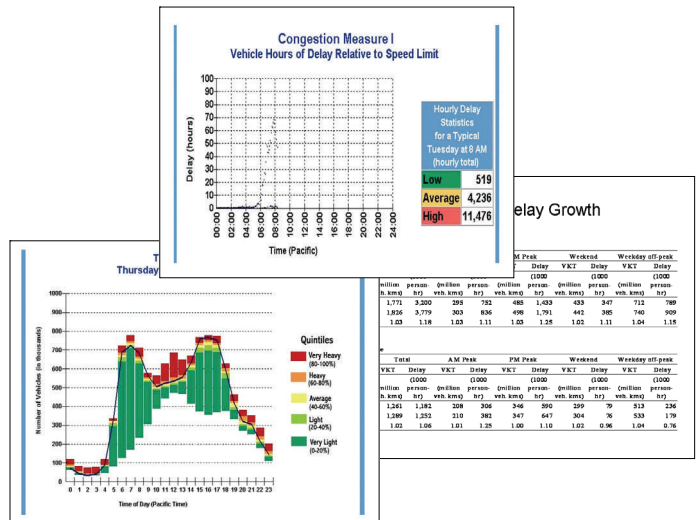
Experience

ORNL has developed a rule-based gasohol consumption estimation model for the U.S. Department of Transportation Federal Highway Administration (FHWA). The model used a series of decision rules and integrated data from the Internal Revenue Service, Energy Information Administration, Environmental Protection Agency, FHWA, and other sources to generate gasohol consumption information at the State level.

ORNL has conducted research to examine the mobility patterns of the older population. The research suggests that the increasing number of older population contributes significantly to the projected increase in highway fatalities involving older drivers, however, the crash risk is projected to decrease over time.

Several program evaluation projects were conducted by ORNL to assist the Federal Motor Carrier Safety Administration (FMCSA) in assessing their safety programs. This includes the Commercial Driver's License Program, the SafeStat Program, Carrier Inspection Programs, and Enforcement Programs. In addition to analyze large-scale data sets, survey and focus

groups were also conducted to gather other supplemental qualitative information. Both quantitative and qualitative analyses are utilized for these projects.



ORNL has developed an automated web-based tool to collect, process, clean, and archive ITS traffic data on a real-time basis. Historical statistics on transportation system performance were compiled and used to measure traffic activities and congestion. This tool also built a consistent cross-sectional multi-city traffic information databases for network evaluation and research.

ORNL has studied the economic impacts due to major transportation service interruption events. This project involved a development of national freight demand models for 27 industry sectors covered by the 2002 Commodity Flow Survey. It postulated that the national freight demands are consistent with the business patterns. This study has bridged the gap between the freight flow statistics and the econometrics of business/industries. This linkage enables transportation analysts to study the freight flow within the U. S. and link their impacts directly to the state of economy.

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