Cumberland County Delaware Bayshore

Recovery Plan - December 2013

Cumberland County
Board of Chosen Freeholders
790 East Commerce Street
Bridgeton, NJ 08302

RESOLUTION 2013-596
ADOPTED

Resolution Authorizing Execution Of Bayshore Infrastructure Projects Identification Agreement

WHEREAS, Superstorm Sandy caused enormous damage in the State of New Jersey, including damage to homes, businesses, infrastructure and facilities throughout the State, and in particular damage to the coast line of New Jersey; and

WHEREAS, damage to the Bayshore areas of Cumberland County was equally severe as damage to other shore communities with respect to damage caused to businesses, residents and infrastructures; and

WHEREAS, the Bayshore communities of Cumberland County have been excluded from Superstorm Sandy funding relief; and

WHEREAS, the Board of Chosen Freeholders of the County of Cumberland believe that an inequity and an injustice has been perpetrated upon the residents of the Bayshore areas in Cumberland County, depriving them of much needed Superstorm Sandy financial relief; and

WHEREAS, the communities of the Bayshore area including the County of Cumberland have joined together to form a Bayshore Redevelopment Committee to address Superstorm Sandy damage, as well as funding to repair infrastructure, homes, businesses and other facilities in the Delaware bayshore region; and

WHEREAS, the Bayshore Redevelopment Committee has identified projects which need to be completed in order to repair and improve the infrastructure and repair damage caused by Superstorm Sandy; and

WHEREAS, the projects identified by the Bayshore Redevelopment Committee have been endorsed unanimously by the participating governing bodies of the Bayshore communities as priority projects needed to be completed in order protect, preserve and repair the Bayshore area following Superstorm Sandy; and

WHEREAS, the Board of Chosen Freeholders of the County of Cumberland is desirous of endorsing and ratifying the priority list of projects to be completed in the Bayshore region.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF CHOSEN FREEHOLDERS OF THE COUNTY OF CUMBERLAND, as follows:

1. That the Freeholders are each requested and encouraged to sign a statement, proclamation or resolution from the Bayshore Redevelopment Committee endorsing with unanimous approval the projects identified therein to the State of New Jersey, and the Federal government in an effort to enlist aid and financial assistance to complete such projects for the benefit of the Bayshore community in order to preserve the natural beauty, topography, culture, livelihoods and lifestyles of the region and the people living in it.

2. That this Board does hereby endorse cooperation with State and/or Federal agencies including, but not limited to the U. S. Army Corps of Engineers to identify any additional projects or assistance that may benefit the Bayshore area in connection with a recovery from the damage caused by Superstorm Sandy, as well as other bayshore infrastructure improvements.

Passed and adopted at a regular meeting of the Board of Chosen Freeholders held at the Cumberland County Court House, Broad and Fayette Streets, Bridgeton, New Jersey on

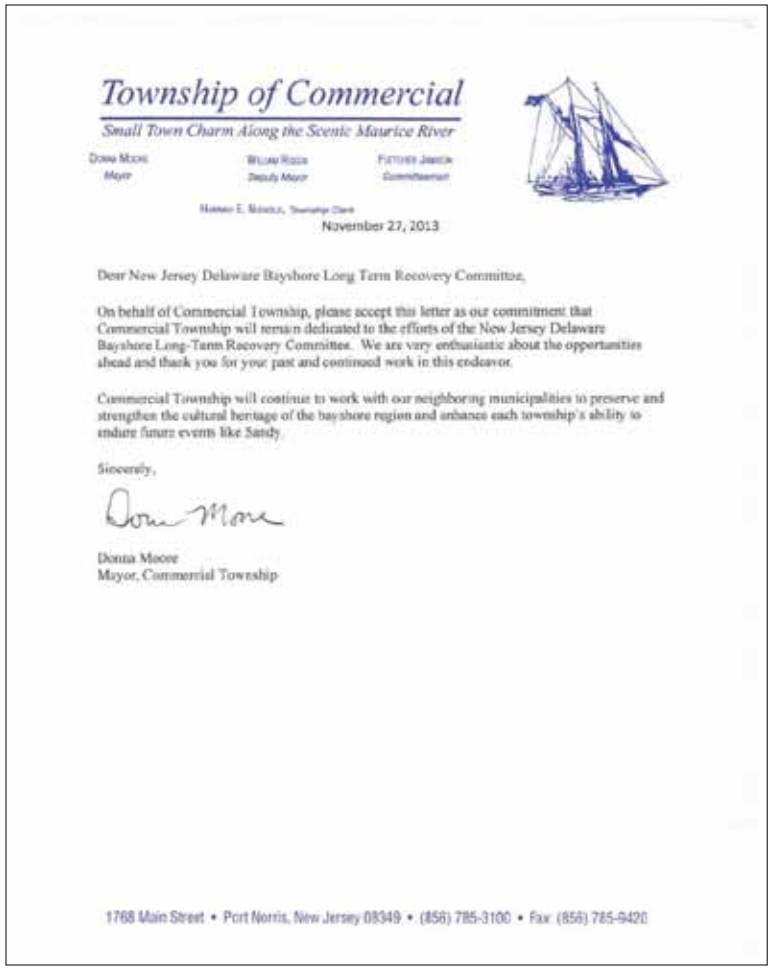
Cumberland County - Letter Board Meeting of November 26, 2013

Tuesday, November 26, 2013 at 6:00 p.m. prevailing time.

ATTACHMENTS:

20131126100621506 (PDF)

RESULT:	**ADOPTED [UNANIMOUS]**
MOVER:	Douglas M. Long, Deputy Director
SECONDER:	Tony Surace, Freeholder
AYES:	Fiocchi, Kirstein, Musso, Sauro, Surace, Long, Derella



Township of Commercial

Small Town Charm Along the Scenic Maurice River

Donna Moore, Mayor · William Rizzo, Deputy Mayor · Fletcher Jackson, Committeeman

Norman E. Nicholls, Township Clerk

November 27, 2013

Dear New Jersey Delaware Bayshore Long Term Recovery Committee,

On behalf of Commercial Township, please accept this letter as our commitment that Commercial Township will remain dedicated to the efforts of the New Jersey Delaware Bayshore Long-Term Recovery Committee. We are very enthusiastic about the opportunities ahead and thank you for your past and continued work in this endeavor.

Commercial Township will continue to work with our neighboring municipalities to preserve and strengthen the cultural heritage of the bayshore region and enhance each township's ability to endure future events like Sandy.

Sincerely,

Donna Moore
Mayor, Commercial Township

1768 Main Street • Port Norris, New Jersey 08349 • (856) 785-3100 • Fax: (856) 785-9420

DOWNE TOWNSHIP MUNICIPAL COMPLEX

Established 1772

Nature lover's paradise

December 2, 2013

Dear New Jersey Delaware Bayshore Long Term Recovery Committee,

On behalf of Downe Township, I want to thank you for your hard work and dedication to guiding the efforts of the Cumberland County Bay Shore's diverse group of volunteers in their effort to develop a regional recovery plan in the aftermath of Hurricane Sandy. Your guidance through the process has been invaluable.

Please accept this letter, as our commitment that Downe Township will remain dedicated to this effort.We are very enthusiastic about the opportunities ahead.

As we move into the funding and implementation phases of the plan which we have developed together, Downe intends to remain engaged. We place a very high value on the enlarged sense of community, which this cooperative effort has fostered. We will continue to work with our neighboring municipalities to preserve and strengthen the cultural heritage of the Bayshore region and enhance each township's ability to endure future events like Sandy.

Sincerely,

Robert Campbell
Mayor, Downe Township, Cumberland County

288 MAIN STREET, NEWPORT, NJ 08345 • 856-447-3100, Fax: 856-447-3533

Greenwich Township
PO Box 64
Greenwich, NJ 08323

Mayor William Reinhart

Lisa Garrison,
Clerk

November 20, 2013

Dear New Jersey Delaware Bayshore Long Term Recovery Committee,

On behalf of Greenwich Township, I want to thank you for your hard work in and dedication to guiding the efforts of the Cumberland County bayshore's diverse group of volunteers - from four different townships and numerous agencies - in the effort to develop a regional recovery plan in the aftermath of hurricane Sandy. You never allowed us to drift off course, and we know that presented quite a challenge at times.

Please accept this letter as our commitment that Greenwich Township will remain dedicated to this effort. We are very enthusiastic about the opportunities ahead.

As we move into the funding and implementation phases of the plan which we have developed together, Greenwich intends to remain engaged. We place a very high value on the enlarged sense of community which this cooperative effort has fostered. We'll continue to work with our neighboring municipalities to preserve and strengthen the cultural heritage of the bayshore region and enhance each township's ability to endure future events like Sandy.

Sincerely,

Eric Port
Deputy Mayor

MAURICE RIVER TOWNSHIP

MUNICIPAL BUILDING, 590 MAIN ST., P.O. BOX 218, LEESBURG, NJ 08327
PHONE: (856) 785-1120 FAX: (856) 785-1974

November 27, 2013

Dear New Jersey Delaware Bayshore Long Term Recovery Committee,

On behalf of Maurice River Township, I want to thank you for your hard work and dedication in guiding the efforts of the New Jersey Delaware Bayshore Long-Term Recovery Committee. This diverse group of volunteers from four Cumberland County municipalities and numerous agencies joined together in the effort to develop a regional recovery plan in the aftermath of hurricane Sandy. You never allowed us to drift off course, and we know that presented quite a challenge at times.

Please accept this letter as our commitment that Maurice River Township will remain dedicated to this effort. We are very enthusiastic about the opportunities ahead under our regional recovery plan.

As we move into the funding and implementation phases of the plan which we developed together, Maurice River Township intends to remain engaged. We place a very high value on the enlarged sense of community which this cooperative effort has fostered. We will continue to work with our neighboring municipalities to preserve and strengthen the cultural heritage of the bayshore region and enhance each township's ability to endure future events like Sandy.

Sincerely,

Kathy Ireland

Kathy Ireland,
Deputy Mayor

New Jersey Delaware Bayshore Long-Term Recovery Committee

Meghan Wren, Chair (Bayshore Center at Bivalve)
Phillip Tomlinson, Secretary (Bayshore Center at Bivalve)
Mayor Robert Campbell (Downe Township)
Steve Carnahan (Greenwich Township)
Dennis Cook (Downe Township)
Nicholas Graviano (New Jersey Future)
Robert Hunsicker (Downe Township)
Dave Kutner (New Jersey Future)
James Manski (Cumberland County Office of Emergency Management)
Deputy Mayor Eric Port (Greenwich Township)
David Raudenbush (Downe Township)

Infrastructure Subcommittee

Mayor Robert Campbell, Chair (Downe Township)
Kim Bell (Cumberland County Health Department)
Renee Brecht (American Littoral Society)
Dennis Cook (Downe Township)
Robert Hunsicker (Downe Township)
James Manski (Cumberland County Office of Emergency Management)
David Raudenbush (Downe Township)
Meghan Wren (Bayshore Center at Bivalve)

Shoreline Protection And Coastal Management Subcommittee

Dennis Cook, Chair (Downe Township)
Dave Bushek (Rutgers University Haskin Shellfish Research Laboratory)
Deputy Mayor Kathy Ireland (Maurice River Township)
Tom Mckee (Commercial Township)
Larry Niles (Greenwich Township)
Deputy Mayor Eric Port (Greenwich Township)
Ben Stowman (Maurice River Township)

Tourism and Economic Development Subcommittee

Kathy Weisenburg, Chair (Downe Township)
Dennis Cook (Downe Township)
Nicholas Graviano (New Jersey Future)
Patti Gross (Maurice River Township)
Phillip Tomlinson (Bayshore Center at Bivalve)
Meghan Wren (Bayshore Center at Bivalve)

Intergovernmental Relationships Subcommittee

Robert Brewer, Chair (Cumberland County Department of Planning and Development)
Mayor Robert Campbell (Downe Township)
Jim Carluzzo (Greenwich Township)
Dennis Cook (Downe Township)
Doug Cook (Downe Township)
Patti Gross (Maurice River Township)
Mayor Donna Moore (Commercial Township)
Meghan Wren (Bayshore Center at Bivalve)

Additional Thanks

Jennifer Adkins (Partnership for the Delaware Estuary)
Lisa Auermueller, Jacques Cousteau National Estuarine Research Reserve
Bayshore Center at Bivalve
Kim Bell (Cumberland County Health Department)
Renee Brecht (American Littoral Society)
Laura Chamberlain (Manomet)
Monica Chasten (U.S. Army Corps of Engineers)
Ed Clerico (Natural Systems Utilities)
Cumberland Area Transit System
Cumberland County Board of Chosen Freeholders
Cumberland County College
Kenneth Drewes (U.S. Department of Agriculture – Rural Development)
Fortescue Grill
Howard Henderson (U.S. Department of Agriculture – Rural Development)
Jeanne Hitchner (Commercial Township)
Doug Janiec (Cardno ENTRIX)
Laura Johnson (Bayshore Center at Bivalve)
Danielle Kreeger Ph.D. (Partnership for the Delaware Estuary)
Stefany Levenknight (Downe Township)
Steve Mars (U.S. Fish and Wildlife Service)
Brian Mulvenna (US Army Corps of Engineers)
Kathleen Mulvenna (U.S. Army Corps of Engineers)
Laura Olson (U.S. Department of Housing and Urban Development, Hurricane Sandy Rebuilding Task Force)
Sam Reynolds (U.S. Army Corps of Engineers)
Rutgers University Haskin Shellfish Research Laboratory
Andy Sarclette (Maurice River Township)
Benjamin Spinelli (U.S. Department of Housing and Urban Development, Hurricane Sandy Rebuilding Task Force)
Sam Tomlinson (volunteer, Bayshore Center at Bivalve)
James Watson (Cumberland County Office of Economic Development)
Kirsten Wolfington (U.S. Department of Housing and Urban Development, Hurricane Sandy Rebuilding Task Force)
Bill Young, PWS, Young Environmental, LLC

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Executive Summary

When Superstorm Sandy made landfall on Oct. 29, 2012, it caused extensive damage to New Jersey's Delaware Bayshore in Cumberland County. Floodwaters inundated the marinas, shipping channels and fishing beds, leaving behind a soupy mess of silt and debris. Homes were destroyed, bulkheads breached, beaches washed away. Many places were left sitting under three feet of water. Stormwater runoff filled oyster seed beds that are critical to future commercial harvests. Dikes and berms were topped, causing widespread flooding and, in some cases, cutting off essential evacuation routes.

Sandy was not an isolated event. For the Bayshore communities in Cumberland County, it was one of six storms in a two-year period that also saw extreme high tide events. Sandy struck at a time when most of the Bayshore communities were already suffering from a prolonged economic decline. The slide started with the near collapse of the region's historically successful oyster industry in the 1950s and a more recent decrease in recreational fishing that has been crippling the charter boats and marinas that serve as the backbone of many Bayshore village economies.

"If we can't have a unified voice, a continuity of purpose, then one by one our communities are going to fade into the bay. We will have no hope. Sandy has been a kick in the butt to force our communities to work together to find a consensus—a common purpose."

Phillip Tomlinson, Project Manager
Cumberland County Long-Term Recovery Group

Huge expanses of preserved wetlands and deserted beaches which give the Bayshore its nearly pristine character provide the coastal communities some protection from storms. In a state known for its overpopulated corridors, sprawl and crowded beaches, the Bayshore enjoys sleepy historic villages, wide expanses of open space, incredible biodiversity and a rustic nature than can be both an asset and a liability.

Because Cumberland County's main population centers lay 15 miles inland and escaped the brunt of the storm, the economic impact on the county fell below the threshold that would have qualified Cumberland for the bulk of Federal assistance from Superstorm Sandy Supplemental Funds. The portion of that funding that Cumberland County is qualified for has not yet been disbursed to any residents. As a result, the county is forced to be extra vigilant and resourceful in identifying available technical and financial resources to assist its long-term recovery.

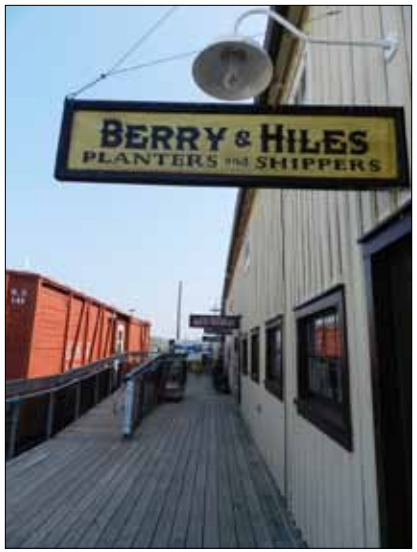
This document, the *Cumberland County Delaware Bayshore Recovery Plan*, is the result of a four-month intensive recovery planning process by community leaders, concerned residents, officials and business owners. With the understanding that recovery planning requires a regional approach, this effort stretched across four townships: Downe, Commercial, Maurice River and Greenwich. It involved collaboration with Federal, State, Cumberland County, non-governmental organization partners and engaged stakeholders. This effort was also coordinated with several resiliency planning efforts already under way.

Such an inclusive planning process ensures that the Bayshore's identity, vision and objectives are reflected in the plan and guides recovery activities.

This *Cumberland County Delaware Bayshore Recovery Plan* presents a framework for achieving a community vision. It should be considered a "living" document open to revisions as new opportunities arise and results are achieved.

Historic Background

Cumberland County is an area rich in pristine wetlands, historic waterfront communities, and natural and cultural resources along 40 miles of Delaware Bay shoreline in southern New Jersey. Its combination of assets includes the oyster, fishing, agriculture and maritime industries. These make Cumberland County an environmentally valuable and economically vigorous region. Its scattered handful of lightly developed coastal communities—covering fewer than four miles—generates an estimated $200 million in economic value and ecological services annually for Cumberland County's Bayshore region.



Bivalves

Embedded in the region's history is a unique connection to America's Colonial and industrial past. The county, which was formed in 1748, was founded by Dutch and Swedish settlers. They quickly discovered economic value in the Delaware Bay, Cumberland's two major tributaries—the Maurice and Cohansey rivers; its rich farm soil and abundant fisheries. But it was the oyster industry that defined Cumberland County's Bayshore region. Even before the arrival of European settlers, Delaware Bay was a fertile source of the prolific oyster. The Leni Lenape Indians were the original inhabitants to harvest the bivalve. They collected and smoked oysters and used their shells to make wampum which later could be used for trade. The oyster industry became the economic foundation of the Cumberland County Bayshore and a major influence on its way of life. Early oyster farmers found they could harvest large populations of oysters from less salty parts of the Delaware Bay, the adjacent rivers and back creeks. As their farming practices improved, the oyster industry grew rapidly. In 1876, the Central Railroad of New Jersey completed a line to the Maurice River, making it possible to ship large quantities of oysters. Ten years later, more than 80 train cars of oysters were shipped every day from Bivalve in present-day Commercial Township. There, a complex of shipping sheds built by the railroad company and leased by individual oystermen served to centralize the oyster industry. Everything needed to efficiently run the industry was housed in those segmented sheds along the Maurice River, including chandleries, meat markets, a post office, living quarters and office space.

At the turn of the 20th century oysters were the nation's chief fishery product and the most popular of all shellfish. Whole towns grew up around the oyster industry: Port Norris, Bivalve and Shellpile in Commercial Township, Dorchester and Leesburg in Maurice River Township, and Newport and Dividing Creek in Downe Township. Cumberland County's oyster enterprise elevated New Jersey to one of the four leading oyster-producing states in the nation. In 1901, in the Maurice River Cove, 838 vessels dredged more than 3 million bushels of oysters; more than 300 tongers harvested another 160,000 bushels. For a typical Bay season, Cumberland County's Bayshore region employed 4,500 people with a weekly payroll of $112,000. By 1929, New Jersey had invested $15 million in its oyster industry; annual oyster sales reached $6 million. Port Norris became known as the "Oyster Capital of the World." According to local folklore, the prosperity of the oyster industry created more millionaires per square mile in Port Norris than any other place in New Jersey. By the second half of the 20th century, however, the oyster crop was nearly wiped out by disease. The decline was precipitated in the 1950s by a disease known as MSX and exacerbated in the 1990s by a parasite known as Dermo.

Today the Maurice River Cove oyster industry carries forward the centuries old traditions on a smaller scale. Rutgers Haskin Shellfish Research Lab in Bivalve partners with the oystermen and NJDEP to overcome each new challenge faced by the $18 million industry. The 1904 Shipping Sheds, on the National Register of historic Places, once the centerpiece of the booming industry, still house oyster companies; a portion has been restored to become the Bayshore Center which houses the Delaware Bay Maritime Museum & Folklife Center.

