

CAIT

Center for Advanced Infrastructure and Transportation



The U.S. freight system is a linchpin in the economy. Dramatically increasing freight flows create congestion in ports, inland facilities, and throughout our transportation system. This carries significant costs for shippers, consumers, and the environment. The Freight and Maritime Program focuses on creating sustainable freight systems that efficiently move goods, effectively manage resources, and reduce environmental impacts.

FMP

Freight and Maritime Program

The Freight and Maritime Program is a dedicated academic initiative incorporating research, education, and training activities in the fields of:

- Freight logistics
- Maritime and rail transportation
- Global supply chain management
- Urban goods movement
- Ports and marine terminals
- Intermodal freight and distribution facilities

FMP is establishing itself as a unique resource center that addresses complex problems of the dynamic freight and maritime industries. Working closely with businesses and government agencies ensures our approach and solutions remain practical, pragmatic, and effective. We are building a solid reputation—nationally and internationally—through research and education excellence.

FMP operates within Rutgers' Center for Advanced Infrastructure and Transportation, a U.S. Department of Transportation-designated University Transportation Center.

A Living Test Bed Our program is located in a region with vast transportation infrastructures, serving the most concentrated and affluent consumer market in the world. Moreover, New York is globally acknowledged as a world-class shipping activity center, offering an unparalleled test bed for all operating and financial aspects of world shipping.

Research Our research extends throughout a wide range of intermodal freight and maritime-related areas, including:

- Freight logistics and maritime transportation
- Port planning, operations, and management
- Rail infrastructure planning and operations
- Intermodal terminals and distribution facilities planning, operations, and management
- Large-scale simulation modeling in freight, maritime, and port operations
- Dynamic traffic assignment-based microsimulation of drayage operations
- Freight, shipping, and port logistics systems
- Information and communications technology in freight, port, and shipping systems
- Urban freight transportation
- Port-related congestion
- Port environmental management systems
- New technologies in supply chain management
- Safety and security in freight and maritime transportation and ports



FMP is devoted to freight and maritime infrastructure, operations, and human resources. We have considerable academic and industry-related experience. The program is part of an international network of research institutions working with cultures and operating practices worldwide, a collaboration that ensures a global perspective in our work. FMP's goal is to help the freight industry solve existing problems while building scientific groundwork for the future through research and practical experience.

Recent Projects Some important FMP research endeavors include:

- Partnership to maximize port industry performance: integration of port information systems, processing and control equipment, and microsimulation tools
- Feasibility of freight villages in the New York metro region
- Empty intermodal container management
- Short-line rail: its role in intermodalism and distribution
- Global logistics chain as a 21st-century change agent
- Feasibility of establishing a virtual container yard in the New York/New Jersey region
- Development of a berth allocation planner
- Ferry parking and landside access
- Passaic River cleanup project
- Evacuation and surge capacity modeling of transportation hubs
- Use of microsimulation tools for decision support in port-land access networks
- Large-scale optimization and simulation of freight transportation systems
- Feasibility to establish a freight transportation center of excellence at Rutgers

Funding and Support The U.S. Department of Transportation (USDOT), National Science Foundation, Federal Highway Administration, New York State DOT, New Jersey DOT, New York Metropolitan Transportation Council, and University Transportation Research Center at CUNY are among recent research sponsors.

Education Rutgers offers industry-related courses on freight transportation; maritime transportation; port planning, management, and operations; transportation systems analysis; environmental management of maritime infrastructure; security and safety in maritime transportation and port operations; and freight terminals and distribution facilities. These courses will serve as the core of a freight and maritime transportation certificate program. Future plans are for a cooperative graduate degree with partners in Europe, the Middle East, and Far East.

FMP Advisory Board

Frank McDonough, *President*, New York Shipping Association (FMP Advisory Board Chair)

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Program Officers and Affiliated Faculty FMP has more than 15 affiliated interdisciplinary faculty members from Rutgers and other institutions in the United States and abroad.

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