City of Duluth - Lakewalk Trail.

SHORING UP

COASTAL & RIVERINE

Coastal and riverine projects are essential to recreational activities and habitat connectivity. The high utilization of these shorelines requires resilient designs. All plausible environmental factors and scenarios must be considered, and compatibility found between human use, the natural elements and the changing climate.

AMI uses state-of-the-art software coupled with an experienced professional engineering staff to develop solutions tailored for each client's need. AMI specializes in all aspects of coastal engineering and serves the private, commercial, tribal, municipal and government sectors. From AMI's experience, coastal solutions pose unique challenges. The designs typically need to be attractive, functional, constructible, cost-effective, resilient and environmentally sustainable. The design must take into account coastal processes, including the effects of frequent severe storms, varying water levels, winds, tides, seiche, currents and climate change scenarios.

SHORELINE STABILIZATION/REHABILITATION

Flooding, wave action from powerful storms, sea level changes, hurricanes and tropical storms, rising water levels, and changes in precipitation can all affect shorelines and contribute to erosion. Structural and green features reduce coastal risks by protecting shorelines from these natural causes and improve resiliency.

AMI understands the importance of shoreline stabilization and the protection that it provides to the structures in the surrounding area. Our team works with clients to develop solutions to alleviate or prevent any further shoreline damage, ensuring shoreline stabilization and resilience for the future.

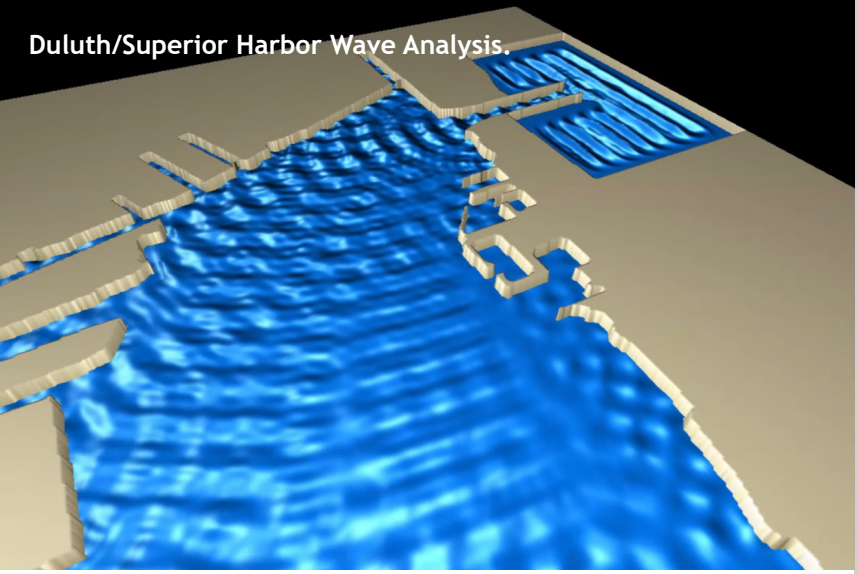
To determine the most appropriate shoreline protection and rehabilitation techniques, AMI performs site-specific assessments. As part of the process, AMI factors in the shoreline's reach, river currents, flooding events, sea level rise, climate change, sediment transport, land subsidence, resilience, fetch, exposure, and physical features. The type of risk reduction measures taken by our clients depends upon the geophysical setting, the desired level of risk reduction, materials needed, cost, and resiliency of design.

ENGINEERING WITH NATURE

AMI strives to utilize the USACE's Engineering With Nature Initiative (EWN). Intentionally aligning natural and engineering processes is paramount in everything that we do. AMI works on a wide array of coastal engineering projects. We integrate social, environmental, economics, climate change, and resiliency into our designs. The utilization of science and engineering to produce operational efficiencies and sustainability in design as well as the use of natural processes to maximum benefit and minimize environmental footprint is core to engineering with nature. The engagement of the public and stakeholders is a common requirement when working on coastal projects, and utilizing the EWN process, coupled with highly skilled staff, greatly improves the outcomes of this effort.

Some of the projects/areas where we utilize the EWN initiative include dredging, marsh creation, ridge restoration, coastal storm surge protection, and sea level rise.

AMI Consulting Engineers P.A. 20 YEARS


Duluth/Superior Harbor Wave Analysis.

SHORELINE & COASTAL WAVE PROCESS MODELING

AMI provides a wide array of coastal engineering and scientific services from initial field investigations and data gathering, shoreline and coastal wave process modeling, to final design drawings. This work is accomplished with the use of state-of-the-art software, scientific tools and experienced staff that understands coastal challenges and the natural environments in which structures are built.

AMI provides cost effective solutions to mitigate the effects on new and existing structures. Our proven track record with complex projects in the cold regions of the Great Lakes, U.S. River Systems, Coastal and Caribbean markets is a testament to our overall capabilities in completing difficult and unique projects.

RIVERINE PROCESS MODELING

AMI has a qualified team of engineers and technicians who are experienced in collecting field data and utilizing it for the modeling and analysis of riverine processes. Our staff of geologists, scientists, and engineers can manage the environmental and water resources aspects of your project. Some of our unique expertise includes river scour analysis, Hydrology & Hydraulics (H&H) modeling, sediment transport analysis, and geomorphology.

WATERFRONT PERMITTING SERVICES

AMI understands environmental regulations and how they affect each phase of your project. We know that securing a permit that is tailored to your project is essential to maintain your operating schedule and maximize profit. We have experience monitoring in-field conditions and proactively working ahead to prevent costly delays. We have been there before and can help you navigate through the regulatory requirements and mitigate your project risks. AMI offers complete permitting services for all aspects of the marine and environmental industry. Our knowledge of the permitting systems include the DNR, EPA, USACE, Fish and Wildlife, SHPO, submerged land leases and open water mitigation.

COASTAL SERVICES & EXPERTISE

PROFESSIONAL SERVICES

- Civil Engineering
- Hydraulic and Hydrologic Assessment
- Environmental Assessment
- Mapping
- CAD
- Coastal Planning
- Coastal Permitting
- Coastal Design
- Bidding
- Construction Administration
- Surveying
- Bathymetry
- Onshore/Nearshore Geotechnical Analysis

PROFESSIONAL TRAINING & EXPERIENCE

- Coastal Planning
- Coastal Permitting
- Coastal Design
- Marsh and Ridge Restoration
- Shoreline Stabilization and Protection
- Beneficial Use of Dredge Material
- Living Shoreline Design
- Hydrologic and Hydraulic Modeling
- Biological and Environmental Assessment of Wetlands
- Design Analysis and Reports
- Technical Evaluations
- Cost Estimates
- Field Investigations
- Coastal Grant Writing
- Outreach and Educational Support

AMI Consulting Engineers P.A. 20 YEARS