Fisheries

The lucrative commercial fisheries industry contributed to the prosperity of the Bayshore communities in Cumberland County. For more than 300 years, New Jersey's commercial fishermen were catching, processing and selling seafood to people around the world. Menhaden, also called bunker, were once the most important commercial fishery in the state. The abundant fish were harvested by purse seine in Delaware Bay and processed in a place called Menhaden—today long since forgotten—in Maurice River Township.

Because of an abundance of weakfish in Delaware Bay and Fortescue in Downe Township, recreational fishing for weakfish was a major economic engine for the area. Beginning in the 1800s, scores of fishermen came to the Bayshore to seek weakfish, flounder, stripers and bluefish. By the early 1900s, Fortescue had proclaimed itself the "Weakfish Capital of the World."

The Delaware Bay and Delaware River were recognized as one of the world's most productive sturgeon fisheries. In Cumberland County, at the mouth of Stow Creek in Greenwich Township, a tiny village called Caviar Point, or sometimes simply Caviar, was known worldwide for its Atlantic sturgeon. Sturgeon roe was a much sought-after delicacy. In the mid-1800s, the New Jersey Southern Railroad picked up more than 30 boxcars of sturgeon roe a day from Caviar for export to Russia. The growth of the industry made the United States the world's top exporter of caviar. By the early 1900s, however, the caviar-harvesting industry was decimated by overfishing. Only the remnants of the once lucrative industry remain in that tiny village, which today goes by the name Bayside. The area is now a natural preserve overseen by The Nature Conservancy.

Shipbuilding

With the shipbuilding industry booming after the Civil War, the towns and villages along the Delaware Bayshore—namely Greenwich, Mauricetown, Dorchester and Leesburg—were uniquely positioned to respond to the demand. They built three-, four-, and five-masted schooners which were predominantly used to carry lumber and coal. They built tugs, scow schooners, mine sweepers, fishing boats and yachts. Jersey white oak was often used for planking and framing; the ubiquitous Atlantic white cedar from the Cumberland Bayshore's cedar swamps was used for smaller boats and the decking of large vessels. The sloop, the earliest vessel, and the oyster schooner, the most abundant vessel type, built at Cumberland County's Bayshore shipyards, were used for catching oysters and fish, transporting farm products, seafood, firewood and local goods from South Jersey to Philadelphia and nearby markets.

"Stowman's Shipyard was in Dorchester and still is. It's now called Dorchester Shipyard. The A.J. Meerwald is a boat that our relatives built. That's the Tall Ship of New Jersey. Charles A. Stowman, one of my ancestors, built it back in 1928."

Ben Stowman, Shoreline Protection and Coastal Management Subcommittee, traces his family roots in Cumberland County to the early 1800s

"Most of the tidal wetlands in the Delaware Estuary are moderately or severely stressed. In the past decade, New Jersey has lost 7 percent of its wetlands or an acre of wetlands per day in the Delaware Estuary. This is due to sea level rise, subsidence and erosion. Continued loss and degradation of coastal wetlands will result in substantial declines in ecosystem services since replacement habitats are not as service rich."

Danielle Kreeger, Ph.D., Science Director for the Partnership for the Delaware Estuary

Natural and Cultural Resources

Thousands of acres of farmland stretch between the villages where South Jersey's fertile agricultural soil supports family farms and produce stands that decorate the winding country roads. The food processing industry grew up around the productive agriculture industry. In response, schooners, rail cars and later trucks were shipping tomatoes, canned fruits and vegetables from local farms to markets around the world.

Wetlands, both fresh and saltwater, are the dominant vegetation in Cumberland County's Bayshore and estuarine areas. The streams running through the bayside communities branch out to wide waterways that provide rich aquatic and wetland habitat. Many threatened and endangered species are documented in the county, including endangered plants such as swamp pink, and several bird species such as the red-shouldered hawk, the peregrine falcon and the upland sandpiper. The region is also home to abundant populations of deer, small game, turkey and waterfowl.

Salt marshes in the Cumberland Bayshore landscape, have played a defining role in the region. The marshes act as nurseries for a wide variety of organisms and are an essential habitat for more than 300 species of migratory birds, including the red knot, sanderlings, bald eagles and other raptors. Additionally, the marshes benefit humans and the ecosystem by sheltering the coast from erosion and functioning as the ecosystem's kidneys, filtering contaminants, nutrients and sediment. Gathering salt hay from the salt marshes was a traditional resource-based occupation in the Bayshore since Colonial times. Early settlers found it a valuable crop because it is impervious to rot, and tons of salt hay could be harvested annually without cultivation. Though there are few salt hay farms left, there is still a network of dikes and berms reminiscent of that industry.

Four Townships

Cumberland County is also home to numerous cultural sites dating to Colonial times, many with their own significant contribution to the region's rich history. Greenwich (pronounced Green-witch), a farming enclave on the banks of the Cohansey River in western Cumberland, was founded in 1684 by Quakers who were expanding from their original settlement in Salem. It served as a port of entry into the Colony of New Jersey. Two years before the American colonies declared their independence from Great Britain, Greenwich became one of several communities to stage a protest opposing the British tax on tea. On Dec. 22, 1774, more than 40 local Whigs disguised as Native Americans raided the home of a British sympathizer, seized the chests filled with tea secretly stored in his cellar and set it ablaze in Market Square. In the 19th century the Quakers in the community joined forces with the free blacks living in the nearby hamlet of Springtown to form a haven for slaves escaping on the Underground Railroad. With the legal and economic support of the Quakers, the African Americans defended Springtown physically, not allowing any unknown white person within its boundaries. The members of the stucco-covered sandstone Bethel African Methodist Episcopal Church were leaders in the local operation of the Underground Railroad.

WHAT IT MEANS TO LIVE IN CUMBERLAND COUNTY'S DELAWARE BAYSHORE

"It's beyond an address. It's beyond a house and a home. It's a lifestyle. It means that my day is bracketed by waking up to a sunrise with a vista that's unspeakably beautiful, everyday different. When I come home at night I have to drive through miles of wetlands and historic waterfront communities. My day is bracketed by beauty and peaceful settings—the access to what feels like a wild environment at our doorstep. I feel incredibly fortunate to call it home, and it defines every bit of my life."

Meghan Wren, Chairman of the Cumberland County Long Term Recovery Group, who has lived here for close to 30 years

In Maurice River Township, a series of historic villages known especially for shipbuilding, East Point Lighthouse is the second-oldest lighthouse in New Jersey behind the lighthouse at Sandy Hook and the only onshore lighthouse in Cumberland County. Built in 1849, it stands at the entrance to the Maurice River, whose name is believed to be derived from the Prince Maurice, a 17th century Dutch ship reputed to have sunk in its waters. The 35.4-mile-long river also supports New Jersey's largest stand of wild rice and 53 percent of the animal species that the state has recognized as endangered, excluding marine mammals. Maurice River Township is also the site of the Maurice River Friends Quaker Burial Ground.

The fortunes of Commercial Township have always been tied to the Maurice River and Delaware Bay. The local agricultural industry developed along the river, and Cumberland County's goods and products were transported from the river to other destinations throughout the Americas. In addition to its seafaring and oystering heritage, the township is home to the only known site where blood was spilled in the county during the Revolutionary War—during the Battle of Dallas Ferry at a place called Peak of the Moon.

Downe Township, which is more than three-quarters of permanently preserved open space, is home to several historic mixed-use villages such as Dividing Creek, Newport, Money Island and Fortescue. Commercial and recreational fishing and boating are an important part of the way of life as is environmental recreation. The township is a sanctuary for horseshoe crabs. Public marinas, fishing and ecotourism are some of its key industries. Silica sand, the high-quality silica sand that is ideal for making clear glass, is mined in Downe Township.

Community Snapshots

Cumberland County

Cumberland County is one of the least developed counties in the State of New Jersey. Spread across roughly 500 square miles, the county has three cities, 10 townships and one borough, and in 2012 was home to just over 157,000 people. Some 72.5 percent of the county's residents identified as white and 21.8 percent identified as African American, according to the U.S. Census Bureau's 2012 estimates.

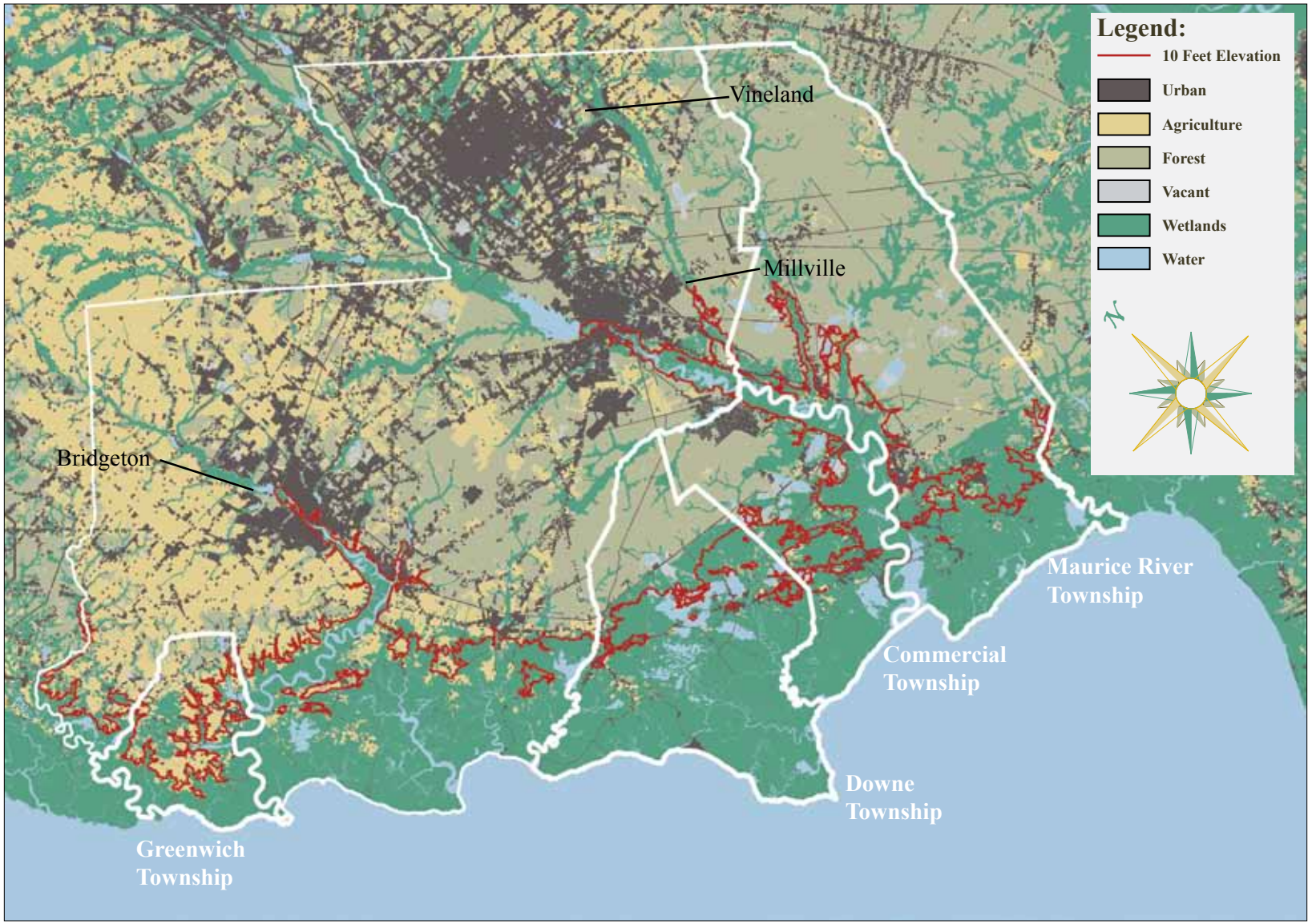
The 2007-2011 American Community Survey 5-Year estimates showed 68.4 percent of the county's residents own their homes. The median value of owner-occupied homes is $177,800, compared with $349,100 for the State of New Jersey. Cumberland County's median household income for the same five-year period was $52,004*, which is 26.9 percent lower than the $71,180 median household income for the state. The survey showed that 14.0 percent of those 25 years or older hold a Bachelor's degree or higher and 76.7 percent of those 25 and older hold a high school diploma or higher.

In New Jersey, the poverty threshold is defined as $23,550 for a family of four. According to the 2010-2012 American Community Survey, the median household income in Cumberland County was $51,130, making it the poorest county in the State of New Jersey. Additionally, 15.7 percent of the county's residents fell below the poverty level, compared with 9.4 percent for the state.

Established: 1748
Population: 156,898 (6,276 below 10 Feet Elevation)*
Land area: 501.8 square miles (28% below 10 Feet Elevation)*
Major Rivers: Cohansey River (30.6 miles); Maurice River (35.4 miles) is part of the national Wild & Scenic Rivers system
Lakes: Union, Sunset, Mary Elmer
3 Cities: Vineland (largest), Bridgeton (county seat), Millville
10 Townships: Commercial, Deerfield, Downe, Fairfield, Greenwich, Hopewell, Lawrence, Maurice River, Stow Creek, Upper Deerfield
1 Borough: Shiloh
Historic Sites: Bivalve Oyster Shipping Sheds and Wharves in Commercial Township; Vineland Historical & Antiquarian Society Building; Greenwich National Register Historic District including the Swedish Granary; the Old Stone School, the Gibbon House, the Wood Mansion, and the Bethel AME Church, among numerous 18th and 19th century structures; Bridgeton Historic District
State Facilities: South Woods State Prison in Bridgeton, Bayside State Prison in Leesburg; Southern State Correctional Facility in Delmont
Federal Facility: Federal Correctional Institution in Fairton, Fairfield Township

***Community Snapshot Data Sources:**

ESRI ArcGIS Elevations
NJGIN Municipal Boundaries
U.S. Census Bureau American Community Survey 2007-2011
U.S. Census Bureau 2010 Decennial Census



Data Source: NJDEP Land Use/ Land Cover 2007, NJGIN Municipal Boundaries, ESRI ArcGIS Elevations

Commercial Township

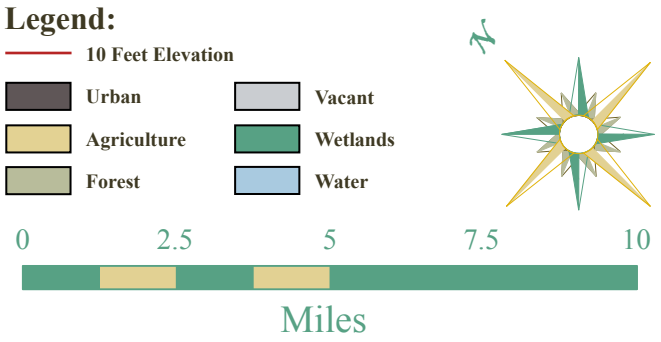
Incorporated: 1874
Population:5,178 (912 below 10 Feet Elevation)*
Land area: 33.9 square miles (51% below 10 Feet Elevation)*
Communities: Bivalve, Buckshutem, Haleyville, Laurel Lake, Port Norris, Shellpile, Mauricetown
Median Household Income: $44,849*
Industries: Silica sand production, clam processing, ecotourism, agriculture, salt hay farming, commercial crabbing, oyster packing
Tourism:

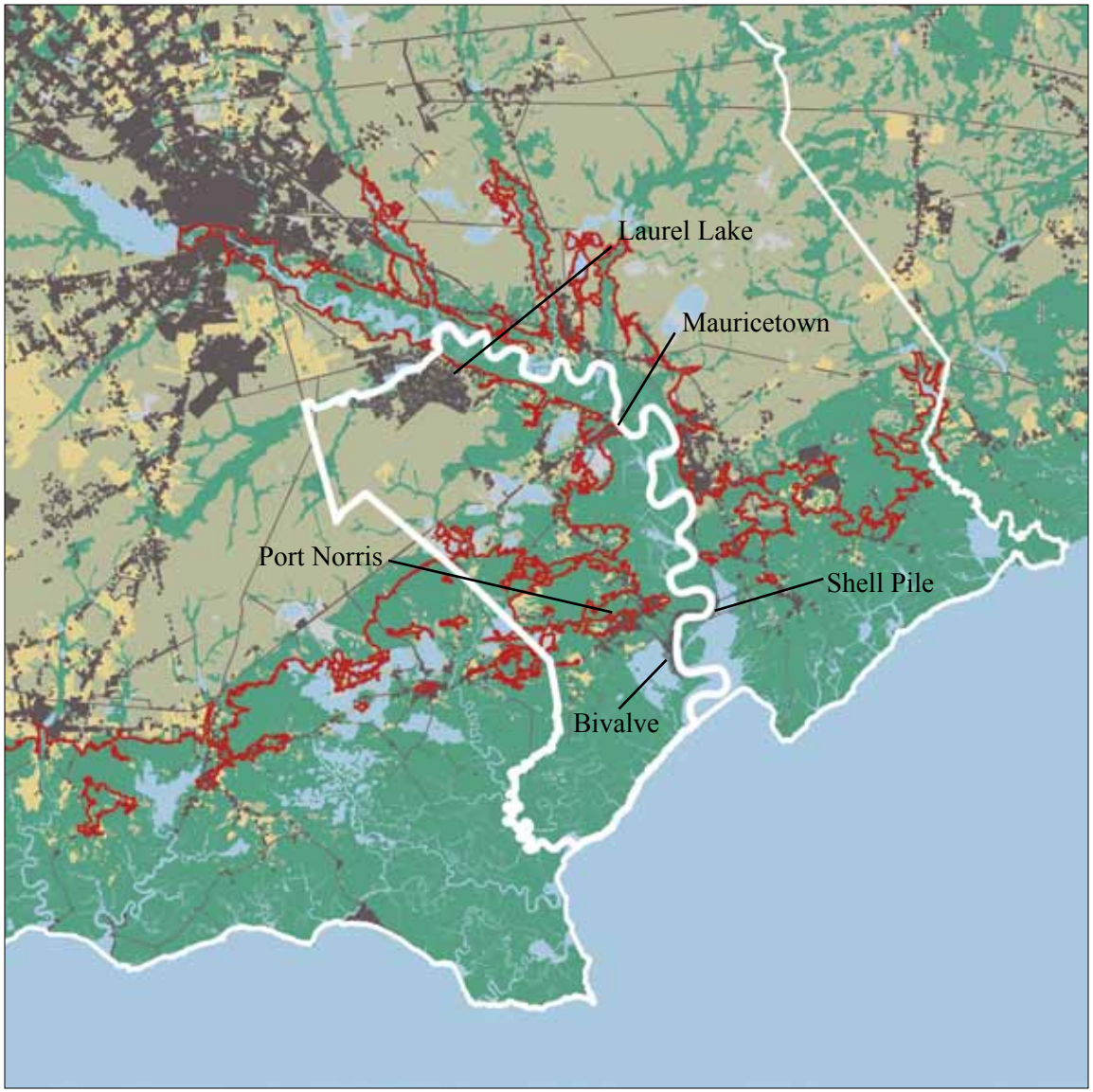
- The Bayshore Center at Bivalve houses the Delaware Bay Museum & Folklife Center, the Bayshore Gallery, the Oyster Cracker Cafe and serves as homeport to the restored 1928 schooner A.J. Meerwald and is adjacent to the 4,000 acre PSEG Estuary Enhancement site with restored wetlands and 4 miles of walkways.
- Battle of Dallas Ferry, site of the only Revolutionary War conflict known to have taken place in Cumberland County in which blood was spilled

State Facilities: New Jersey State Police at Port Norris; New Jersey State Police Marine Services Facility at Bivalve

"I'm proud of the oyster industry. It's one of the few places in the country, maybe the world, where the industry was part of regulating itself, and they've not overfished themselves out of business. They've sort of gracefully managed the industry under a lot of duress."

