

Project Title: Quantifying Resiliency of Maritime Transportation Systems
Project Abstract (Brief Description): Worldwide, maritime transportation networks facilitate the movement of nearly 90 percent of total world trade and 60 percent of global fuel and oil delivery[1]. In 2011, US foreign and domestic waterborne trade totalled more than 2.1 billion metric tons of goods, with 62.5 percent of this total bound for international destinations [2]. This total also accounted for about 15 percent of total global waterborne trade activity. Waterborne shipping has increased at an average annual rate of nearly one percent between 2009 and 2012 [3] . This trend is expected to continue, if not increase significantly, as emerging markets enter the global economy. This research will leverage and adapted archival NAIS data for resilience analyses of coastal port operations following disruptive events. As part of this effort, archival vessel position reports will used to establish a baseline of channel operations under “routine” non-event conditions. Observed losses in system functionality following a major disruption will be used to quantify the resiliency of the waterway using time dependent performance analysis. This type of analysis is critical when investigating the efficacy of the recovery process protocols and management strategies employed in the days and weeks that follow a major disruptive event. The primary contribution of this research is that it represents some of the first steps toward creating a systematic, objective means of measuring commercial port resiliency. The methods developed here can be used as a basis for future studies of post-disaster operations and protocols, such as evaluations of channel operations after a disruption so as to better understand MTS characteristics that increase resiliency.
Describe Implementation of Research Outcomes (or why not implemented) - Collection and analysis of the relevant literature in the related fields of NAIS data, port operations and resiliency analysis are complete. Preliminary development of model capable of processing NAIS data to provide reliable estimates of port operations is complete.
Impacts/Benefits of Implementation (actual, not anticipated) <i>To be determined upon conclusion of the project:</i>
Web Links:
Budget (Funding) Amounts & Source(s) (US DOT +Match(s) =Total Costs): \$225,000 (USDOT) + \$113,059 (Match) = \$338,059
Project Start and End Dates: 10/01/15 and 06/01/18
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