RUTGERS

School of Engineering CENTER FOR ADVANCED INFRASTRUCTURE AND TRANSPORTATION



"Shipping drives world trade, carrying over 80% of global trade across the oceans. Through the pandemic and beyond, we need to redouble our efforts to ensure that maritime transport is sustainable and that our oceans are preserved. This means ensuring, safe, secure, and efficient transport– and reducing shipping's environmental footprint. Sustainable transport will be at the heart of the global recovery. We must rebuild collaboratively, inclusively, equitably and sustainably, leaving no one behind."

Kitack Lim Secretary-General, International Maritime Organization Global Sustainable Transport Conference, 2021

Maritime Infrastructure Management Program (MIMP)

The Maritime Infrastructure Management Program (MIMP) is a dedicated academic initiative incorporating research, education, and training activities in the fields of:

- Intermodal and maritime transportation
- Waterways management
- Port and waterways planning, monitoring, operations, and management
- Security of port facilities, access, and vessels
- Dredging and sediment management/beneficial reuse
- Coastal resiliency employing cutting edge solutions, including nature-based features

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

Our Mission

The Maritime Infrastructure Management Program is working in consultation with maritime, coastal science, planning, and engineering partners, to establish itself as a unique resource center that is able to address and solve problems of the complex and dynamic maritime industry in a pragmatic and effective way.

We seek to build a reputation at the national and international levels and contribute to developing maritime-related activities in the New York/New Jersey area through research and education excellence.

A Living Test Bed

The main objective of this program is to approach our coastal marine areas not as discrete zones, but as an integrated system, where hard infrastructure and natural features can function harmoniously.

To achieve this, cooperation and collaboration across various disciplines and monitoring programs will be required to encourage data sharing, condition reporting, and planning to improve current management and design practices as well as inform science-based policy.

Located in a region with vast transportation networks, and nearby New York which is globally acknowledged as a worldclass shipping activity center, MIMP has access to an unparalleled test bed and living laboratory for all operating and financial aspects of global shipping.



Research

Our research extends to a wide range of intermodal and maritime-related areas including:

- Maritime transportation
- Port planning, operations, and management •
- Large-scale simulation modeling in maritime operations
- Freight, shipping, and port logistics systems
- Information and communications technology
- Urban freight transportation in port cities
- Port environmental management systems
- Dredging and related environmental issues
- Maritime industry economics and innovative financing
- Shipping business and corporate issues
- Maritime and port security
- Tidal marsh health monitoring
- Hydrodynamic and morphological monitoring and modeling of estuaries and beaches
- SAV monitoring
- Shellfish monitoring
- Coastal structure monitoring

MIMP features devotion to maritime infrastructure, operations, and human resources with considerable academic and practical industry-related experience. It is part of an international network of relevant research institutions, which ensures a global perspective in working with cultures and operating practices worldwide, and supports the goal of assisting the industry to solve existing problems while building scientific background through research and experience.

Education

Rutgers currently offers industry-oriented courses on freight transportation, maritime transportation, environmental aspects of maritime transportation, port planning, management, operations, and transportation systems analysis. Rutgers CAIT plans to offer a new certificate in "Maritime Planning, Engineering, and Management" with its industry and academic partners.

>cait.rutgers.edu

Recent Research Projects

Important MIMP research endeavors include:

- Beneficial Use Manual (2020-2021): \$156,000
- Goodluck Point (2020-2022): \$120,000
- Sedimentation Modeling Shark River (2020-2022): \$200,000
- Dredged Hole 86 Turbidity Monitoring (2021): \$94,000
- Empty intermodal container management
- Feasibility of establishing a virtual container yard in the New York/New Jersey region
- Development of a berth allocation planner
- Passaic River cleanup project
- Evacuation and surge capacity modeling of transportation hubs
- Analyses of charging and financing policies for port development

Funding and Support

CAIT is supported by the U.S. Department of Transportation. Since 1998, CAIT has been a University Transportation Center (UTC)—a group of academic research institutions sanctioned and supported by USDOT. It was named one of only five National UTCs in 2013 and selected to lead the Region 2 UTC in 2018.

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