Meghan Wren, Executive Director of the Bayshore Center at Bivalve





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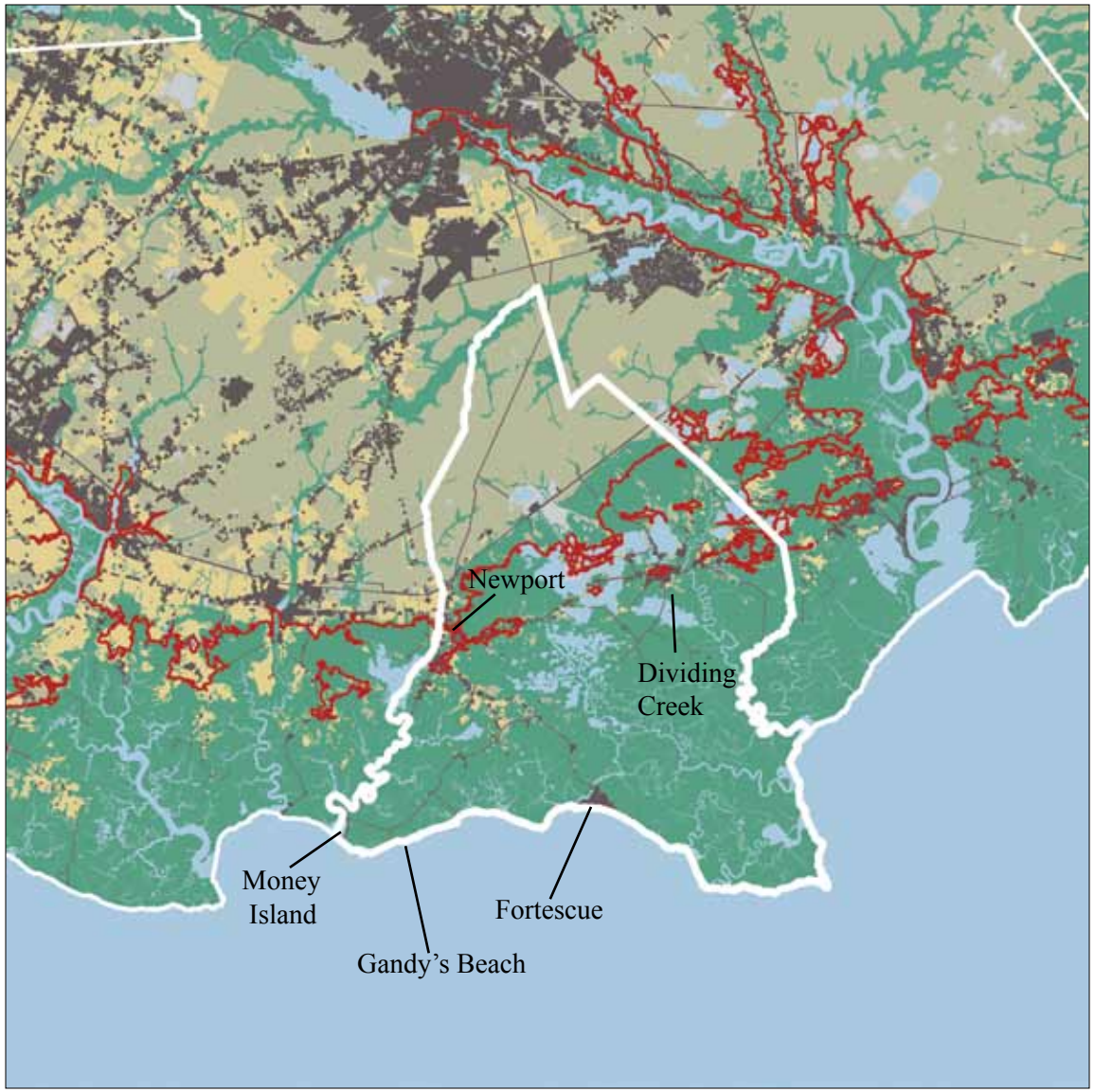


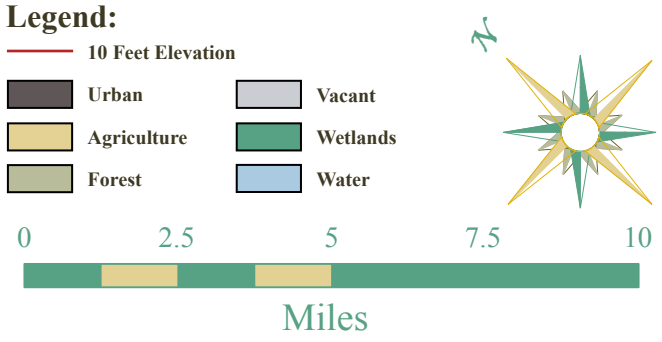
Data Source: NJDEP Land Use/ Land Cover 2007, NJGIN Municipal Boundaries, ESRI ArcGIS Elevations

Downe Township

Incorporated: 1798
Population: 1,585 (1,429 below 10 Feet Elevation)*
Land area: 53.2 square miles (75% below 10 Feet Elevation)*
Communities: Beaver Dam, Newport, Dividing Creek, Dyers Cove, Fortescue, Gandy's Beach, Money Island, Hollywood Beach, Raybins Beach
Median Household Income: $ 43,125*
Industries: Silica sand production, ecotourism, charter boats, marinas, commercial shellfisheries
Tourism: Fortescue is home to over a mile of public beaches at either end of the island and a charter fishing fleet. The Glades Wildlife Refuge provides year-round habitat for ducks, marsh birds, hawks, bald eagles, and upland birds as well as fox, deer, otter and other mammals. It is also crucial habitat for migratory shorebirds in the fall and spring.
State Facilities: Fortescue State Marina

"We need to save these villages. They're really neat places to see horseshoe crabs and the red knots, other environmental attractions. These Bayshore communities are like going back in time."

Downe Township Mayor Robert Campbell, who served on the New Jersey Delaware Bayshore Long-Term Recovery Committee



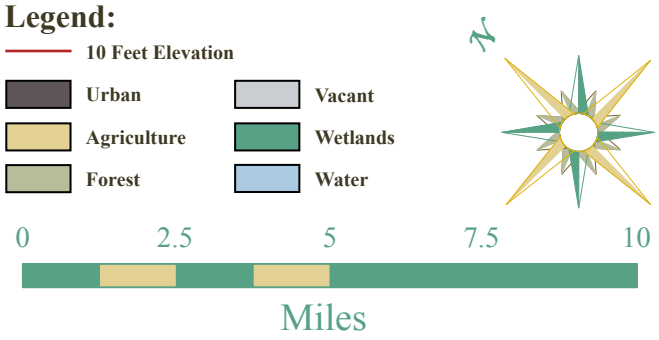
Greenwich Township

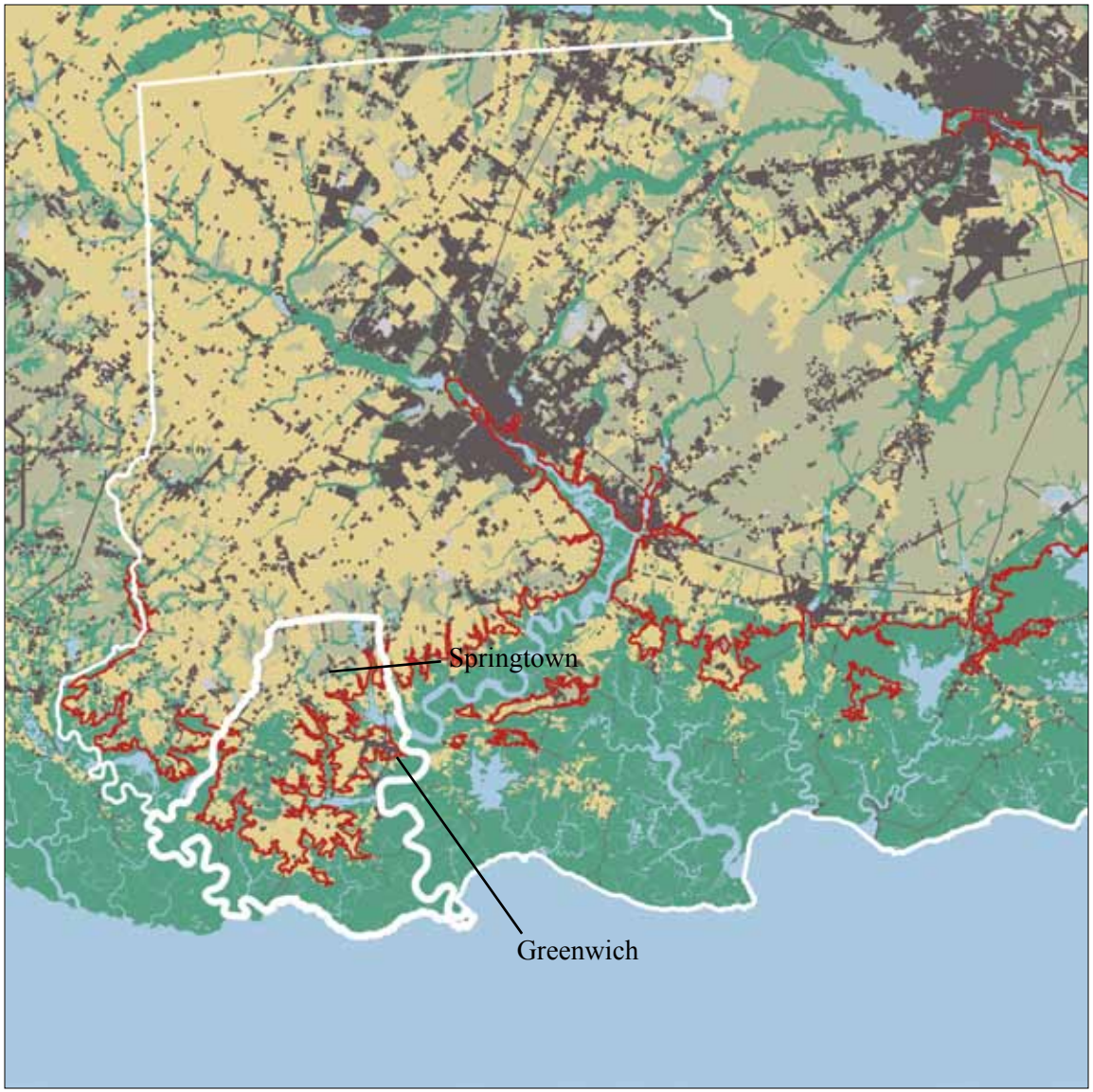
Established: 1684
Population: 804 (305 below 10 Feet Elevation)*
Land area: 18.5 square miles (52% below 10 Feet Elevation)*
Communities: Greenwich, Othello, Sheppards Mill, Springtown
Median Household Income: $57,917*
Industries: Agriculture, forestry, fishing, hunting
Tourism: Cumberland County Historical Society; Cumberland County Prehistorical Museum
Historic Sites:

- The Greenwich National Register Historic District, encompassing 2.2 miles of Ye Greate Street and numerous 17th, 18th and 19th century buildings such as the Wood Mansion and the Gibbon House;
- 19th Century Bethel AME Church, an underground railroad site;
- Old Stone School, 1812, one of the oldest public schools in the state;
- 1908 monument to the 1774 Greenwich Tea Burning at Market Square

"I was exploring the Bayshore when I discovered Greenwich. I couldn't believe it so I decided to settle here. Greenwich is a jewel. It's a historic gem. In many ways, it's a page right out of the 19th century. It's the most peaceful place in New Jersey—surrounded by beautiful farms, woods and the Delaware Bay environment. I wouldn't want to live anywhere else."

Greenwich Township Deputy Mayor Eric Port, who has lived here about 12 years





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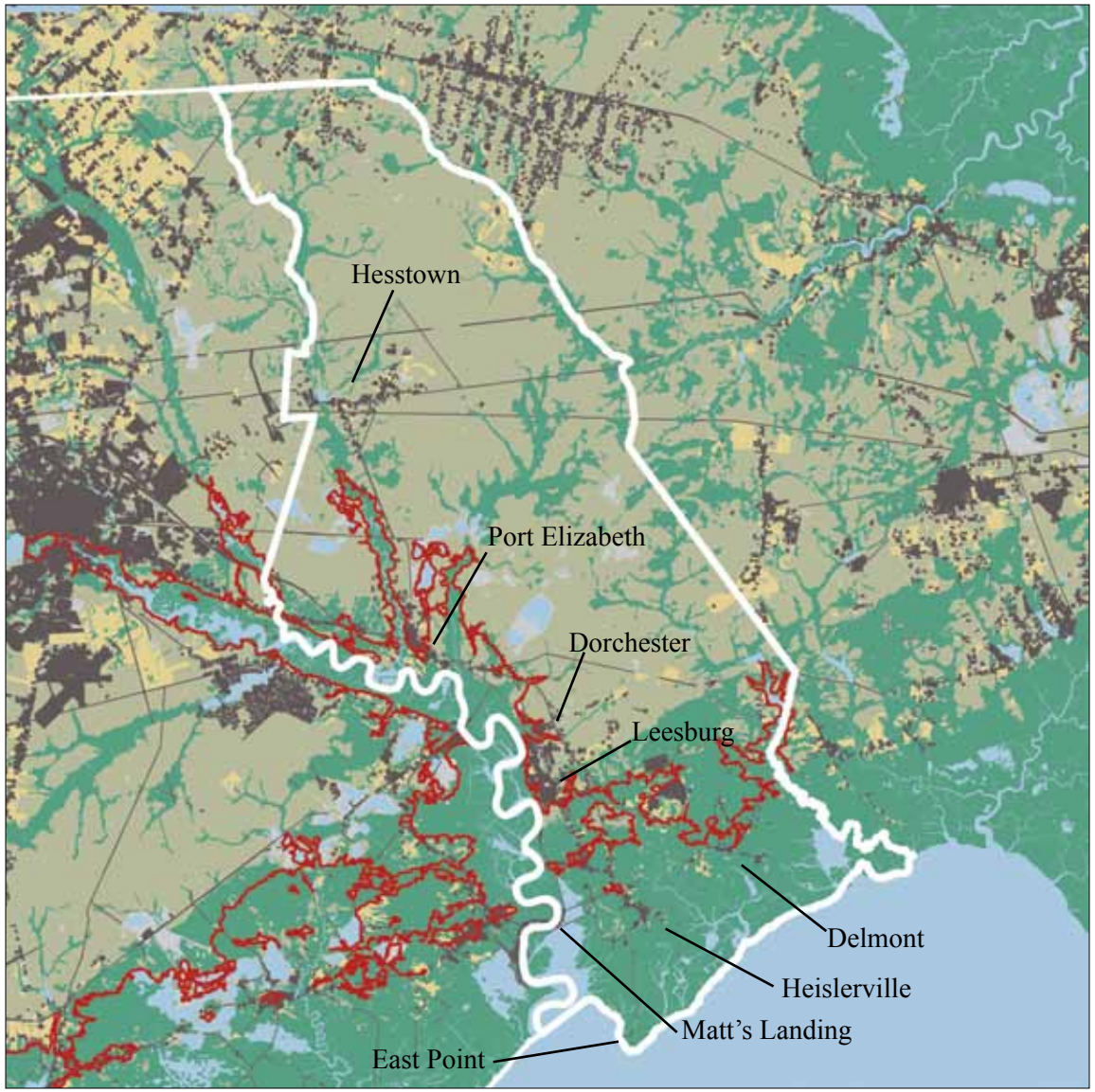


Data Source: NJDEP Land Use/ Land Cover 2007, NJGIN Municipal Boundaries, ESRI ArcGIS Elevations

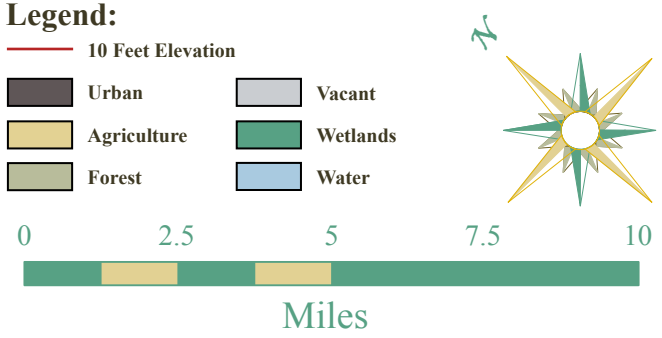
Maurice River Township

Incorporated: 1798
Population: 7,976 (957 below 10 Feet Elevation)*
Land area: 95.2 square miles (26% below 10 Feet Elevation)*
Communities: Bricksboro, Cumberland, Delmont, Dorchester, East Point, Heislerville, Leesburg, Matt's Landing, Port Elizabeth
Median Household Income: $67,068*
Industries: Shipbuilding and ship maintenance; silica sand production, ecotourism, agriculture, salt hay farming
Tourism: East Point Lighthouse and beach, Maurice National Scenic and Recreational River
Historic Sites:
- Shipyards in Dorchester and Leesburg

State Facilities: Bayside State Prison in Leesburg; Southern State Correctional Facility in Delmont

"In Maurice River Township, the history predates Colonial times..... It's just a continuum of history that's almost inconceivable for us to understand. Before even the British came here, there were the Swedes. And before the Swedes, there were the Leni Lenape and before the Leni Lenape, there were the Stone Age, spear hunters. It's all here."

Robert Brewer, Director, Cumberland County Department of Planning, Intergovernmental Relations Subcommittee



Superstorm Sandy Impact

Cumberland County's Bayshore communities have long faced the brunt of a string of severe storms in New Jersey—six in less than two years. The result is erosion from wave action and river currents. Cumberland's Bayshore communities were already suffering from a prolonged economic downturn when Superstorm Sandy's heavy winds and high surf began pounding the area on Oct. 29, 2012. Private and public facilities linked to the Delaware Bay and Maurice River, including beachfront houses, 15 marinas and historic resources, were severely impacted by the storm. Infrastructure issues were critical—the dike breach along the Maurice River for some time blocked access to major shipyard and fishing industry-related businesses upstream. Many of the Delaware Bay's beaches lost 5 feet or more of sand, which in turn left a predominantly mud-based, rocky coastline.

Marinas were filled in with debris and silt, including Fortescue State Marina in Downe Township. The communities of Fortescue, Gandy's Beach and Money Island, all located in Downe Township, were battered by Sandy; New Jersey's only horseshoe crab sanctuary sustained significant damage. Many bayfront homes were destroyed or severely damaged, bulkheads and seawalls were compromised, business activity was disrupted. Beaches were washed away. The historic Charlesworth Hotel and Restaurant was so damaged that it never opened for business in 2013 and is in jeopardy of being shuttered forever.

The dikes protecting Greenwich are earthen, with a clay core topped by sand and gravel. They get carved out in storms and offer little protection. Superstorm Sandy came within one inch of the top of the Mill Creek dike on the Cohansey River in Greenwich.

Sandy caused more than $1.7 million in damage to the businesses along Commercial Township's waterfront. One of the township's three dikes—Peak of the Moon, which is privately owned—was overtopped and floodwaters inundated Shellpile. The storm blew out the sluice gate of another dike, flooding much of Bivalve, including a clam processing plant, the Bayshore Center at Bivalve -an educational non-profit and museum; and several homes. The walkways and observation towers of Public Service Electric and Gas Company (PSE&G) also sustained significant damage.

In Maurice River Township, the dike at Matt's Landing blew out in Sandy and later in a December 2012 storm, causing a 130-yard breach which prevented marina owners from reaching their businesses all winter. It took months for the dikes to be repaired, at a cost of $750,000. However, another big storm could cause significant damage to homes, businesses, roads and fields by the incursion of salt water. The cost would be in the millions. Sandy caused erosion on the entire one-mile length of East Point Beach, which hosts tens of thousands of horseshoe crabs. The beach at the East Point Lighthouse was so eroded that the bay waters were lashing the walls of the lighthouse. The power of Sandy's waves so badly undermined the public boat ramp that it was unusable.

In the Delaware Bay, bacterial contamination of oyster beds occured after Sandy, although it was more severe after Hurricanes Irene and Lee in 2011. This contamination had a significant impact on the local economy. Considering that these are rural, isolated residential communities, the capacity to rebuild is limited.

"If efforts aren't made to protect the communities against sea level rise, in the next 50 years they'll start to be inundated and they'll be inaccessible. It's been happening. There are already (inhabited) communities that have disappeared as a result. Thompson's Beach is gone. Bay Point is effectively gone. Sea Breeze is effectively gone. These are all relatively poor communities. By Jersey Shore standards they're very poor ... and so they're pretty much ignored. If they do a cost-benefit analysis, it makes them look like they're expendable."

David Bushek, Director of Rutgers University's Haskin Shellfish Research Laboratory

Long-Term Recovery Planning Process

While devastated communities understandably tend to focus on response-level issues such as debris cleanup in the immediate aftermath of a disaster, it can be of great advantage to adopt a long-term view as soon as possible. Affected communities generally recover more completely if they begin to plan soon after a disaster when there is still considerable attention directed their way. With this in mind, the State of New Jersey, Cumberland County's Bayshore community stakeholders and the Federal Emergency Management Agency's Community Recovery Assistance team determined that the Cumberland County Delaware Bayshore region would benefit from a targeted technical assistance program.

