



Center for Transportation Analysis  
Research Brief  
Oak Ridge National Laboratory

## Asset Management of Critical Infrastructure

Center for Transportation Analysis  
(CTA) Research Areas

Aviation Safety  
Air Traffic Management Analysis  
Data, Statistical Analysis  
Geo-Spatial Information Tools  
Defense Transportation  
Energy Policy Analysis  
Environmental Policy Analysis  
Highway Safety  
Intelligent Transportation Systems  
Logistics Management  
Supply Chain Management  
Modeling and Simulation  
Transportation Operations  
Planning and Systems Analysis  
Transportation Security

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**O**ur critical infrastructure—roads, bridges, transit, aviation, schools, drinking water, wastewater, dams, solid waste, hazardous waste, navigable waterways, and energy—is in disrepair. The American Society of Civil Engineers gives our public infrastructure a D+ grade, and an investment of at least \$1.6 trillion is urgently needed. ORNL is developing new tools and methods so that decision makers can make more informed investment decisions. These tools bring a new state-of-the-art approach to asset management of public infrastructure.

### ORNL's Capabilities

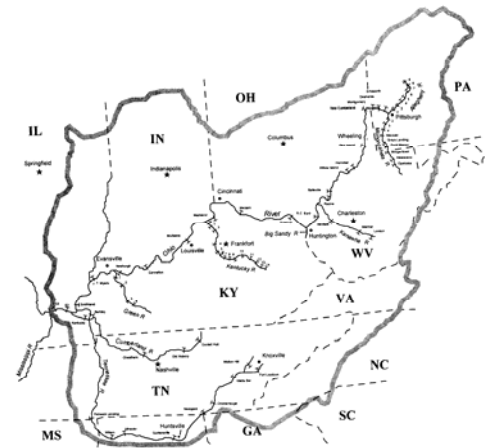
- Simulation-based, optimization models that merge engineering and economics to estimate the optimal levels of investment over time and across competing infrastructure needs.
- New approaches to measure and monitor infrastructure resilience.
- Innovative optimization tools to assess tradeoffs between construction, maintenance, and demolition over infrastructure life cycle given budget constraints.

### Questions ORNL Can Help Answer

- Where do we get the most value for the limited dollars we have?
- How do we allocate limited funds across multiple infrastructure needs?
- How do we go from fix-as-fail to a more rational investment process?
- How do we communicate these complex issues to stakeholders?

### ORNL's Comparative Advantage

- Top Professionals and Unique Resources.
- Dedicated to Problem Solving.
- Unbiased Analysis and Assessment.
- Highest Credibility.
- Dedicated to Communicating Findings to Stakeholders.
- Dedicated to Long-term Relationships with Sponsors.



River Network

### Experience

- Department of Energy: Infrastructure for Oil Resiliency.
- Army Corps of Engineers: developed the Ohio River Navigation Investment Model (ORNIM) for maintenance, rehab, and construction of navigation infrastructure.
- Department of Homeland Security: transit security and infrastructure investments; barge communications and tracking.

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