

# At Risk: Healthy Coastal Ecosystems and Resilient Communities and Economies in an Era of Climate Change: A Balanced Approach to Protecting People, Property and Nature in Historic Greenwich Township, New Jersey

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The Delaware Bayshore in New Jersey includes many small communities located throughout Cumberland and Salem Counties. These communities, including Greenwich Township, were flooded by the storm surge that was generated by Hurricane Sandy. Historically, Greenwich's village and farms were protected from rising waters when dikes and other water control structures were built in the 1600s. Dike infrastructure was enhanced in the mid-20th century, but over the last 50 years it has begun to fail and can no longer protect people, property, and farmland in the face of severe storms. Assessment of the current flood protection levels in the region determined that none of the existing levees or other mitigation structures could protect above a 10-year coastal storm event.

The investigators will begin to address the problem through three interrelated goals that advance the priority of coastal resiliency planning that balances human and ecosystem needs. These goals are to restore and enhance the natural environment focusing on tidal wetlands; improve flood protection in the village; and protect upland habitats, farmland and historic structures and sites. The study's objectives include determining the likelihood and magnitude of environmental effects based on natural resource vulnerabilities and identifying a

range of flood mitigation alternatives that protect people and property while minimally affecting tidal flows. Researchers will engage community stakeholders in an effort to provide them with enough information, grounded in science, to make the best decisions for the community's sustainable and resilient future.

This project is critical to the future of New Jersey's coastal communities and the Bayshore's farming, fishing and recreation industries. This project serves to research and analyze potential solutions to Greenwich Township's efforts toward resilience. However, a secondary focus is to develop solutions that can potentially be applied to other coastal communities in New Jersey and the region that are subject to rising waters and storms. The intent is to develop approaches that have the power to protect people, property, and natural resources, strengthen the economy, and enhance the quality of life, not only in Greenwich Township, but in other coastal communities throughout the state.