This assistance was directed toward a multijurisdictional area encompassing four townships: Downe, Commercial, Maurice River and Greenwich. FEMA facilitated the creation of a recovery committee comprised of elected officials and non-elected residents from these four townships. The committee determined the goals of long-term recovery from Superstorm Sandy, the areas of interest that support the goals and the specific projects that will accomplish the goals.

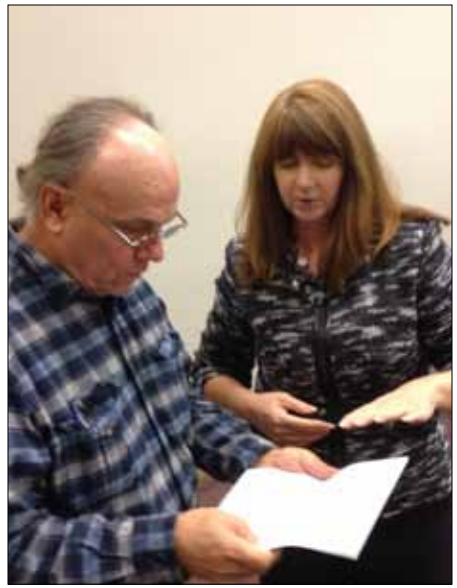
The recovery effort crystallized on Aug. 7, 2013, when community stakeholders, assisted by FEMA's Community Recovery Assistance team, met and agreed to form the *New Jersey Delaware Bayshore Long-Term Recovery Committee*. This committee developed a vision statement and recovery objectives. At its next meeting on Aug. 14, the recovery committee established four subcommittees tasked with identifying special interest issues and needs. These four subcommittees were Intergovernmental Relations, Tourism and Economic Development, Infrastructure, and Shoreline Protection and Coastal Management.

To assist with issues and needs identification, the *New Jersey Delaware Bayshore Long-Term Recovery Committee* participated in several capacity building and planning exercises. For example, the recovery committee partnered with Cumberland County and the Bayshore Center at Bivalve to organize the Rising Tides Public Forum In Resiliency Workshop, which was held over two days in October. The forum (summarized separately in this document) was created to explore ideas, share experiences and develop contacts for building resiliency in Cumberland County's Bayshore communities. Several members of the Tourism

and Economic Development Subcommittee also participated in a Nov. 21 workshop on tourism development planning, which included presentations by the director of marketing for the New Jersey Division of Travel and Tourism.

It is evident that Cumberland County's Bayshore communities understand the gravity of this recovery effort. Following the recommendations of the recovery committee, several permanent organizations are being formed to drive future long-term recovery efforts. There is a strong consensus to keep the collaboration moving forward with a Bayshore Council, an ecotourism and business improvement task force and a shore protection team. Each group would ensure the continuation of partnerships and initiatives jump-started with this planning effort. These ongoing entities should be married with the efforts of Cumberland County's Delaware Bay Task Force and the Rising Tides Forum.

The *New Jersey Delaware Bayshore Long-Term Recovery Committee* also recommended establishing two annual conferences. The annual Bayshore Conference would allow elected officials and community stakeholders to identify problems and devise practical solutions to them, to build collaborations, share progress and keep Bayshore issues moving forward.



Vision

The overall recovery planning process began by building consensus on a recovery vision. This vision became the guiding principle, the yardstick to gauge all issues involving Cumberland County's Bayshore communities during the recovery process over the next 10 years.

The vision of Cumberland County's Bayshore communities is to:

- Sustain and stabilize the environment and economy by supporting existing businesses and promoting tourism;
- Empower families who live and work in the Bayshore communities to have a balanced approach to developing and protecting the Delaware Estuary system;
- Develop new business and tourism ventures; and
- Protect important and often vulnerable natural habitats.

Recovery Goals

The next step in the planning process was to find consensus on a set of goals that would move the community toward realization of its recovery vision. The *New Jersey Delaware Bayshore Long-Term Recovery Committee* established the following goals:

- Save and sustain the economy, the environment and the small communities that currently exist in the Bayshore communities in Cumberland County;
- Support existing commercial businesses such as marinas, shellfisheries, shipbuilding and repairs, commercial and recreational fishing;
- Stabilize the local economy and enable small scale economic growth;
- Promote places of interest in the Cumberland County Bayshore to increase tourism;
- Support local families who currently live and/or work in the Cumberland County Bayshore so they want to stay here after implementation of the recovery plan; and
- Continue to be stewards of the environment through a balanced approach to development.

Subcommittee Charters

Given the overall recovery objectives, the *New Jersey Delaware Bayshore Long-Term Recovery Committee* formed four subcommittees, each representing a specific recovery function. Each was tasked with identifying the issues and needs of the Cumberland County Bayshore.

The charters of these subcommittees are defined as follows:

Intergovernmental Relations: Include issues pertaining to permitting, shared services and communications with Federal, State and Non-Governmental Organizations, as needed.

Tourism and Economic Development: Include issues related to industry (maritime) recovery, business recruitment and retention, tourism development and promotion, design (streetscaping) and recreation (rails to trails).

Infrastructure: Include the long-term recovery needs of basic utilities such as roads, drinking water, telecommunications and sewer.

Shoreline Protection and Coastal Management: Include issues related to beach replenishment, wetlands restoration, river-mouth restoration, stabilization of rivers/creeks, bulkheads, levees, berms and dredging.

Over the course of several months, the subcommittees researched issues, consulted past planning efforts and developed more than three dozen project concepts designed to address the ongoing recovery issues facing Cumberland County's Bayshore area. Subcommittee members met with Cumberland County Planning and Emergency Management leaders to ensure that the objectives of the proposed project ideas complemented existing county-wide master planning efforts.

"Our Delaware Bayshore communities have unique and irreplaceable features. As with many special areas they need special attention and investment if they are to survive and thrive. The entire Cumberland County community and beyond can benefit from a thriving Bayshore."

Robert Brewer, Director, Cumberland County Department of Planning

Project Summaries

How to Use This Plan

This *Cumberland County Delaware Bayshore Recovery Plan* is the result of a partnership between the Cumberland County's Bayshore communities and FEMA's Community Recovery Assistance team. This plan is a guide for the Cumberland Bayshore elected officials, municipal staff, non-governmental organizations, local stakeholders and the community at large to use in their long-term recovery efforts. The process included gathering many projects already scoped out by the county and municipalities (including the extensive Downe Township Redevelopment plan), non-profit collaborative initiatives, Rising Tides Forum and other relevant resiliency efforts. These projects were then inventoried, gaps were analyzed and new projects were written where important issues were not yet addressed. This *Cumberland County Delaware Bayshore Recovery Plan* includes 26 recovery projects, developed and prioritized by the *New Jersey Delaware Bayshore Long-Term Recovery Committee*. It serves as a critical tool demonstrating to potential resource providers the communities' commitment to recovery and organizational capacity.

This plan is a living document that will evolve as new community needs emerge. However, maintaining the continuity of the Cumberland Bayshore communities' shared vision and building upon their core strengths will be the key to the success of all projects. Despite the adverse impacts of Superstorm Sandy, the strength, courage, ingenuity and spirit that ignited in the hearts and minds of the Cumberland Bayshore communities will continue to contribute to the rebuilding of a stronger, more sustainable and resilient region.

Budget Estimates

Project costs were estimated by the respective subcommittees. Due to space limitations, only Summary Cost Estimates are included in the Project Summaries. More detailed cost/budget information, when available, is listed in the Appendix.

Project Feasibility Requirements:

Ongoing Commitment

A community's long-term recovery depends on the focus and drive of those who live and work there. Many of the projects and processes necessary for a full recovery take time, sometimes many years, and it is imperative that the Cumberland Bayshore communities remain resolute in their commitment to long-term recovery.

Funding

Financing is essential to recovery. While Cumberland County's Bayshore officials and residents will be the primary users of this plan, the document is helpful to the state and Federal agencies, private foundations and companies whose financial support will be central to making these projects a reality. Many funding sources will look for a coherent and coordinated approach to solving problems. This *Cumberland County Delaware Bayshore Recovery Plan* serves that purpose as well, demonstrating that the community is serious enough to have given thoughtful consideration to its issues and developed a plan to address them.

Collaboration

Communication and collaboration are imperative to a successful recovery. A community's recovery is a complex process that involves a multitude of government agencies, non-profits and the private sector. Each decision that is made will have repercussions of others yet to be made, and each action will change the overall landscape of the recovery. Because of this, it is vital that all interested parties remain informed of all ongoing activities.

Project Advocates

A project advocate is a person or entity that takes ownership of a project to ensure it maintains forward movement through the process and that each subsequent step is taken in a timely fashion. Energetic and interested project advocates are critical to the success of every recovery strategy.

Prioritization of Recovery Projects

After the damage was assessed from Superstorm Sandy, the *New Jersey Delaware Bayshore Long-Term Recovery Committee* began meeting to address recovery efforts. Each member of the committee volunteered to join one of the four subcommittees: Intergovernmental Relations, Tourism and Economic Development, Infrastructure, and Shoreline Protection and Coastal Management. These subcommittees identified projects that would aid in long-term recovery. Identifying and prioritizing these projects are essential for the people of Cumberland County's Bayshore communities to recover.

The identified projects were prioritized based on which projects affected the most people, which provided the building blocks for other projects, which were "shovel-ready" and which were inspiring. The *New Jersey Delaware Bayshore Long-Term Recovery Committee* determined project priorities based on a score card containing five criteria:

- How well defined was the project scope;
- How geographically broad was the project's coverage;
- How visible or inspiring was the project's scope;
- How much time was needed to complete the project; and
- Was the project a prerequisite for other projects.

Using these five criteria provided the opportunity for a more balanced approach to project prioritization. Each criterion was given a weight from one to three, with three being more advantageous to recovery efforts. The projects were then scored. Those receiving more than 15 points were classified as "vital" to recovery (and given the symbol of three oysters), 12 to 14 points were "important" (2 oysters) and 10 to 11 points were "of interest" (1 oyster). Selecting an image of the oyster reflects this bivalve's importance to the Cumberland County Bayshore's economy and identity.

Vital: Vital projects have a well-defined scope and their costs can be estimated; they have a regional impact; their benefits would be very apparent; they lift community morale and/or cooperative spirit; project completion is possible within one year; and they could be a prerequisite for the undertaking of other projects.

Important: Important projects have a scope that is moderately defined but they may lack details such as estimated costs; they have moderate geographic coverage; their benefits have moderate visibility; project completion is possible within one to three years; and they might be a prerequisite for the undertaking of other projects.

Of Interest: These projects have a scope that is open and/or lack defining information such as costs; they are limited/local in geographic coverage; their benefits would be modest or limited; project completion would take longer than three years; and this is a stand-alone project.

Community Interest: These projects are important to the community but lack a direct relation to disaster damage or require significant private investment; they also enhance the long-term sustainability of the community.

Project Summaries

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CUMBERLAND
CAPE MAY
Vineland
Bridgeton
Millville
Seabrook
Weymouth
Woodbine
Mays Landing
Burleigh
North Cape May
Harrington
Milford

Intergovernmental Relations Project Summaries

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Bayshore Council/Conference

SUBCOMMITTEE

Intergovernmental Relations

PRIORITY

Vital

DESCRIPTION

This project seeks technical advice and funding to create a Bayshore Council and an annual Bayshore Conference for elected officials. Superstorm Sandy revealed that elected officials need help to identify and advocate for the resources necessary to address the unique needs of Cumberland County's Bayshore region and to implement the *Cumberland County Delaware Bayshore Recovery Plan*. An annual conference that brings together a formal coalition of Bayshore municipal officials, elected officials and stakeholders will help orient the focus to the Cumberland County Bayshore and ensure the success of the plan.

The Bayshore Council would build on Cumberland County's Delaware Bay Task Force and the Rising Tides Forum as well as the *New Jersey Delaware Bayshore Long-Term Recovery Committee* and coalitions built during Sandy recovery planning. Periodic meetings of the council will build a sense of commitment to Cumberland County Bayshore issues and give the communities more clout than they would have on their own.

The annual Bayshore Conference hosted by the Bayshore Council will allow participants to identify problems and propose practical solutions to be addressed by advocates in elected office and those who work for corresponding agencies at the county, state and Federal levels. Stakeholders would include the Federal Emergency Management Agency, the New Jersey Department of Environmental Protection, New Jersey Department of Transportation, Cumberland County Office of Planning and Development, private entities with large Bayshore land holdings and nonprofits working for the Bayshore. The Bayshore Conference could be held in the first quarter of 2014.

PROJECT GOAL

This project would inform elected officials of the unique needs of Cumberland County's Bayshore region. It would provide an opportunity for Cumberland County's elected officials to speak with one voice to the state and Federal agencies and other funding sources, and encourage them to advocate for funding for projects for the region. Invited agencies would also be encouraged to work more efficiently with the municipalities on issues such as planning and permitting.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

The Bayshore Council and Conference would benefit both the residents and the businesses in the Delaware Bayshore, giving the Bayshore a consensus voice, focusing attention on the unique problems of the area, and encouraging the region's elected officials to advocate for their region. The conference is one in a series of activities that would ensure the implementation of the *Cumberland County Delaware Bayshore Recovery Plan*, particularly projects addressing infrastructure work, shoreline protection and tourism and economic development. Having representatives from agencies such as the NJDEP and FEMA would allow the discussion to include practical information on the benefits and pitfalls of proposed projects.

A Bayshore Conference would demonstrate how the region is working together to solve problems in an efficient manner. Those attending the conference would be required to inform the group about sustainable practices being employed outside the Cumberland County Bayshore region. Some of those practices might be considered for the region.

ACTION STEPS

- Develop municipal resolutions sanctioning the Council
- Identify a calendar and agenda
- Identify participants
- Hold Council meetings
- Hold conference

SUMMARY COST ESTIMATE

Funded	$0
Gap	$1,000
Total	$1,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Meghan Wren
- Donna Moore
- Bob Campbell
- Jim Watson

PROJECT SPONSOR(S)

- Bayshore Council
- Rising Tides Forum
- Cumberland County

POTENTIAL FUNDING RESOURCES

- Participating Bayshore municipalities

ADDITIONAL RESOURCES

- Participating Bayshore municipalities
- Bayshore Eco-Tourism Business Improvement Task Force
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Bayshore Resiliency and Sustainability Education and Outreach

SUBCOMMITTEE

Intergovernmental Relations

PRIORITY

Important

DESCRIPTION

The purpose of the project is to provide increased awareness and education about the issues of rising sea levels, coastal resiliency and mitigation options and strategies along Cumberland County's Delaware Bayshore in New Jersey. Public engagement with the issues and hazards presented by rising sea levels and erosion is instrumental in creating sustainable, resilient communities along the Bayshore.

This project will fund education and outreach activities regarding the issues of sea level rise and coastal resiliency, as well as engage the public and raise awareness of these issues among Bayshore residents, business owners and policymakers.

The project will use for community education and outreach the information developed by the Office of Emergency Management (state/county/local) on Erosion Hazard zones, FEMA and NOAA and the U.S. Army Corps of Engineers' surge maps, which capture all risk areas.

Increasing public understanding of the multifaceted issues of rising sea levels, coastal erosion, coastal resiliency and sustainable development will provide for greater public engagement on policy development and implementation. Superstorm Sandy directed increasing attention to the issues of rebuilding smarter, more sustainably and more resiliently along the Cumberland County Delaware Bayshore. Public sentiment is critical when developing policy initiatives. An educated and engaged public will be much better positioned to participate in decisions that will affect Bayshore residents and business owners for many years to come.

PROJECT GOAL

The goal of this project is to educate the public about issues of sea level rise, sustainable development, coastal erosion and resiliency. This education campaign will better prepare Bayshore communities to address the effects of (and potential solutions to) rising tides, coastal erosion and natural disasters such as Superstorm Sandy.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

Educational and outreach opportunities about sustainability and resiliency will create a well-informed public. As a result, residents will make informed decisions, both collaboratively as communities and individually, and provide more useful input toward the goals of increased resiliency and sustainability.

SUMMARY COST ESTIMATE

Funded	$0
Gap	$20,000
Total	$20,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Phillip Tomlinson

PROJECT SPONSOR(S)

- Bayshore Center at Bivalve/Rising Tides Forum
- Maurice River Township
- Commercial Township
- Downe Township
- Greenwich Township

POTENTIAL FUNDING RESOURCES

- Federal Emergency Management Agency
- New Jersey Department of Environmental Protection

ADDITIONAL RESOURCES

- Federal Emergency Management Agency
- Cumberland County, including the Office of Emergency Management (OEM)
- Local township OEM office personnel
- Haskin Shellfish Research Laboratory
- Bayshore Center at Bivalve
- Partnership for the Delaware Estuary
- Association of New Jersey Environmental Commissions
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Bayshore Resiliency Roundtable

SUBCOMMITTEE

Intergovernmental Relations

PRIORITY

Important

DESCRIPTION

This project seeks technical expertise and modest funding to establish and maintain a Bayshore Resiliency Roundtable, which would continue the work of the Shoreline Protection and Coastal Management Subcommittee. The roundtable would provide a forum on environmental and community resiliency issues to incubate ideas, build synergies and offer education. Participants would include concerned public and private organizations, such as municipalities, conservation organizations, the scientific community, fisheries managers and major landowners in the Cumberland County Bayshore region.

As a result of Superstorm Sandy, a number of efforts were launched to assist Cumberland County with recovery and several initiatives were already under way to address sea level rise, shoreline restoration and coastal erosion issues. This has caused potential overlap of some services and revealed some opportunities for collaboration.

PROJECT GOAL

The Bayshore Resiliency Roundtable would seek to bring together the various organizations working on long-term recovery in the region for a discussion on individual projects. The intent is to form a synergy between organizations, whenever possible. This would include groups working on community resiliency, flooding issues, coastal erosion and emergency management. The first symposium could be held before the end of 2013 or in the first quarter of 2014; thereafter, they should be held quarterly.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

This project would benefit all of the residents and businesses in the Cumberland County Bayshore region. It aligns with the post-disaster vision of implementation of this recovery plan, ensuring that services are available to the region and making sure that these services reach the community. Services would include disaster relief, when necessary; evaluating options and funding sources for flooding issues; as well as coastal and community resiliency to ensure the sustainability of the region. The roundtable would be facilitated by the Rising Tides Forum.

The Roundtable will educate the four communities about the activities of the various organizations working on the region's behalf. This will allow for more efficient use of each organization's time and resources, maximizing sustainability and resiliency efforts and providing an important communication tool and networking opportunity.

ACTION STEPS

- Formulate steering committee from expanded shore line protection subcommittee
- Invite participants
- Conduct Roundtables
- Publish the findings/recommendations

SUMMARY COST ESTIMATE

Funded	$0
Gap	$1,000 - $,5000
Total	$1000 - $5,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Meghan Wren

PROJECT SPONSOR(S)

- Downe Township
- Bayshore Center at Bivalve

POTENTIAL FUNDING RESOURCES

- Participating municipalities
- Philanthropies

ADDITIONAL RESOURCES

- Participating municipalities
- Public and private agencies with expertise in resiliency issues
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfdsa.gov
- The FEMA New Jersey Community Resource Guide

Tourism And Economic Development Project Summaries

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Business Retention and Recruitment Plan

SUBCOMMITTEE

Tourism and Economic Development

PRIORITY

Vital

DESCRIPTION

This project proposes securing funding and technical assistance for development of a business retention and recruitment plan for Cumberland County's Bayshore communities.

There will be three major elements:

- Business retention—especially those in the tourism sector
- Revitalizing closed tourist sites and commercial properties—especially on waterfronts, village main streets and the New Jersey Route 47 corridor
- New business recruitment focusing on three key sectors:
  - tourism and ecotourism
  - maritime and fisheries
  - agribusiness

The small towns that comprise Cumberland County's Delaware Bayshore have seen a steady economic decline ever since the oyster/fish industry deteriorated in the 1960s and 1970s. Most of the land in New Jersey along the Cumberland County Bayshore is at sea level or a few feet above sea level. This area is easily flooded after heavy rainstorms or more extreme high tides. When a storm of Superstorm Sandy's magnitude struck this area, the flooding very quickly affected a lot of residents and businesses.

