



Presenter

Rachel Willis - University of North Carolina

Water Over the Bridge: Innovation, Technology and Partnerships for Port Community Resilience

The idiom “water under the bridge” refers to something that has happened, and nothing can be changed. However, “water over the bridge” is the likely physical outcome of sea-level rise and an increase in storm severity along coastlines and especially in port cities. It is also an urgent call to action to improve and speed our collaborative planning processes and implementation of environmentally-sustainable waterborne transportation solutions for freight. This presentation offers a regional perspective on the technological innovations and regional port partnerships that will be needed in the southeast to enable more resilient freight movement during disasters as well as plan for long term shipping infrastructure using innovative technology.

Moving people and the things they need and want is at the nexus of water, food, climate, and energy issues. The use of efficient multi-modal water and rail transportation is critical in reducing the amount of energy to move freight. However, marine and rail transportation infrastructure and corridors will be especially impacted by climate change as they are - by definition - located near the water’s edge. Sea-level rise, severe precipitation events, and the increased frequency and severity of hurricanes threaten short term shipping capacity and the long-run usability of port and community infrastructure.

Port and rail infrastructure includes bridges, tunnels, canals, pipelines, river ways, and roads for trucks and rail cars from resource and production locations to final users with countless seaside and inland ports all along the supply chain. This same freight transportation infrastructure can also present significant physical barriers for the movement of people in port cities. However, the choice and location of infrastructure investment can dramatically increase – or decrease - the potential for human disaster during severe weather events.

Given the long-life cycle of water and rail shipping assets, the ports will need to move inland, be protected by extensive hard and soft barriers, and, most importantly, utilize innovative technology that is adaptable to specific ports to meet the physical challenges of climate change.

Plans to deepen harbors, widen shipping channels, and raise bridges and other corridors to enable larger vessels, longer trains, and increased capacity access to marine freight terminals can also threaten drinking water quantity and quality – especially as coastal populations increase. This risk is compounded by the potential negative impact on food harvesting in both soil and water environments surrounding

ports due to increased waterborne freight transport. Innovative partnerships within port communities will be essential to meeting these challenges.

Finally, the frequent role of bodies of water in creating political boundaries at the state and regional levels further complicates the process of implementing best practice port city solutions. Multi-jurisdictional collaboration is essential to building resilient communities, but the presence and power of water borders often make cooperation even more difficult. Innovative economic partnerships will be necessary to address “water over the bridges” of the southeastern US.