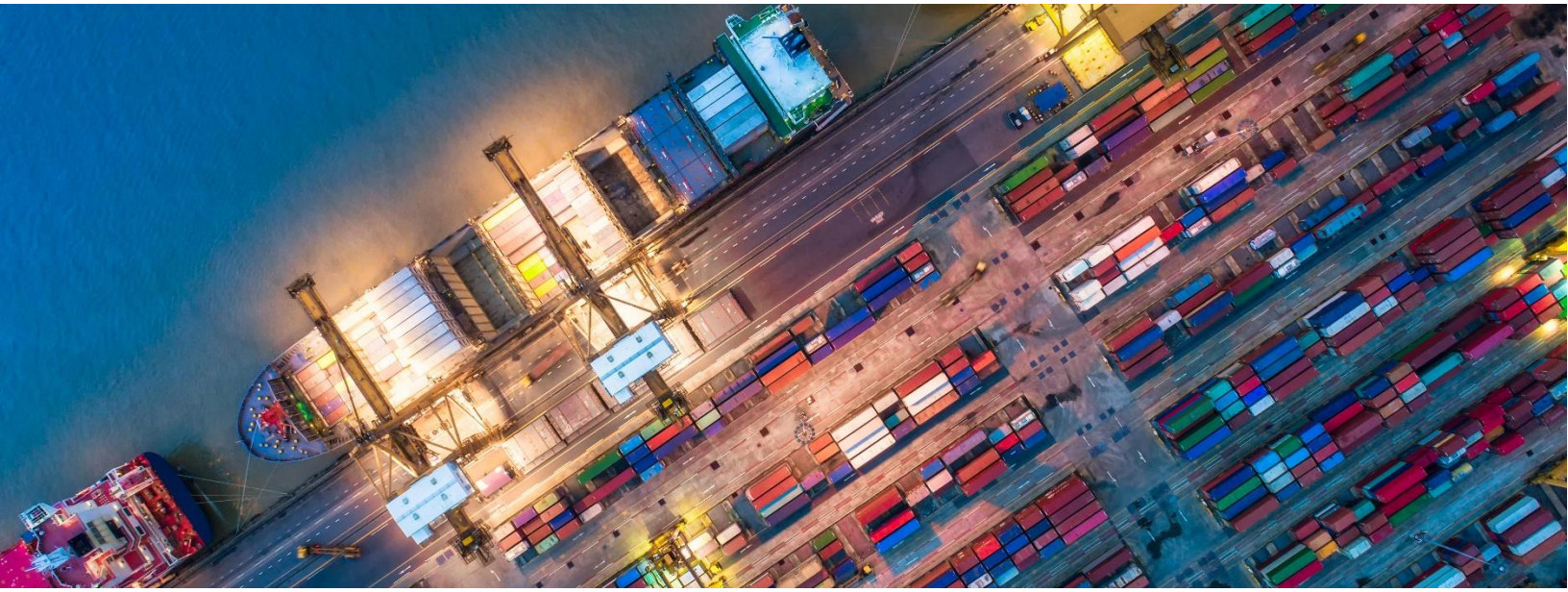
# The Multimodal U.S. Transportation (MUST) Analytic Environment



## A MITRE Capability for Transportation Resilience and Supply Chain Logistics Analysis.

Our transportation sector is one of four “lifeline” functions, and one of 16 critical infrastructure sectors[1] vital to the safety and security of our nation. The impact of supply chain logistics to our nation’s economy, security, and social prosperity has never been clearer. The interdependencies of various modes of transportation available to move people, goods, and services, is a complex orchestration of stakeholders across private and public sectors, each with their own capabilities, regulations, and priorities. Within the public domain and throughout the US Government, there is no comprehensive capability to examine the US transportation system from an integrated “system of systems” multimodal perspective. A major barrier is the lack of a multimodal, nation-wide transportation model that can examine the movement of passengers, goods, and services across the US at macro-, meso-, and micro- scales.

MITRE Corporation is addressing this challenge by developing the Multimodal U.S. Transportation (MUST) Analytic Environment - a key technical capability in MITRE’s resiliency and supply chain logistics analytic environment. This environment will combine best-in-class models and data sources from across government and industry with MITRE-developed capabilities that will provide the most comprehensive description of our nation’s integrated transportation system.

The unique value of MUST is its ability to model both the interdependencies of all major modes of transportation, and their effects on sectors and segments of

> “By combining best-in-class models and data sources, the MUST Analytic Environment will provide the most comprehensive description of our nation’s integrated transportation system.”
>
> Joseph Kolly, Director, MITRE Transportation Innovation Center

[1] As defined by the U.S. Department of Homeland Security



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society that are impacted by transportation activity. These include the ability to assess economic, environmental, energy, and equity impacts of specific transportation activity.


Source: U.S. Department of Transportation Bureau of Transportation Statistics

This capability is important to the public and private sectors in cases analyzing potential causes of supply chain logistics delays and interruptions. It can also be used to analyze the resiliency and recovery of the transportation network in times of natural disaster and environmental disruptions, or other operational disruptions, and it can estimate the propagation of those disruptions throughout the system. MUST can also be used to support national security concerns to assist in the planning of troop, munitions, bulk fuels, and other supply movements in support of our military and national defense.

MUST can be used in the planning stages to support prioritization of transportation infrastructure investments, by identifying vulnerabilities such as chokepoints and single points of failure and assist in planning of alternative routes and modes. It can be used to estimate throughput, capacities, and schedules. MUST can also be developed and leveraged to support real-time decision making among the various government and private sector interests during normal, emergency, and contested periods of operation domestically and internationally. Finally, insights provided by this capability can support policy development within and beyond the transportation sector.

*For information about MITRE's transportation expertise and capabilities, contact transportationIC@mitre.org.*

MITRE's mission-driven teams are dedicated to solving problems for a safer world. Through our public-private partnerships and federally funded R&D centers, we work across government and in partnership with industry to tackle challenges to the safety, stability, and well-being of our nation.

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