A Business Retention and Recruitment Plan would guide the Bayshore communities toward creating a diverse, robust business community. Fortunately, this effort will not have to start from scratch. In recent years, several local and regional planning initiatives have identified the key areas of concern and interest. For example, ecotourism—with a broad definition encompassing hunting and fishing, beach recreation, heritage and agri-tourism—stands out as the highest priority, with the potential for growth and local involvement. Maritime-based initiatives, including the existing commercial fishing and vessel repair industries and agribusinesses are highlighted as important, desirable and compatible elements to the local economy.

The business retention section will include a series of resource for existing and emergent businesses. They include marketing support; audience development; business retention techniques, including small business assistance; physical improvements, including signage and facade work; and support of sustainable mitigation projects.

The section of the plan focused on closed businesses will create an inventory of available properties. The

inventory will delineate the businesses' attributes and potential to be "shopped around" through realtors (local, regional, web-based and Jersey Shore-based), and venture capitalists, and create a strategy to engage local and non-local entrepreneurs.

The business recruitment section will utilize traditional and creative methods to entice compatible business to invest in the Cumberland County Bayshore communities.

This project will rejuvenate the Bayshore economy by stabilizing existing attractions and allowing them to flourish; revitalizing recently closed businesses and attracting new, compatible businesses. This would create a critical mass that supports new investment, job creation, increased ratables and, ultimately, an enhanced quality of life in the region.

The timeframe for completing the business plan for the Bayshore communities is less than one year. It is estimated that an additional six to 12 months will be needed to set up a business support program after the plan is developed. The plan may require that emergency measures be put into place sooner for vulnerable businesses.

PROJECT GOAL

The goal of this project is to create a focused economic recovery plan for Cumberland County's Delaware Bayshore to make the region a desirable place for future generations of Bayshore families to commit to planting roots and raising their families here.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

This project will stop what has been a long, steady economic decline, prevent more businesses from closing and attract investment into the area. The plan will encourage sustainable land use, walkable urbanism, ecotourism and green infrastructure. Any future businesses/residents/tourists would fit into the established land use guidelines. All funded projects must meet sustainable/resilience criteria to be recommended through the planning process. The plan will incorporate best practices for mitigation and resiliency through literature searches, benchmarking with other regions and consultations with experts in the field.

ACTION STEPS

- Convene a subcommittee
- Secure funding
- Host a planning workshop
- Develop a Request For Proposal
- Select a consultant
- Develop a plan

The plan should be considered phase one; the implementation of the plan can be achieved in multiple phases.

SUMMARY COST ESTIMATE

Funded	$0
Gap	$50,000 - $60,000
Total	$50,000 - $60,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Meghan Wren
- Jim Watson

PROJECT SPONSOR(S)

- Bayshore Eco-Tourism/Business Improvement Task Force
- Cumberland County Department of Planning and Economic Development

POTENTIAL FUNDING RESOURCES

- New Jersey Department of Community Affairs
- New Jersey Economic Development Authority
- New Jersey Department of State, Business Action Center
- U.S. Department of Agriculture—Rural Development
- U.S. Economic Development Administration

ADDITIONAL RESOURCES

- Cumberland County Planning Department
- New Jersey economic development representatives
- New Jersey Department of Agriculture
- Cumberland Development Corporation
- Bayshore Municipalities
- Bayshore Center at Bivalve
- Cumberland Development Corporation
- Southern Shore Tourism Council
- Regional Non-Governmental Organizations
- Regional Universities
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Business Plan Initiatives Implementation

SUBCOMMITTEE

Tourism and Economic Development

PRIORITY

Vital

DESCRIPTION

The Eco-Tourism Business Improvement Task Force will implement the Business Retention and Recruitment Plan, including:

- Business retention for existing businesses with special emphasis on those businesses that enhance the destination value of the region and ones damaged by Superstorm Sandy.
- Working with inventory of closed businesses developed by the business planning process to recruit entrepreneurs to reopen them. Working with municipalities to provide incentives and support to entice them. Working with realtors and bankers to find and finance investors.
- Recruiting tourism, fisheries and aquaculture, maritime industries and agribusiness and food processing where compatible with the natural resource base, existing economies and resiliency goals.
- This project initiates and supports efforts to improve the communications infrastructure of the Cumberland County Delaware Bayshore. It implements a list of recommendations for ordinances—including mitigation requirements—designed to support and enhance home-based business initiatives, and advocates for adoption of those ordinances. It also develops a cottage industry support network.
- Administering a grant and loan program to assist Bayshore businesses in achieving resiliency and preparedness for sea level rise and future storm surges. Eligible projects would include elevating bulkheads and docks; raising electrical systems; heating, ventilation and air conditioning systems; and key equipment. Eligibility for grants and loans would be based on financial needs and other criteria developed by the task force.

There was a time that the Bayshore region was an economic driver for all of South Jersey. The incredibly rich natural resources of the region served as the basis for a vibrant network of prospering villages interconnected by waterways, railroads and trolleys. For 200 years, the successful oyster/fish industry defined the region and was a major influence on its way of life. By the mid 20th century, however, the oyster industry was nearly wiped out by disease, and the Cumberland County Bayshore began a steady economic decline, which preceded the nation's recession. Superstorm Sandy was the latest punch, and every sector of important Bayshore businesses sustained significant damage. One iconic attraction, the Charlesworth Hotel and Restaurant, a remnant from Fortescue's heyday, is still shuttered and may never reopen. Attractions such as East Point Lighthouse, Fortescue State Marina, Bayshore Center at Bivalve and the Greenwich Historic District serve as anchors for the fledgling industry. Recovery and enhancements of these attractions are essential to the Bayshore's economic base and community recovery.

Most of the land along Cumberland County's Delaware Bayshore is at sea level or a few feet above. This area is easily flooded with heavy rainstorms or extreme high tides. When Sandy struck, the storm surge and coastal flooding affected most Bayshore residents and businesses. The rich network of historic villages that supported shipbuilding, farming and the region's signature oyster industry are threatened by rising tides and future storm surges. Many Bayshore businesses are working on little margin—some, none at all—and resiliency is not likely to happen without assistance. This project creates a grant and revolving loan program to support business resiliency.

The Cumberland County Delaware Bayshore is lacking in technological infrastructure that would serve as essential lifelines for businesses. Cellular telephone reception and high-speed internet access are spotty at best. In order to improve the Bayshore's business productivity, support telecommuting and cottage industries, the area needs to be connected technologically and changes to local land use regulations and zoning ordinances must be made to allow home-based businesses. Since there are no robust shopping districts in the Bayshore, home businesses would help to fill the void; specialty shops supported in a cottage industry-based economy could augment the region's economy.

Another objective is to attract new investments that complement the existing businesses and communities along the Bayshore. These investments would create jobs for locals and create opportunities for the next generation of Bayshore residents to stay in the region to raise their families.

Most of these initiatives could be up and running within six months of receiving funding.

PROJECT GOAL

The goal of this project would be to revitalize the local economy by building the critical mass of attractions in the Bayshore, remove the eyesores of defunct businesses peppering the landscape and encourage investment in the small business infrastructure of the region. It would build resiliency into Bayshore businesses, thus securing the future economy of the region.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

Superstorm Sandy has created an economic challenge for an area that has long been in a steady economic decline. This project would ensure that the decline is halted and turned around to create a base for economic growth and stability.

Commitment to sustainable practices, green infrastructure and resiliency will be built into the criteria for any assistance, tax breaks and/or services provided. Much research has been started and will be completed to learn from other communities confronted with similar issues, and plans will incorporate best practices. The Bayshore can be a pilot area for creating a resilient community in the face of sea level rise and persistent coastal erosion.

Internet connections and strong cellular phone service will provide access to breaking news about forthcoming disasters and serve as a communication lifeline in preparation for future storms. Diversifying the area's economy gives it more vitality and increase the likelihood of recovering from future disasters.

ACTION STEPS

- Seek emergency funding to reopen the Charlesworth Hotel and Restaurant
- Secure funding for plan implementation
- Engage stakeholders in all initiatives including Grants and Loan Committee
- Establish criteria for each program (retention, closed properties, recruitment, resiliency, cottage industry)
- Implement business retention initiatives
- Implement campaign to open closed businesses, especially restaurants, marinas and main street properties
- Implement recruitment strategy for compatible businesses (including bed-and-breakfasts)
- Implement cottage industry recommendations
- Create a grant and revolving loan program to support business resiliency

Pilot programs could be initiated on a small scale before a large block of funding becomes available.

SUMMARY COST ESTIMATE

Funded	$0
Gap	$585,000
Total	$585,000

More detailed cost estimates for this project are listed in the Appendix.

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PROJECT ADVOCATE(S)

- Meghan Wren
- Jim Watson

PROJECT SPONSOR(S)

- Bayshore Eco-Tourism/Business Improvement Task Force
- Cumberland County Office of Economic Development
- Bayshore Center at Bivalve

POTENTIAL FUNDING RESOURCES

- New Jersey Department of Community Affairs
- New Jersey Economic Development Authority
- U.S. Department of Agriculture
- Cumberland Empowerment Zone
- Local Banks
- Cumberland County
- New Jersey Department of Transportation
- Federal Emergency Management Agency
- Environmental Protection Agency
- Private sources

ADDITIONAL RESOURCES

- Cumberland County Office of Economic Development
- Cumberland Development Corporation
- Cumberland Empowerment Zone
- Municipal governments
- Municipal economic development committees
- Local and regional realtors
- Local Chambers of Commerce
- Local banks
- Small Business Assistance Center
- South Jersey Economic District
- Cumberland County Communications Task Force Small Business Administration
- Stockton College
- One Stop
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Bayshore Eco-Tourism / Business Improvement Task Force

SUBCOMMITTEE

Tourism and Economic Development

PRIORITY

Vital

DESCRIPTION

This project is to continue the work of the Tourism and Economic Development Subcommittee through the creation of the Bayshore Eco-tourism/ Business Improvement Task Force. It would focus on developing New Jersey's Delaware Bayshore as a nationally recognized eco/heritage/agri-tourism destination and building the complementary economy of the region. This task force would carry out the remainder of the tourism and economic development projects contained in this plan, especially developing and implementing marketing and business retention plans as well as responding to future needs of the Bayshore in these areas.

The small towns that comprise the Cumberland County Bayshore have seen a steady economic decline ever since the oyster/fish industry deteriorated in the 1960s and 1970s. Most of the land along the Cumberland County Delaware Bayshore is at sea level or a few feet above. With heavy rainstorms or extreme high tides, this area is easily flooded. When Superstorm Sandy struck, the storm surge and coastal flooding affected most Bayshore residents and businesses. The Bayshore region's pre-disaster fragile natural resource-based economy could scarcely afford the blow delivered by the storm. Many local businesses, especially restaurants, marinas and gift shops, had already closed during the county's prolonged economic downturn, which preceded the nation's recession. The remaining businesses are struggling to stay open. The area's incredible bio-diversity, vast expanses of preserved wetlands, uplands, woods and fields, as well as pristine natural beaches, endless undisturbed creeks, streams, rivers and access to the Delaware Bay, provide the basis for a fledgling ecotourism economy. The rich network of historic villages that supported shipbuilding, farming and the region's signature oyster industry add heritage and agri-tourism to the region's asset map. The Delaware Bayshore is a unique region with a symbiotic relationship to the three cities that make up the population center of Cumberland County; its assets and interests call for a stand-alone plan to build its identity and economy. To that end, the Bayshore Eco-tourism/Business Improvement Task Force would be responsible for two simultaneous tracks of activities: developing the Delaware Bayshore as a destination and rebuilding the region's struggling economy.

"The Bayshore needs to be preserved and not just for the important environmental resources and the marshland, but for the fishing, crabbing, shipbuilding and maintenance, and the oyster and shellfishery industries and the recreation."

Ben Stowman, chairman of the Land Use Board in Maurice River Township who also served on the Shoreline Protection and Coastal Management Subcommittee

PROJECT GOAL

The goal of this task force would be to keep energies and resources focused on the economic well-being of the Delaware Bayshore region by building its value as an ecotourism destination and retaining existing businesses. A major goal of the project would be to create the infrastructure to support the backfilling of empty businesses throughout the Bayshore—especially restaurants, marinas and shops. The task force would also support and encourage compatible businesses with either technical support and/or start-up funding.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

This project would stop what has been a long, steady economic decline, prevent more businesses from closing and attract investment into the area. It also will map community assets such that it will be easier to focus resiliency efforts on critical areas.

This project would encourage sustainable land use and bring awareness to the rare and intact saltwater marsh system along the Delaware Bayshore. Any future businesses, residents and tourists would fit into the established land use guidelines. The Tourism and Economic Development Subcommittee has looked to other towns that have been in similar situations to find the most efficient and productive ways to accomplish its goal.

ACTION STEPS

- Draft resolutions to have the Delaware Bayshore municipalities pledge to participate and designate members to the task force
- Draft a resolution for the county to pledge participation and designate members
- Recruit at-large members, ensuring representation from each major tourism element and business sector in the Delaware Bayshore
- Simultaneous to each of these steps is securing funding for staff and for plan development

SUMMARY COST ESTIMATE

Funded	$0
Gap	$100,000
Total	$100,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Meghan Wren

PROJECT SPONSOR(S)

- Bayshore Center at Bivalve

POTENTIAL FUNDING RESOURCES

- U.S. Department of Agriculture – Rural Development
- New Jersey Economic Development Authority
- U.S. Economic Development Administration
- New Jersey Tourism
- Private foundations

ADDITIONAL RESOURCES

- Cumberland County Economic Development
- Cumberland County Planning and Tourism
- Cumberland County Cultural and Heritage Commission
- Southern Shores Destination Marketing Organization
- Bayshore Center at Bivalve
- South Jersey Cultural Alliance
- South Jersey Bayshore Coalition
- Cumberland Development Corporation
- Cumberland Empowerment Zone
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Bayshore Marketing and Destination Plan

SUBCOMMITTEE

Tourism and Economic Development

PRIORITY

Vital

DESCRIPTION

This project seeks technical assistance and funding to produce a tourism development and promotions plan.

Cumberland County's Delaware Bayshore is an area rich in biodiversity, preserved habitat, historic sites and villages, public beaches and vast expanses of wetlands. Miles of scenic roads traverse the county and the public has access to numerous natural and cultural riches including special birding locations. However, the region is neither well marked nor marketed.

This plan requires an overall project implementation strategy. It will include an asset map, a brand and logo proposal, an annual campaign plan including a strong web and social media presence, themed packages and a calendar of events. A section recommending wayfinding and other visitor improvements will be based on an inventory and assessment of key properties.

The asset map will include an assessment of needed improvements to facilitate visitor navigation, business signage, parking signs and visitor amenities. These improvements will be prioritized and scoped for inclusion in the plan to be implemented in the next phase. The logo would be dispersed throughout the Bayshore and used consistently by businesses and agencies in advertising and signage. The asset map will be used to finalize themes already identified by the Cumberland County Eco-tourism Plan and Byway Plan. For both plans, unique icons will be developed to be used in wayfinding signs and literature.

Discover Delaware Bay is a web portal that draws attention to Bayshore sites and opportunities. It should be used as a communication tool, and expanded and adjusted to reflect the themes and packages proposed in the planning process.

A Bayshore-wide calendar of events building on the one started by Cumberland County Cultural Heritage Commission will be developed and expanded to include events on key weekends with themes and combined package opportunities.

It has long been recognized that Cumberland County's Delaware Bayshore needs a "gateway" presence along the Route 47 corridor. This plan will assess the feasibility of the range of gateway options, from a kiosk and signage to a visitor center. There will also be a gap analysis to determine the viability of small investments such as adding consistent visitor signage and amenities to municipal buildings.

"I came from the Philadelphia suburbs, summers at the Jersey Shore, and I spent 10 years up at Penn State. Down here, it's like the land that time forgot. Ninety percent of our coastline is undeveloped. The natural resources are really a discovery. They're not exploited. You have to go out and look for them. The municipal parks are hidden gems.

Robert Brewer, Director, Cumberland County Department of Planning, who considers himself a transplant, having lived in the county only 25 to 30 years.

PROJECT GOAL

The tourism development and promotions plan will provide a road map for developing Cumberland County's Delaware Bayshore as a recognizable and nationally known destination.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

This project will show how Cumberland County's Delaware Bayshore can be a vacation and tourist destination which would help to give existing businesses more stable financial footing. With businesses that are more stable, the community would have a greater tax base to be proactive in community events/problems.

This project will capitalize on the region's natural assets, and any activities recommended by the ensuing plan would be scoped to incorporate sustainable practices and resiliency concepts.

Shoring up the tourism economy will make the region less vulnerable to future loss.

ACTION STEPS

- Convene a subcommittee
- Secure funding
- Host a planning workshop
- Develop a Request For Proposal
- Select consultant
- Develop plan
- Implement recommendations

SUMMARY COST ESTIMATE

Funded	$0
Gap	$30,000 - $50,000
Total	$30,000 - $50,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Meghan Wren
- Kathy Weisenberg
- Jim Watson

PROJECT SPONSOR(S)

- Bayshore Center at Bivalve
- Bayshore Eco-Tourism/Business Improvement Task Force
- Cumberland County Office of Planning and Development

POTENTIAL FUNDING RESOURCES

- Cumberland County Office of Economic Development
- U.S. Department of Agriculture
- New Jersey Economic Development Authority
- Philanthropies

ADDITIONAL RESOURCES

- Cumberland County Office of Economic Development
- Southern Shore Region Tourism Council
- Cumberland County Cultural Heritage Commission
- Cumberland Development Corporation
- Cumberland Empowerment Zone
- U.S. Department of Agriculture
- Main Street associations
- Local and regional Chambers of Commerce
- Bayshore Center at Bivalve
- Partnership for the Delaware Estuary
- Fortescue Captains Association
- Municipal recreation, economic development and environmental commissions
- Non-profit organizations
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Tourism Initiatives Implementation

SUBCOMMITTEE

Tourism and Economic Development

PRIORITY

Vital

DESCRIPTION

The Eco-Tourism Business Improvement Task Force will implement the Marketing/Destination Plan, including:

- A targeted tourism marketing campaign with web-based and social media initiatives including video elements; development of products including a Cumberland County Delaware Bayshore tourist map and audience-specific brochures; key ad placement and highlighting of special event weekends and packages—all building the brand for the Bayshore.
- Installation of wayfinding signage employing the themes and logos developed as part of the plan.
- Improvements to key properties and sites to a standard developed in the Destination Plan for signage, parking, trash receptacles and other visitor amenities.
- Enhancing gateways to villages cultivating the brand image and instituting consensus welcoming features.
- Create a Gateway to the Bayshore on the Route 55/47 corridor.
- Establish a regularly scheduled market for the sale of locally grown produce, locally harvested seafood and locally produced goods.
- Create and maintain a "hyperlocal media outlet" online for the various neighborhoods within the municipalities. This website will be added to the Discover Delaware Bay site, will have daily content and will include information geared not only to tourists but also to local residents. It will act as an aggregator of news, happenings and events of interest to Cumberland County's Delaware Bayshore.

The Delaware Bayshore in Cumberland County is an area rich in biodiversity, preserved habitat, historic sites and villages, public beaches and vast expanses of wetlands. Miles of scenic roads traverse the county, and the public has access to numerous natural and cultural riches including special birding locations. However, the region is neither well marked nor marketed. Building on the Bayshore's many tourism assets, the region has great potential to improve its economic base.

PROJECT GOAL

The objective of this project is to promote, improve and raise the visibility of the attractions and villages of the Cumberland County Bayshore. These efforts would go a long way toward developing a unified voice and identity for the region. Given a voice, the Bayshore could wield more clout and gain better access to decision makers.

"I hope that the Bayshore communities can capture the magic that we have here. Share it, harness it, figure out how to incorporate it into the business plan that allows for the people to live here in harmony with visitors and entrepreneurs, and be successful in building vibrant communities that embrace the Bay."

Meghan Wren, Chairman of the New Jersey Delaware Bayshore Long-Term Recovery Committee

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

This project will increase the accessibility of information among stakeholders of the region. The website would serve as an early-warning system for events such as major high tides, storms and other natural phenomena. It would improve resiliency by connecting users with information about disaster recovery, preparedness and resiliency funding. It would also serve as a source for sharing scientific information such as sea level rise, and showcasing case studies and community insights. Creating a marketplace for the sale of locally grown and produced food could enrich development of sustainable farming and fisheries management practices. This project requires a funding source in order to be completed.

ACTION STEPS

- Secure funding for each tourism marketing initiative
- Implement branding, new logo, themes and marketing campaign, including products for targeted audiences, social media and digital resources, including a tourist map
- Secure funding for signage and implement wayfinding plan
- Develop checklist for broadcasting themes, gateway suggestions, main street and waterfront treatments desirable to be consistent across the Bayshore region
- Work with municipalities and funding sources to implement the checklists, including creation of a garden club or beautification committee for flowers at each village gateway/town center
- Work with the host municipality and county government to establish a farmers/seafood/craft market
- Market the event aggressively throughout the South Jersey region and beyond
- Create benchmarks with successful hyperlocal media outlets
- Create web-based portal and recruit regular contributors for weekly and monthly entries

These steps can be completed within one year of the Marketing/Destination Plan, with some projects being implemented in phases. Implementation would be based on funding, timing and priorities.

SUMMARY COST ESTIMATE

Funded	$0
Gap	TBD
Total	TBD

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Meghan Wren
- Jim Watson

PROJECT SPONSOR(S)

- Bayshore Eco-Tourism/Business Improvement Task Force
- Bayshore Council
- Bayshore Center at Bivalve

POTENTIAL FUNDING RESOURCES

- Cumberland County Tourism
- Cumberland County Cultural Heritage Commission
- Southern Shore Region Tourism Council
- New Jersey Division of Travel and Tourism
- National Fish and Wildlife Foundation
- New Jersey Division of Fish and Wildlife
- U.S. Department of Agriculture
- New Jersey Department of Environmental Protection Office of Environmental Services
- New Jersey Economic Development Authority
- Main Street New Jersey Office of Department of Community Affairs
- Foundation Grants

ADDITIONAL RESOURCES

- Cumberland County Tourism Advisory Council
- Bayshore Center at Bivalve
- Cumberland County Cultural and Heritage Commission
- Non-Governmental Organizations
- New Jersey Division of Fish and Wildlife
- Southern Shore Region Tourism Council
- National Fish and Wildlife Foundation
- Local businesses
- New Jersey Division of Travel and Tourism
- Local Chambers of Commerce
- U.S. Department of Agriculture
- Local environmental commissions
- Local municipalities
- Cumberland County Economic Development
- Cumberland County College
- South Jersey Economic Development District
- Cumberland Empowerment Zone
- Association of New Jersey Environmental Commissions
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Maurice River Rails-to-Trails

SUBCOMMITTEE

Tourism and Economic Development

PRIORITY

Important

DESCRIPTION

This project seeks technical assistance and financial resources to construct a non-motorized, multipurpose trail for walking, biking and equestrian activities. It would run along the west and east banks of the Maurice River, starting at the Bayshore Center at Bivalve in Port Norris, Commercial Township, and ending at the East Point Lighthouse in Maurice River Township. This 17.4-mile trail will utilize a combination of inactive and/or abandoned railroad rights-of-way and local roads, traversing through the communities of Port Norris, Mauricetown, Dorchester and Leesburg between the trailheads. This project has already been started by Cumberland County, with funding received in 2013 from New Jersey's Green Acres Program for trail development and right-of-way acquisition in Maurice River Township.

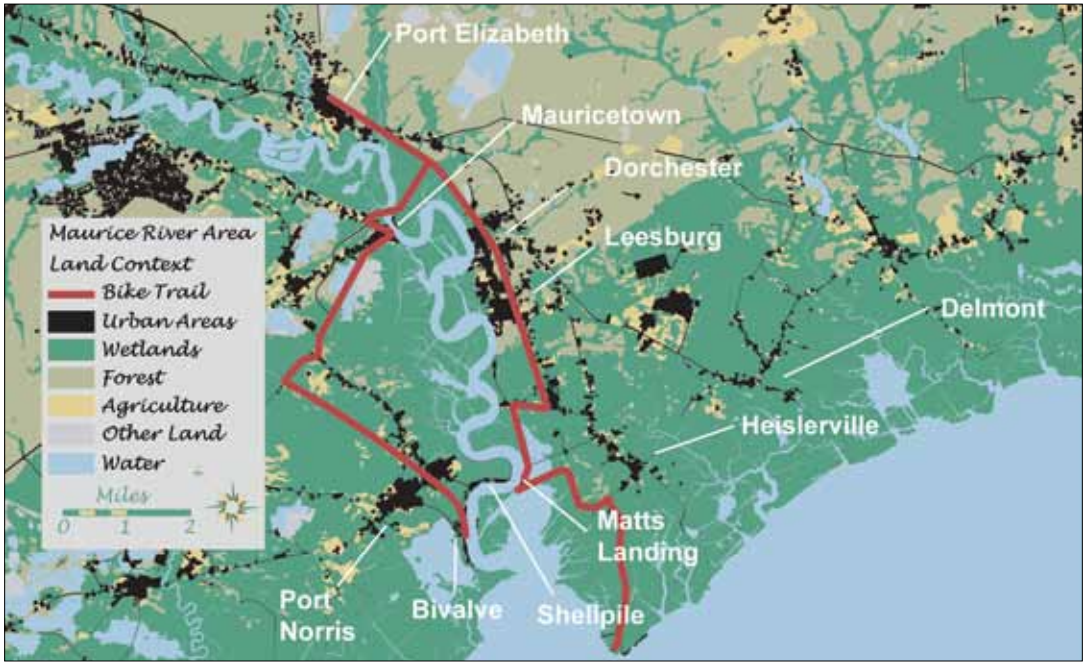
This project is one component of a rails-to-trails plan in Cumberland County that will expand the options of outdoor activities along Delaware Bayshore. It would provide a non-motorized link between the communities of Port Norris, Mauricetown, Dorchester and Leesburg while, at the same time, promoting ecotourism. Properly promoted, this trail can raise awareness to the distinct character of the Cumberland County Delaware Bayshore in order to entice more visitors to the area.

PROJECT GOAL

The goal of this project is to create more opportunities for hiking and other outdoor activities along Cumberland County's Delaware Bayshore and to make them more accessible and convenient.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

This project would be another point of interest to be promoted in a tourism marketing plan. The overall rails-to-trails program in Cumberland County seeks to change land that was designated for commercial transportation use—land now idle or abandoned—and make it functional for recreational purposes.



Data Source: NJDEP Land Use/ Land Cover 2007

ACTION STEPS

- Secure technical and financial assistance for continued right-of-way acquisition and construction
- Acquire trail right-of-way from landowners
- Construct trail segments

This project can be implemented in phases depending on the availability of funding for right-of-way acquisition and trail construction.

SUMMARY COST ESTIMATE

Funded	$0
Gap	$1,760,196
Total	$1,760,196

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Meghan Wren
- Bob Brewer

PROJECT SPONSOR(S)

- Bayshore Center at Bivalve
- Commercial Township
- Maurice River Township
- Cumberland County

POTENTIAL FUNDING RESOURCES

- Federal Highway Administration
- New Jersey Department of Environmental Protection, Green Acres Program
- New Jersey Department of Transportation, Local Aid Program
- New Jersey Pinelands Commission
- Cross-County Connection Transportation Management Agency
- Cumberland County Board of Chosen Freeholders

ADDITIONAL RESOURCES

- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

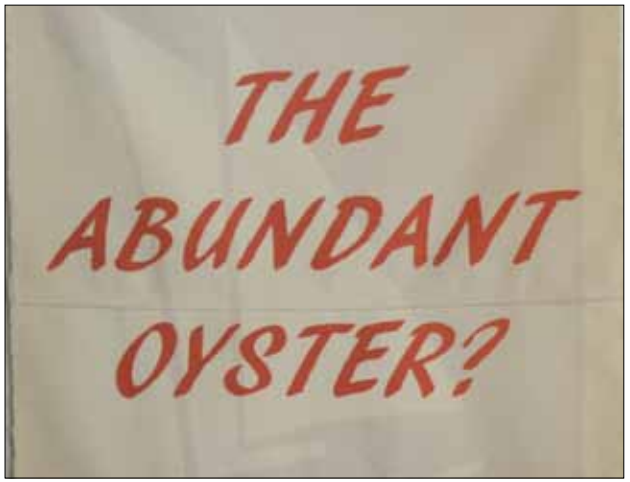
Historic Bayshore Oyster Industry Revitalization

SUBCOMMITTEE

Tourism and Economic Development

PRIORITY

Vital



DESCRIPTION

The Bayshore Eco-Tourism/Business Improvement Task Force proposes partnering with the Delaware Bay Oyster Restoration Task Force, a collaborative group of organizations, institutions and agencies working at the local, state, regional and Federal levels, to seek funding. This project would rejuvenate the task force's successful oyster shell planting program, which was suspended in 2010 due to a lack of funding.

Over the past half century, oyster populations in the Delaware Bay were negatively impacted by climate change, habitat loss, fishing and other natural factors. Oyster populations were also decimated by the oyster disease MSX in the 1950s, followed by another disease, Dermo, in the 1990s. Today, oyster populations are well below their historically high numbers. Shell planting can offset this decline, stabilize, and even grow the numbers of oysters in the Delaware Bay. Oyster larvae require a clean, hard surface upon which they can attach, or "recruit," and then grow to market size. Designed to increase harvest yield, oyster shell planting involves increasing the natural seed supply through the planting of shell (cultch) to provide improved habitat for recruitment of juvenile oysters (spat).

The task force's shell planting program has proven successful in the Delaware Bay. From 2005 until the program was suspended, the Delaware Bay Oyster Restoration Task Force strategically placed, or "planted," more than 2.1 million bushels of clam and oyster shells onto historic reefs in the Delaware Bay. A $5 million grant provided by Congress and administered by the U.S. Army Corps of Engineers funded the program. It had two objectives: to enhance survival by providing clean shell to which juvenile oysters can attach and grow; and to maintain the ecology of the bay by sustaining oyster reefs that would otherwise degrade over time due to natural processes.

Since the suspension of the shell planting program, the Delaware Bay oyster industry itself spends between $100,000 and $150,000 annually to plant oyster shells in the Delaware Bay. Financed by its own tax ($2 per bushel of oysters harvested), this program has allowed the industry to maintain its current annual yield of approximately 75,000 bushels. The economic value is estimated to be $18 million and represents about 1 percent of historic production in the Delaware Bay.

PROJECT GOAL

This project will expand the shell planting program by $500,000 to $1 million annually for a limited period. That would allow the industry yield to grow while simultaneously allowing the industry to expand its contribution to the program to the point that it becomes self-sustaining—no longer needing an outside subsidy.

The timeframe to initiate this project is six months. The project would continue to support the Delaware Bay Oyster Restoration Task Force as long as funding is available.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

This project will stop what has been a long, steady economic decline in Cumberland County's Delaware Bayshore communities, prevent more businesses from closing and attract investment into the area. It will lead to the long-term sustainability of the oyster industry in the Delaware Bay.

ACTION STEPS

- Secure funding
- Reconvene the Delaware Bay Oyster Restoration Task Force
- Review project funding annually

SUMMARY COST ESTIMATE

Funded	$0
Gap	$500,000 - $1,000,000
Total	$500,000 - $1,000,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Haskin Shellfish Research Laboratory
- Partnership for the Delaware Estuary

PROJECT SPONSOR(S)

- Bayshore Eco-tourism/Business Improvement Task Force

POTENTIAL FUNDING RESOURCES

- Cumberland County Utilities Authority
- Cumberland Development Corporation
- New Jersey Environmental Infrastructure Trust
- U.S. Department of Agriculture – Rural Development
- U.S. Economic Development Administration

ADDITIONAL RESOURCES

- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Infrastructure Project Summaries

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Infrastructure

Transportation and Social Services Initiative

SUBCOMMITTEE

Infrastructure

PRIORITY

Important

DESCRIPTION

Just before Superstorm Sandy hit, the Family Success Center of Commercial Township opened its doors in response to the needs of the vulnerable populations in the Cumberland County Delaware Bayshore area. The center provides support and resources to vulnerable families. After one year of operations and full participation in the Cumberland County Long-Term Recovery Group's efforts to meet the unmet needs of families, the center is filling a major gap. It has identified a continued need, especially for Sandy recovery. Key among these needs: transportation, health and mental health, child care, literacy and addiction services.

The Cumberland County Bayshore is made up of rural, isolated communities, and there is lack of social service facilities. As a result, many elderly, low-income and struggling residents lack access to essential services, literacy support and other types of outreach and social service programs designed to serve a vulnerable population. Transportation is sorely lacking outside the main population centers of Bridgeton, Vineland and Millville. Cumberland Area Transit has buses and a system in place that, if expanded to include dedicated routes for the Bayshore, could go a long way to addressing these transportation needs.

The Family Success Center is providing 20 hours per week of free nursing to the community. This project doubles the reach of this successful program and builds on the center's growing capacity to provide additional key services.

PROJECT GOAL

This project will meet the most urgent needs of the Bayshore's vulnerable populations, including transportation, health and mental health, childcare, employment or job skills training, literacy support and addiction services.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

Addressing the needs of vulnerable individuals and families will facilitate future recovery efforts. The result will be residents with fewer inherent unmet needs who are better able to participate in their own recovery. Public transportation would sustainably increase resiliency among the Bayshore's rural population in the event of a natural disaster or similar circumstance.

ACTION STEPS

- Secure funding for one or two additional Cumberland Area Transit buses for Bayshore routes
- Secure funding to add 20 more hours of nursing to the Family Success Center's free program
- Secure funding to establish a subsidized child care facility at the center to facilitate employment for residents
- Secure funding for a mental health practitioner at the center
- Secure funding for literacy and family programming at the center
- Secure funding for addiction services at the center

SUMMARY COST ESTIMATE

Funded	$0
Gap	$555,000
Total	$555,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Leahe Togno
- Phillip Tomlinson

PROJECT SPONSOR(S)

- Family Success Center of Commercial Township
- Cumberland County Long-Term Recovery Group

POTENTIAL FUNDING RESOURCES

- U.S. Housing and Urban Development
- U.S. Health and Human Services
- New Jersey Department of Community Affairs
- New Jersey Department of Transportation
- New Jersey Division of Child Services

ADDITIONAL RESOURCES

- Cumberland County Social Services and Office on Aging
- Inspira Health System
- South Jersey Transportation Authority
- Cumberland County College
- Cumberland County Vocational School
- One Stop Center
- Cumberland Empowerment Zone
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Emergency Generators

SUBCOMMITTEE

Infrastructure

PRIORITY

Important

DESCRIPTION

In order to maintain power to critical infrastructure in the Cumberland County Bayshore region, schools and government buildings which serve as emergency shelters during disasters will be equipped with emergency generators. One building will be selected in each Bayshore municipality and will be used as a local shelter.

The Cumberland County Bayshore region continues to be vulnerable to coastal storms. While efforts are under way to minimize the impacts of storms, evacuation of flood prone areas continues to be a challenge. Having community-based emergency shelters that come equipped with emergency power would assist in the evacuation of the Bayshore's vulnerable populations.

PROJECT GOAL

This project will provide a safe and sustaining emergency shelter to accommodate people evacuated from areas impacted by a storm. The shelters would be located outside of flood areas but still within the evacuees' townships.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

Installing generators in emergency shelters would increase the ability of Bayshore communities to effectively manage future recovery activities. The project aims to include sustainable practices through efficient use of energy, land and natural resources. This will be an important step in determining which generators to purchase and where to position them. The project also incorporates best practices for reducing future losses. Moving people out of vulnerable areas during a disaster protects lives.

ACTION STEPS

- Secure funding
- Hire an electrical engineer to develop plans
- Bid for project
- Hire contractor
- Install generators
- Train shelter staff

SUMMARY COST ESTIMATE

Funded	$0
Gap	$40,000 to $200,000/generator
Total	$40,000 to $200,000/generator

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Local Office of Emergency Management
- Cumberland County Office of Emergency Management

PROJECT SPONSOR(S)

- Cumberland County Office of Emergency Management

POTENTIAL FUNDING RESOURCES

- New Jersey Office of Emergency Management

ADDITIONAL RESOURCES

- Local Offices of Emergency Management
- Cumberland County Office of Emergency Management
- New Jersey Office of Emergency Management
- American Red Cross
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Public Water Supply Feasibility Study

SUBCOMMITTEE

Infrastructure

PRIORITY

Vital

DESCRIPTION

This project seeks both technical and financial assistance to conduct a feasibility study and construct a safe, secure and sustainable potable water supply (public or private) for Cumberland County's Delaware Bayshore communities.

Potable water supply in the Bayshore communities is a major concern. With the exception of Fortescue, in Downe Township, all other areas obtain their water from a private or shared private water supply. Water supply concerns vary between the communities and warrant a feasibility study to outline the issues in each area as they relate to environmental and community sustainability, economic development, social justice and public health. In general, there are concerns about salt water intrusion, setback distances from septic systems to wells, unapproved shared water supplies and shallow wells vulnerable to contamination. Areas with unapproved shared wells and shallow wells would be a priority. A study would determine the communities which would benefit by providing a community versus private water supply to assure each resident and business has access to a safe and secure water supply system.

This project will require additional information specific to each community as part of a feasibility study. The study will examine current conditions (lot size, elevations, types, depth and locations of wells) and future sustainability (opportunities for redevelopment or infill within the existing footprints that are desirable from a public health and safety perspective, as well as a ratable perspective). The study would also look at economic cost and benefit, social impact (redevelopment allowances which may leave fewer people at risk to future storm events) and health and environmental issues (water quality). Communities deciding that a public water supply is their best option will be tasked with engineering, permitting and construction of the system.

PROJECT GOAL

This project will assure that each resident, business and visitor has access to a safe and secure water supply, and it will support the sustainability of homes and businesses in the area.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

Having access to safe and sufficient supplies of water would make the region more attractive for economic development. An efficient community water supply can be accomplished with small number of large wells with water lines to each realty improvement, as opposed to hundreds of individual wells.

ACTION STEPS

- Convene a subcommittee
- Secure funding
- Host a planning workshop
- Develop a Request For Proposal
- Select a consultant
- Develop a plan
- Select the system
- Conduct engineering and permitting
- Construct the system

SUMMARY COST ESTIMATE

Funded	$0
Gap	$30,000
Total	$30,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Phillip Tomlinson

PROJECT SPONSOR(S)

- Cumberland County Health Department

POTENTIAL FUNDING RESOURCES

- Cumberland County Health Department: testing for salt water intrusion in wells
- County and municipal agencies: number of vulnerable wells, shared wells
- Federal Emergency Management Agency
- New Jersey Department of Environmental Protection
- New Jersey Environmental Infrastructure Trust
- New Jersey Drinking Water State Revolving Fund
- New Jersey Department of Agriculture
- Cumberland County Board of Chosen Freeholders
- Township Committees of the interested Municipalities

ADDITIONAL RESOURCES

- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Road Elevations and Improvements

SUBCOMMITTEE

Infrastructure

PRIORITY

Vital

DESCRIPTION

This project seeks financial resources to design, plan and implement the elevation of select roads in the Cumberland County Delaware Bayshore area that often experience flooding during high tides and storm events. It can be implemented in stages as funding becomes available.

The State of New Jersey designated Route 47, the central artery in southern Cumberland County, as an official "Coastal Evacuation Route." Like most, if not all, access roads to the Bayshore communities, stretches of Route 47 have flooded during storms because the roads sit at, or slightly above, sea level. As such, they are subject to frequent storm surges and tidal flooding. This creates safety concerns for the residents, potentially cutting off evacuation routes during storm events. This was evident during Superstorm Sandy as roadways flooded, isolating some Bayshore communities.

The *New Jersey Delaware Bayshore Long-Term Recovery Committee* identified the following roads as priorities for elevation in specific "low-lying" stretches:

Low-Lying Stretches

- Roadways along the Maurice River in Port Norris, Shellpile and Bivalve, Commercial Township
- Gandy's Beach Road, Downe Township
- Fortescue Road, Downe Township
- County Route 553 in Dividing Creek, Downe Township
- Halleyville/Mauricetown Road
- Bacon's Neck Road and Market Lane, Greenwich Township
- Main Street at Crowder Run in Dorchester, Maurice River Township
- Carlisle Place Road at Crowder Run branch crossing in Dorchester, Maurice River Township
- Mauricetown Causeway, Maurice River Township
- Glade Road, between Heislerville and Delmont, Maurice River Township
- East Point Road, Maurice River Township
- River Road in Leesburg, Maurice River Township
- Newell Road drainage improvements, Leesburg, Maurice River Township
- New Jersey Route 47 in Delmont, Maurice River Township
- New Jersey Route 47 in Bricksboro, Maurice River Township

PROJECT GOAL

This project will improve coastal evacuation and public safety by elevating certain local, county and state roads to prevent flooding during high tides and storm events.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

- Provides critical and safe access to and from Bayshore communities during high tides and storm events
- Provides reliable coastal evacuation routes during storm events
- Maintains the viability of Bayshore communities as places to live and places for commerce
- Benefits local residents, local businesses and tourists
- Signals to residents and potential investors that Bayshore communities are viable places for continued investment
- May be interdependent with proposed levee and dike improvements

ACTION STEPS

- Design the road elevation projects (where not completed already)
- Secure sources of funding
- Secure approvals from the following agencies: New Jersey Department of Transportation; New Jersey Department of Environmental Protection; U.S. Army Corps of Engineers (if necessary); Cumberland County Department of Public Works; Cumberland County Office of Emergency Management

SUMMARY COST ESTIMATE

Funded	$0
Gap	$5,920,000+
Total	$5,920,000+

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Ben Stowman

PROJECT SPONSOR(S)

- Cumberland County
- Commercial Township
- Downe Township
- Greenwich Township
- Maurice River Township
- New Jersey Department of Transportation

POTENTIAL FUNDING RESOURCES

- New Jersey Department of Environmental Protection
- New Jersey Department of Transportation
- South Jersey Transportation Planning Organization
- Federal Emergency Management Agency
- U.S. Army Corps of Engineers
- Cumberland County Board of Chosen Freeholders
- Commercial Township Committee
- Downe Township Committee
- Greenwich Township Committee
- Maurice River Township Committee

ADDITIONAL RESOURCES

- New Jersey Department of Environmental Protection
- New Jersey Department of Transportation
- South Jersey Transportation Planning Organization
- Federal Emergency Management Agency
- U.S. Army Corps of Engineers
- Cumberland County Department of Planning and Development
- Cumberland County Office of Emergency Management
- Commercial Township Committee
- Commercial Township Environmental Committee
- Commercial Township Land Use Board
- Downe Township Committee
- Downe Township Combined Planning Board
- Downe Township Environmental Commission
- Greenwich Township Committee
- Greenwich Township Environmental Commission
- Greenwich Township Combined Planning/Zoning Board
- Maurice River Township Committee
- Maurice River Township Land Use Board
- Maurice River Township Environmental Committee
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

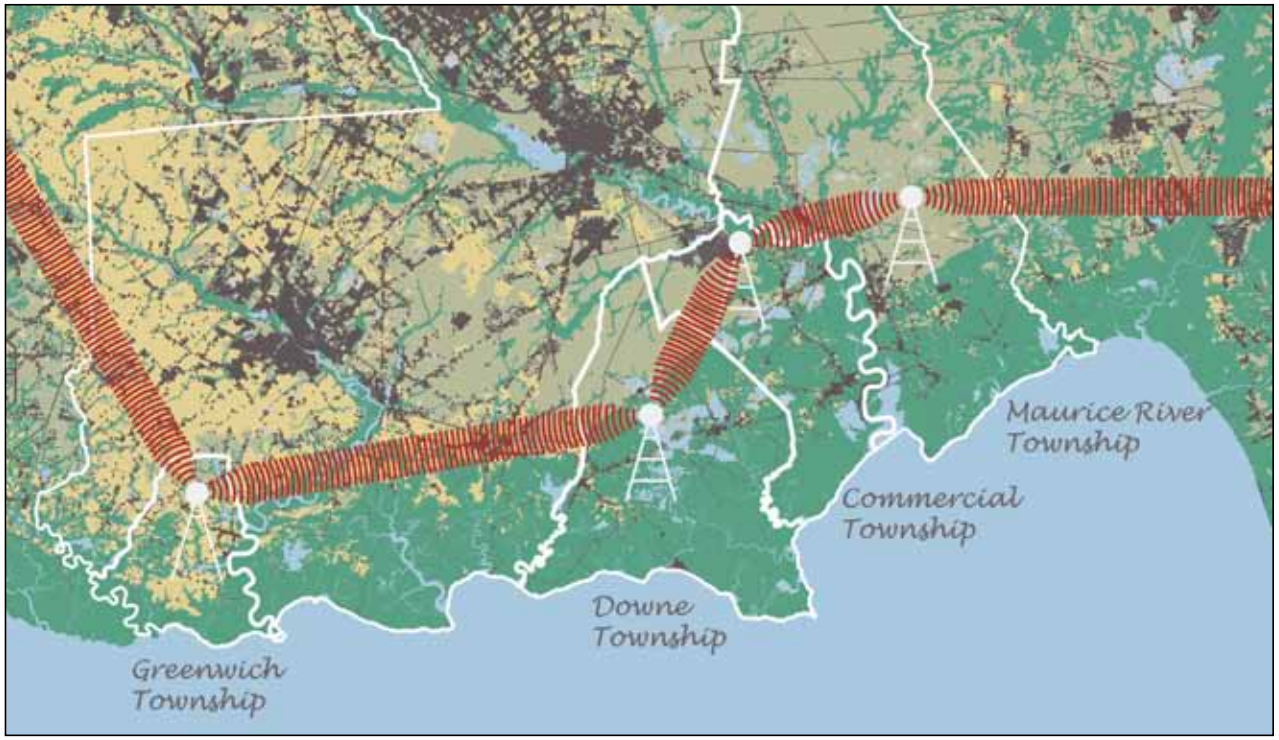
Telecommunications Infrastructure Needs Assessment

SUBCOMMITTEE

Infrastructure

PRIORITY

Important



Data Source: NJDEP Land Use/ Land Cover 2007, NJGIN Municipal Boundaries

DESCRIPTION

This project seeks funding and technical assistance to undertake a needs assessment for the following:

- A build-out of a complete cellular service network to provide reliable coverage throughout the Cumberland County Delaware Bayshore, regardless of population densities, and out into the Delaware Bay. Once in place, the Cumberland County Office of Emergency Management can implement procedural and/or system upgrades to take full advantage of advances in telecommunications technology.
- A build-out of fiber optic and cable television networks to provide high-speed Internet access (i.e., broadband) to serve all residents and businesses in the Bayshore, regardless of population densities. High-speed Internet access is a competitive necessity for schools, businesses and communities.

This needs assessment will begin the process of providing access to increasingly important technologies to Bayshore residents and can be accomplished within a year. It will identify areas that currently have adequate cellular and broadband services and determine the gaps (areas lacking services) that must be addressed. Technological upgrades are necessary to spur local economies and keep them viable over the long term.

PROJECT GOAL

This project will facilitate the build-out of a 21st century telecommunications infrastructure so that recent advances in telecommunications technology can be utilized:

- to save lives and property in preparation for, during and after extreme weather events
- to facilitate economic recovery and sustainability
- to restore community viability

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

Employing the most technologically advanced systems available will greatly improve emergency preparedness and recovery. Text alerts to cell phones have proven to save lives because warnings can be deployed faster, irrespective of location. In one case in Tornado Alley, a rectangular corridor of the United States stretching from Texas to South Dakota, the text alert system was the only system that worked after the traditional siren system was damaged by weather. The dissemination of information before, during and after any kind of emergency, including severe weather events such as Superstorm Sandy, should have built-in redundancies through the employment of all available modern communications technologies.

ACTION STEPS

- Identify funding sources for the conduct of the needs assessment
- Coordinate with Cumberland County's current mapping effort to identify existing telecommunications deficiencies throughout the region
- Develop a scope of work for the needs assessment
- Send out a Request For Proposal to interested consultants
- Review responses to Request For Proposal
- Interview consultants
- Select and hire a consultant
- Conduct a needs assessment

SUMMARY COST ESTIMATE

Funded	$0
Gap	$50,000 - $100,000
Total	$50,000 - $100,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Kathy Ireland, Deputy Mayor, Maurice River Township

PROJECT SPONSOR(S)

- Cumberland County Telecommunications Infrastructure Committee
- Cumberland County Department of Planning and Economic Development
- Cumberland County Office of Emergency Management

POTENTIAL FUNDING RESOURCES

- Federal Communications Commission for Connect America and Mobility Fund (subsidies)
- U.S. Department of Agriculture Rural Utilities Service
- USDA's Rural Utilities Services Broadband Initiatives Program and national Telecommunications and Information Administration's Broadband Technology Opportunities Program, and other programs (grants and loans)
-

ADDITIONAL RESOURCES

- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Wastewater Management Feasibility Study

SUBCOMMITTEE

Infrastructure

PRIORITY

Vital

Regional Wastewater Management Facility

DESCRIPTION

The purpose of this project is to seek funding for a feasibility study of alternative wastewater management technologies that can potentially be employed in the various Cumberland County Bayshore communities to replace marginal or failing septic systems and holding tanks. The timeframe to complete this study is one year.

No Delaware Bayshore community in Cumberland County is currently served by a centralized or community wastewater management system. Instead, these communities rely on septic systems or holding tanks. Many of these systems are old or failing, putting groundwater and surface water bodies, including the Delaware Bay, in jeopardy of being polluted. Some Bayshore households have been cited several times by the Cumberland County Health Department for inadequate wastewater systems. Superstorm Sandy exacerbated this problem, particularly in communities relying on holding tanks for household waste when several holding tanks were found to be leaking. This lack of sewers also stifles economic development along the entire Bayshore. Potential investors are reluctant to make financial commitments in areas served by unreliable wastewater management systems.

A feasibility study would determine the appropriate wastewater management technology to a specific area. Upgraded technology would allow for improved water quality and sustainable economic development while meeting community, county and state regulatory requirements.

PROJECT GOAL

This project would provide the wastewater infrastructure necessary to revitalize the economy of the Delaware Bayshore area in Cumberland County. It would ensure safer, cleaner groundwater and surface water in nearby streams and the Delaware Bay.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

The study will lead to the development of a wastewater management infrastructure system that will aid in the economic recovery of the Bayshore's municipalities. When constructed, the system will improve groundwater and surface water quality in surrounding streams and the Delaware Bay and, because it utilizes best management practices, it will be more resilient to damage from future storms.

Community Treatment Facility

Wetlands Drainage Field

Wetlands Drainage Field

ACTION STEPS

- Convene a subcommittee
- Secure funding
- Host a planning workshop
- Develop a Request For Proposal
- Select a consultant
- Develop a plan
- Select the system
- Amend municipal and county wastewater management plans to incorporate study recommendations
- Attain approval from the New Jersey Department of Environmental Protection for amended wastewater management plans
- Design the wastewater management infrastructure system
- Identify funding sources and obtain funding
- Construct the wastewater management infrastructure system

SUMMARY COST ESTIMATE

Funded	$0
Gap	$100,000 - $200,000
Total	$100,000 - $200,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Cumberland County

PROJECT SPONSOR(S)

- Cumberland County Utility Authority

POTENTIAL FUNDING RESOURCES

- Cumberland County Utilities Authority
- Cumberland Development Corporation
- New Jersey Environmental Infrastructure Trust
- U.S. Department of Agriculture – Rural Development
- U.S. Economic Development Administration

ADDITIONAL RESOURCES

- Grants.gov
- Catalog of Federal Domestic Assistance: http://cfda.gov
- The FEMA New Jersey Community Resource Guide

Shoreline Protection and Coastal Management Project Summaries

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Beach and/or Dune Restoration

SUBCOMMITTEE

Shoreline Protection/Coastal Management

PRIORITY

Vital

DESCRIPTION

The impact from Superstorm Sandy was devastating to Cumberland County's Delaware Bayshore in Maurice River Township.

- East Point Beach at the Lighthouse eroded so much that the bay waters were touching the walls of the Lighthouse. The once thriving beach which hosts hundreds of horseshoe crabs was reduced to mud. The public boat ramp was so badly undermined by the power of the waves it is unusable. There was erosion on the entire one mile length of East Point Beach.
- At Thompson's Beach wind and wave force pushed the beach sand back into the meadow exposing mud flats and concrete rubble. Thompson's Beach, a beach of international importance for the migrating shorebirds, is in need of beach replenishment necessary for the horseshoe crabs to lay their eggs. Migratory shorebirds depend on those eggs for food.
- Moore's Beach was lost long ago to the rubble. It anchors the sod but not the beach; the beach moved out of the intertidal area and just sits on top of the marsh. The sod would usually erode but couldn't because of the rubble. There is no protection however, just a damaged beach. Sandy just completed the process and exposed a lot more rubble.
- "Cox Creek" marsh and beach area, just east of Moore's Beach was widened by Superstorm Sandy, so wide that the bay has eroded a major section of meadow. There is little beach left. Cox Creek dumps into West Creek, increasing the amount tidal flow impacting the entire area from the bay to Route 47 in Maurice River and Dennis Townships.

This project involves the following:

Special-grade beach sand will be strategically placed on Thompson's Beach and the beach at East Point. Sand dunes and native plantines on dunes will be strategically placed near the historic East Point Lighthouse. Moore's Beach needs rubble removed and sand added to the eastern portions of the beach. The needs of Moore's Beach are currently being addressed, but additional work and funds are needed to complete the project. Wave breaks must be installed along the shoreline of the "Cox Creek" marsh and beach area to slow the advance of the waves. A living shoreline should be placed between the wave break and the shore. Beach sand needs to be placed along the shoreline. The marsh looks to be a prime candidate for application of a beneficial dredge material; a new method called "thin layer application" could be used to restore the elevation before the marsh grasses can be re-established.

In Downe Township, the projects will include the following:

MY HOPES FOR THE CUMBERLAND COUNTY DELAWARE BAYSHORE:

"We don't want to change the character but we need to protect it because it is at risk. It's under threat from rising sea level and just from general neglect. We need to protect our villages, our towns, and protect the environment to extend the ecology and preserve it for future generations pretty much just as it is. We want to see reasonable levels of development but we don't want to see major character change because it's a treasure that has real value.... It's a very unique area."

Greenwich Township Deputy Mayor Eric Port, Shoreline Protection and Coastal Management Subcommittee

Money Island, Gandy's Beach and Fortescue are communities that have existed for centuries. All suffer from decades of neglected infrastructure and lack of investment. That weakness was revealed in the extensive structural damage Superstorm Sandy caused to homes and businesses. This damage, coupled with the pre-existing lack of infrastructure, threatens the future of these places to rebuild and move forward as viable communities. These waterfront properties in Cumberland County Bayshore communities are directly exposed to the open water of the Delaware Bay with no beach or dunes to buffer the tides and storms. Without that protection, any development, infrastructure or investment in those areas is at risk to erosion and flooding.

Restoring beaches and dunes along the developed Bayshore communities in Downe Township (Fortescue, Gandy's Beach and Money Island) would be the first step in reconstructing vibrant, resilient coastal communities in Cumberland County.

For the remainder of the Delaware Bayshore beach areas not mentioned above, all have been preserved in their natural state. However, they have not been actively protected and have deteriorated over time. Superstorm Sandy caused more damage all along this uninhabited shoreline. Many acres of marshland are being lost yearly to erosion that is mostly due to beachheads that have been severely over-washed. "Cox Creek Meadow" is a prime example of this loss and deterioration. As a long-term protection for the habitat and for inland villages, these areas must be incorporated into a plan that re-establishes the beachheads and the marshes behind them.

This entire project will reinforce beaches and continue to provide the Delaware Bayshore Estuary with natural habitat for horseshoe crabs and resident and migratory shorebird species, including the bald eagle and endangered red knot.

The timeframe for the project is one year or less due to the dire need for restoration to protect the migrating shorebird population, preserve historical navigational resources and homes. For the remainder of Cumberland County's Delaware Bayshore, which would also include the "Cox Creek" marsh and beach area, the timeframe should be two to three years. Ideally, the 40-mile stretch of Delaware Bay shoreline in Cumberland County should be put on a more regular schedule of beach and shoreline protection.

Beach and/or Dune Restoration (continued)

PROJECT GOAL

This project seeks technical assistance and financial resources to plan, design and implement a beach and dune restoration project for the entire Delaware Bayshore area in Cumberland County.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

This project will protect homes along East Point (Maurice River Township), and Fortescue, Gandy's Beach and Money Island that are directly exposed to the open water of the Delaware Bay, with no beach or dunes to buffer the tides and storms. A sustainable community there will stabilize the tax base and provide water access for ecotourism and water-dependent businesses in those communities.

The safety provided by the East Point Lighthouse, which is used by commercial vessels as well as recreational fisherman, provides for a resilient and sustainable fishing industry. This project is vitally important to the commercial oyster, crab and fishing businesses, and marinas in Maurice River and Commercial townships. These entities generate millions of dollars in sustainable revenue for the State of New Jersey.

Restoration of the internationally recognized natural environment of the Delaware Bayshore Estuary will ensure the natural resilience of an area that supports horseshoe crabs, which lay eggs every spring. These eggs provide food for resident and migratory birds, including the red knot. The medical field also relies on these horseshoe crabs because of unique properties in their copper-based blood.

Lastly, a resilience component in the project will:

- provide public access to the Delaware Bay for residents and visitors
- provide educational opportunities
- provide income from ecotourism throughout Cumberland County
- provide a resurgence of pride in the region's cultural heritage

Restoring the beaches and marshland will keep the beach heads stable. A strong beach and dune system can naturally provide substantial protection from tidal flooding and storm surge and protect homes along the shoreline as well as inland. The source material would be from dredging in the Delaware Bay and other local creek channels and local sand mines.

Cumberland County's southern edge consists of 40 miles of mostly natural coastline along the Delaware Bay with a scattered handful of lightly developed small communities. These communities support Cumberland's only economic, residential and recreational opportunities on the Delaware Bay. These small areas cover fewer than four miles of coastline but generate an estimated $200 million yearly—a significant amount for an economically depressed region.

ACTION STEPS
- Acquire property easements
- Acquire permission
- Locate source of sandy dredge material
- Locate source of mined sand
- Secure funding
- Gain permit approvals
- Establish wave break
- Establish dunes
- Establish living shorelines
- Conduct feasibility study for uninhabited coastline

SUMMARY COST ESTIMATE

Funded	$0.7 Million
Gap	$8,300,000 - $27,400,000
Total	$8,300,000 - $27,400,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)
- Kathy Ireland
- Larry Niles

PROJECT SPONSOR(S)
- Maurice River Township
- Downe Township
- Cumberland County Planning Department
- New Jersey Department of Environmental Protection's Bureau of Coastal Engineering
- American Littoral Society
- The Nature Conservancy
- L.J. Niles Associates LLC

POTENTIAL FUNDING RESOURCES
- U.S. Fish and Wildlife Service
- New Jersey Department of Environmental Protection
- New Jersey Economic Development Authority
- Natural Resources Conservation Service
- U.S. Army Corps of Engineers
- U.S. Economic Development Administration
- Federal Emergency Management Agency
- American Littoral Society
- The Nature Conservancy
- National Fish & Wildlife Foundation
- Department of the Interior

ADDITIONAL RESOURCES
- Maurice River Township Land Use Board
- Maurice River Township Environmental Committee
- New Jersey Division of Fish and Wildlife
- New Jersey Department of Environmental Protection's Bureau of Coastal Engineering
- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- Environmental Protection Agency
- Federal Emergency Management Agency
- Partnership for the Delaware Estuary
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Berm/Levees (Upland/Marshland) Restoration

SUBCOMMITTEE

Shoreline Protection/Coastal Management

PRIORITY

Vital

DESCRIPTION

This project seeks funding for strengthening and elevating berms and levees of Cumberland County to Federal Emergency Management Agency protection standards, and constructing new berms in areas where marshland and upland meet. The purpose of this project is to provide more reliable flood protection to the residents and businesses of Cumberland County's Delaware Bayshore region. Specific locations determined are to be based on bringing the elevations of these structures to the FEMA flood standard of at least 10 feet above sea level, based on the North American Vertical Datum (NAVD) of 1988. Joining new berms with existing dikes/berms/structures is anticipated as a shoreline protection measure. The project will be dependent on a separate feasibility study.

For many years, the Cumberland Bayshore region had dikes at the Bayshore which protected inland communities and farmland. Over the years these dikes breached, including those at numerous salt hay farms. The bay, river and creek shorelines are now a mixture of such structures and in many areas there seems to be no feasible way to bring back that line of continuous protection. The towns that are inland from the bay and waterways have been more recently depending solely upon the distance of the marsh from the water to absorb/reduce the flooding. In recent decades, however, tropical storms, Nor'easters and extreme astronomical conditions have brought in storm and tidal surges that have been flooding residences at those marshland edges. The character of the whole Bayshore region is based on these small villages that exist along that tree-line.

Many of the areas mentioned that have had minor flooding in the recent past had major flooding during Superstorm Sandy. The storms' duration across tides, wind direction off the Delaware Bay and surge level caused unprecedented damage to many homes. Scores of homes in towns across the area have been trying to recover from that event. This project will help with mitigation by protecting upland villages and residences from inundation by floodwaters.

Some specific parts to this project are:

Maurice River Township - Marsh/Upland Berm

For the villages of Delmont, Heislerville and parts of Leesburg: to protect all the structures and infrastructure which are at risk, a berm to at least that 10-foot NAVD 88 elevation will be constructed. Where the berm crosses roads, it would be raised for small stretches to maintain the elevation. Floodgates through the berms would allow natural stream-to-marsh water flow under normal conditions. The preliminary project has mapped the entire southern part of the township from West Creek to Delmont/ Moore's Beach Road; to Langley Road; to Glade Road; behind Heislerville; and Glade Road to Thomson's

Data Source: NJDEP Land Use/ Land Cover 2007, NJGIN Municipal Boundaries, ESRI ArcG

Beach Road; to Sadies Lane; to East Point Road; and from there to the marinas via the Fish and Game Road/dike. Wherever existing dikes or causeways exist and make sense they will be incorporated into the full township plan. The Thompson Farm Dike and the New Jersey Department of Environmental Protection Fish and Game Dikes from East Point Road to Matt's Landing and Matt's landing to River Road are the keys to restoration/replacement. When there is a threat of storms or extreme tidal conditions, the township will notify official gatekeepers to "close" the sluices/gates until the danger has passed. Further north in the township, specific locations in Leesburg, Dorchester, Bricksboro and Port Elizabeth would need to be reviewed, and a similar technique followed at any vulnerable location.

Greenwich Township - Delaware Avenue Levee/ Berm

Construct a levee/berm in front of Delaware Avenue to eliminate acute flooding to five residences, the township road and businesses.

Commercial Township - "Strawberry Avenue, Milbourne Drive to Robinstown Road" Levee/ Berm

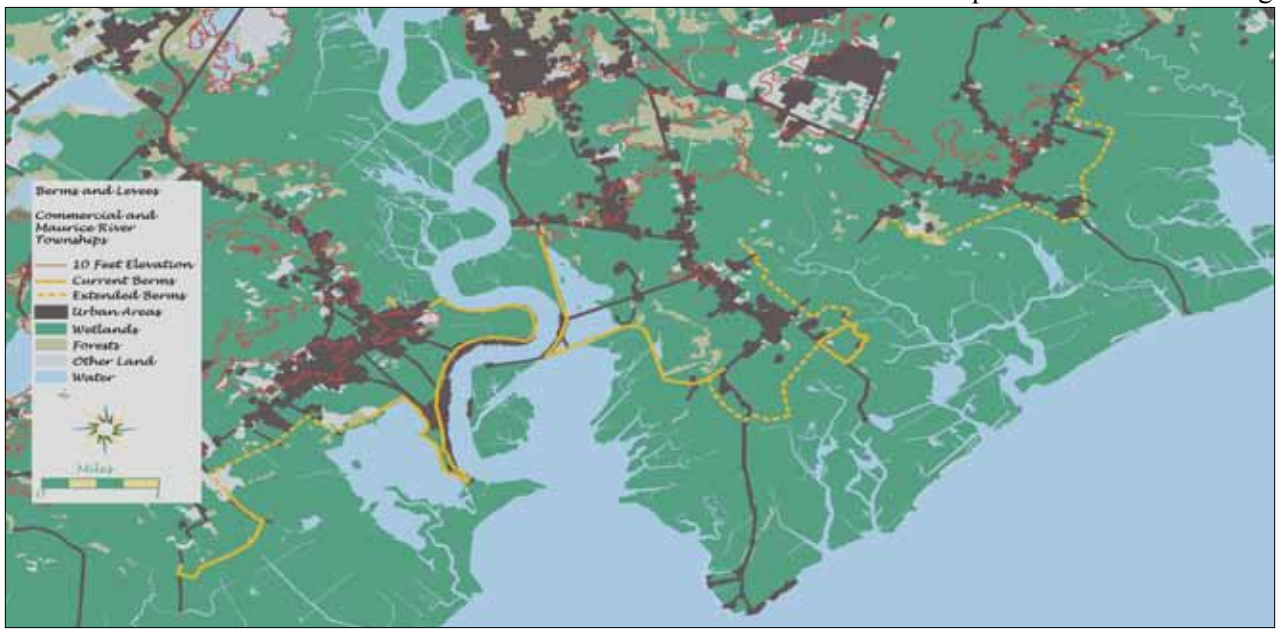
Construct/repair a levee/berm that would be a continuation of the one that runs from Bivalve to Port Norris to Strawberry Avenue. The new section would proceed along the west side of Strawberry Avenue northward, back to the wood line going westward behind Milbourne Drive. It would mostly follow trails that go along the wood line to a spot where it would turn southwest and proceed to a trail coming off Robinstown Road. This was originally from a Public Service Electric and Gas Company Levee/ Berm that was overwashed by Sandy.

Downe Township

Review flood maps to determine desirability and feasibility of berms to protect vulnerable locations.

PROJECT GOAL

The goal of this project is to provide reliable flood protection for homes, businesses and infrastructure in the "upland" villages/areas most affected by these "low velocity" tidal/storm surges.



Data Source: NJDEP Land Use/ Land Cover 2007, NJGIN Municipal Boundaries, ESRI ArcGIS Elevations

IS Elevations Data Source: NJDEP Land Use/ Land Cover 2007, NJGIN Municipal Boundaries, ESRI ArcGIS Elevations

Berm/Levees (Upland/Marshland) (continued)

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

The project will:

- preserve property tax ratables for the townships involved and for Cumberland County
- help to reduce flood insurance premiums for property owners
- preserve areas for commercial and residential development
- preserve the character of the villages in these rural townships

These berms will protect existing habitat and wildlife by slowing the demise of upland forests from saltwater intrusion caused by extreme storm/tidal events. They will connect with and enhance existing structures, such as dikes, and utilize natural land geography to make a complete protective barrier for upland villages.

Establishing effective flood protection will greatly mitigate the damage inflicted by future storms like Superstorm Sandy.

Best practices for reducing future losses would include building to FEMA standards to protect from 1 percent annual flood risk.

The potential for sustainable practices includes:

- constructing the berm of a sturdier material that would allow public access across the top into marshland without destroying the integrity of the berm
- in select areas, a two-walled structure might be necessary—especially the Delaware Avenue structure in Greenwich Township
- floodgates that can be easily closed or opened to maintain the habitat that currently exists, but also provide for a rapid response to an incoming storm or extreme tidal event

The project can be implemented in phases, as permits and funding are acquired for the individual levees.

ACTION STEPS

- Complete the feasibility study (a separate project)
- Get approvals of governing bodies
- Secure funding for engineering phase
- Develop a Request For Proposal or Request For Qualifications to initiate the process of selecting consulting engineers to design the project components
- Secure necessary permits (New Jersey Department of Environmental Protection and possibly U.S. Army Corps of Engineers)
- Obtain funding for construction
- Complete construction

SUMMARY COST ESTIMATE

Funded	$0
Gap	$8,450,000
Total	$8,450,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Ben Stowman
- Eric Port
- Tom McKee

PROJECT SPONSOR(S)

- Maurice River Township
- Commercial Township
- Greenwich Township
- Any township that has the need for such a structure

POTENTIAL FUNDING RESOURCES

Some of the agencies and foundations which are potential sources of funding to plan and implement the project to rehabilitate the levees system are:

- U.S. Army Corps of Engineers
- New Jersey Department of Environmental Protection
- National Oceanic and Atmospheric Administration
- U.S. Department of Agriculture/Natural Resources Conservation Service
- U.S. Fish and Wildlife Service North American Wetlands Conservation Act
- Open Space Institute
- New Jersey Audubon
- DuPont – Clear Into the Future
- Public Service Electric and Gas Company
- The Nature Conservancy
- Ducks Unlimited
- PEW Charitable Trusts
- New Jersey Division of Fish and Wildlife
- Haskin Shellfish Research Laboratory

ADDITIONAL RESOURCES

- U.S. Army Corps of Engineers
- New Jersey Department of Environmental Protection
- Cumberland County Board of Chosen Freeholders
- Federal Emergency Management Agency
- New Jersey Environmental Infrastructure Trust
- New Jersey Economic Development Authority
- Cumberland County Department of Planning and Development
- Commercial Township Land Use Board and Environmental Committee
- Public Service Electric and Gas Company
- Downe Township (as they add berms to the plan)
- Greenwich Township Environmental Commission
- Greenwich Township Combined Planning/Zoning Board
- Maurice River Township Land Use Board and Environmental Committee
- U.S. Fish and Wildlife Service
- Environmental Protection Agency
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Bulkheads and Other Structures Repair and Construction

SUBCOMMITTEE

Shoreline Protection/Coastal Management

PRIORITY

Vital

DESCRIPTION

This project seeks funding and technical assistance for bulkhead replacement and repair for Cumberland County communities. Some of the projects include backfill and jetty improvements along with beach replenishment.

Many of the towns along the Cumberland County Bayshore have bulkheads and other "hard" structures for protection of their residences as well as commercial and recreational water access points. Superstorm Sandy caused damage to many of those bulkheads and some structures.

The following list includes structures in need of repair or construction:

Downe Township:

- Money Island - Provide bulkhead replacement at the end of Gandy's Beach Road
- Fortescue - Provide bulkhead at Myers Marina and New Jersey Avenue
- Fortescue - Replace Bulkhead at Frank Carpino Delaware Bay Campground, Secure Public Access
- Fortescue - Bulkhead Replacement at Fortescue Captain's Association Marina (New Jersey State Marina)
- Dividing Creek Improvements (Backfill; Bulkhead - New one needed) (Maple Avenue)
- Fortescue Improvements (Bulkhead at Marina Inlet; Rock Jetty [800 feet]; Beach Replenishment coming from other projects)
- Gandy's Beach Improvements (Bulkhead; Rock Jetty [200 feet]; Beach Replenishment coming from other projects)
- Money Island Improvements (Bulkhead; Rock Jetty [300 feet]; Beach Replenishment coming from other projects)

Maurice River Township:

- Matt's Landing – Bulkhead repair along the marina area
- East Point – At end of road (parking lot area); repair bulkhead and undermined parking lot
- East Point – Lighthouse water access point area – repair bulkhead jetty/boat ramp damage; possibly re-align to mitigate wave/storm action

Commercial Township:

- Shellpile and Bivalve already addressed in separate Project Scopes-Maurice River at Peak of the Moon Bank Stabilization and especially Maurice River at Bivalve Bank Stabilization

Greenwich Township:

- Bulkheads at Hancock's Harbor Marina (1,500 feet) and Greenwich Marina (1,800 feet) are of inadequate elevation and were over-topped during Superstorm Sandy.

PROJECT GOAL

The goal of this project is to protect residential and commercial property. In addition, it will prevent erosion of river and creek banks where commercial and recreational activities are present. It will also stabilize other water access points and hard structures damaged by Sandy.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

Because of compromised bulkheads and other structures, many residences are exposed to daily tidal and wave action. The safety of the public in those structures is in jeopardy until repairs are made. Commercial and recreational activities have been hampered in areas where structures have been damaged. Disaster resiliency will be accomplished through sustainability of river and creek banks for commercial and recreational activities. Regular maintenance of these structures will make that area more resilient. Every effort will be made to incorporate sustainable engineering and design for each project.

ACTION STEPS

- Prioritize sites
- Analyze and plan site improvements (by municipal engineers)
- Identify partners
- Identify funding sources
- Acquire approvals from New Jersey Department of Environmental Protection

SUMMARY COST ESTIMATE

Funded	$0
Gap	$23,000,000+
Total	$23,000,000+

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Ben Stowman
- Tom McKee
- Eric Port
- Robert Campbell

PROJECT SPONSOR(S)

- Downe Township
- Maurice River Township
- Commercial Township
- Cumberland County

POTENTIAL FUNDING RESOURCES

- New Jersey Department of Environmental Protection
- National Oceanic and Atmospheric Administration
- US Army Corps of Engineers
- Downe, Maurice River, Commercial and Greenwich townships
- Cumberland County
- Owners

ADDITIONAL RESOURCES

- U.S. Army Corps of Engineers
- New Jersey Department of Environmental Protection
- Federal Emergency Management Agency
- Cumberland County Department of Planning and Development
- Downe Township
- Document – Downe Township Today and Tomorrow (2012)
- Document – Cumberland County Multijurisdictional Hazard Mitigation Plan (2009)
- Maurice River Township
- Commercial Township
- Greenwich Township (if any structures listed)
- Environmental Protection Agency
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Creek Maintenance Dredging

SUBCOMMITTEE

Shoreline Protection/Coastal Management

PRIORITY

Vital

DESCRIPTION

This project seeks funding and technical resources for maintenance dredging of important navigation channels in recreational and commercial creeks in Cumberland County.

Background – Some of the smaller estuaries along the Cumberland County Bayshore have active commercial and recreational water-dependent uses. Like the Maurice and Cohansey rivers (two separate projects), these creeks are in need of regular maintenance dredging so that the activities can be undertaken during all tidal cycles (i.e., low tide). During Superstorm Sandy, several of these creeks were "filled in" with sediment that is now blocking entrance and egress of commercial boats, except for just a few hours daily (high tide). In one estuary, this has created a problem for commercial oyster boats which need to offload shellfish in a timely manner to prevent spoilage (as required by law).

The estuaries/creeks that are in need of maintenance dredging are listed below:

Mouth of Nantuxent Creek (Money Island)

Dredging is needed to remove sand and silt deposited by Superstorm Sandy. Oyster boats cannot navigate to Money Island landing at low tides. Since they often cannot offload their oysters in a timely manner, they are in danger of not meeting the regulations of the shellfish industry. This oyster harvest landing location is important because of the close proximity to the oyster beds and to Bivalve and Shellpile oyster processing plants. This maintenance dredging should occur at regularly scheduled intervals to ensure navigational safety.

Mouth of Fortescue Creek

Dredging is needed to remove sand and silt deposited by Superstorm Sandy. Commercial party boats and other vessels go out daily from this creek. Recreational boaters are numerous and are utilizing the marina(s) here. The State of New Jersey has an official marina at this location. All these activities have been restricted to the times of high tide because of navigational concerns. An emergency project is currently in progress to get relief from Sandy; however, regular maintenance dredging must be scheduled.

Oranoaken Creek

The creek, close to County Route 553 (Beaver Dam) Public Tidal Waterway, needs dredging. Since Sandy, boat rentals for crabbing and fishing are limited because these vessels cannot navigate the creek during lower tides. Safety is an issue for many of those using the small rental boats at this location since they are not familiar with the tides and can easily become stranded for hours. This dredging project would be on an "as needed" basis.

Before this project could begin, the U.S. Army Corps of Engineers would conduct a feasibility study. A study of the Maurice River is planned. However, it

Data Source: NJDEP Land Use/ Land Cover 2007

would be more efficient and cost effective to have a comprehensive study of the dredging needs of all creeks while survey and dredging equipment are deployed. Wherever beneficial, dredged materials could be used to help stabilize and restore the shoreline along those creeks or adjacent banks, or other structures (levees). Fortescue Creek already has such a plan for much of that dredged material. A survey of Delaware Bay tidal areas should be conducted in cooperation with governmental environmental agencies as well as non-government conservation and environmental groups to determine priority candidates for wetland restoration projects.

PROJECT GOAL

The goal of this project is to create better access through navigational channels and make use of dredged materials for shoreline and marsh restoration projects.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

Superstorm Sandy had a dramatic effect on the natural siltation of the rivers and creeks along this Cumberland County Bayshore area. As a result, commercial and recreational activities have been restricted to higher tides to prevent grounding of vessels. Resilience will be provided through regular maintenance dredging to provide sustainability.

ACTION STEPS

- Feasibility study by the U.S. Army Corps of Engineers must be completed first
- Determine partners
- Identify funding sources
- Acquire approvals from the New Jersey Department of Environmental Protection
- Implementation in phases

SUMMARY COST ESTIMATE

Funded	$0
Gap	$850,000
Total	$850,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Robert Campbell
- Ben Stowman
- Dennis Cook
- Tom McKee

PROJECT SPONSOR(S)

- Downe Township
- Cumberland County

POTENTIAL FUNDING RESOURCES

- New Jersey Department of Environmental Protection
- National Oceanic and Atmospheric Administration
- U.S. Army Corps of Engineers
- New Jersey Office of Maritime Resources

ADDITIONAL RESOURCES

- U.S. Army Corps of Engineers
- New Jersey Department of Environmental Protection
- Cumberland County Board of Chosen Freeholders
- Federal Emergency Management Agency
- New Jersey Environmental Infrastructure Trust
- Cumberland County Department of Planning and Development
- Downe Township Combined Planning Board
- Downe Township Environmental Commission
- Environmental Protection Agency
- Grants.gov
- Catalog of Federal Domestic Assistance: http://cfda.gov
- The FEMA New Jersey Community Resource Guide

Dikes/Levees (Waterfront) Restoration

SUBCOMMITTEE

Shoreline Protection/Coastal Management

PRIORITY

Vital

DESCRIPTION

This project seeks funding and technical assistance to provide reliable flood protection to the residents and businesses of the Cumberland County Delaware Bayshore region. This will be accomplished by reinforcing and increasing the elevation of the region's system of dikes and levees. The project arises out of a separate feasibility study project.

For many decades, the region has been relying for flood protection upon dikes, levees, elevated railroad beds or roads which were built for some other purpose, including agricultural. Some of these structures were built in the early 19th century and were maintained through the decades. Homes and businesses were built behind the levees over the years, and today they serve the critical purpose of flood protection for homes, businesses and cultural assets, including many historic structures of national significance.

During Superstorm Sandy, many of the region's dikes were overtopped. One was washed out, causing severe damage and flooding to a county road, and disrupting access to several marinas, homes and commercial businesses. That dike was rebuilt to its original elevation, which is not adequate for flood protection. In other areas, dike repairs were hastily made with sandbags or other temporary means. Currently, none of the area's levees can be accredited by FEMA as capable of protecting the communities from the 1 percent annual flood risk.

PROJECT GOAL

This project will rebuild, reinforce and elevate waterfront dikes and levees which protect homes, businesses and infrastructure from flooding. The levees identified as the subject of this project are:

Commercial Township
- Several Levees

Downe Township
- Maple Avenue Levee

Greenwich Township
- Pine Mount Creek Levee
- Mill Creek Levee
- Market Lane Levee

Maurice River Township
- Matt's Landing Impoundment Levee

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

Levees along navigable rivers such as the Cohansey and Maurice require permits from the U.S. Army Corps of Engineers. In other areas, the New Jersey Department of Environmental Protection may be the primary permitting agency.

The project will preserve property tax ratables, while allowing property owners to see reductions in flood insurance premiums through improved ranking in the Community Rating System. The project will also preserve areas for commercial and residential development. Levees help protect wildlife habitat and can be made accessible to the public for hiking, biking, bird-watching and kayaking. They provide recreational infrastructure, enhancing opportunities for ecotourism development in the Bayshore region. They provide protection of taxpayer investments in preserved farmland, which is threatened by saltwater encroachment by levees that are compromised. Levees provide for evacuation and emergency vehicle use during storm surges by protecting roads from flooding. This project connects with bulkheads, and replenished beaches and dunes, to complete the network of flood protection measures.

The project will benefit taxpayers in Cumberland County by preserving property tax ratables, reducing road maintenance costs and facilitating emergency response and management operations. Visitors to the region, and the businesses which cater to them, will benefit from improved recreational opportunities, including public access to the two major rivers in Cumberland County.

The project will establish effective flood protection which will greatly mitigate the damage inflicted by future storms like Superstorm Sandy. Best practices for reducing future losses would include building to FEMA standards to protect from 1 percent annual flood risk. (See 44 CFR Section 65.10.)

The potential for sustainable practices includes:

- Vertical, double wall design to minimize "footprint"
- Sustainable materials, such as fiber reinforced polymer in wall and pipe
- "Fish friendly" floodgate design
- Minimal use of "fill" material

ACTION STEPS

This project can be implemented in phases, as permits and funding are acquired for the individual levees.

Next steps include:
- Complete the feasibility study (a separate project)
- Secure approvals of governing bodies
- Secure funding for engineering phase
- Develop a Request For Proposal or Request For Qualifications to initiate the process of selecting consulting engineers to design the project components
- Secure necessary permits
- Obtain funding for construction
- Complete construction

SUMMARY COST ESTIMATE

Funded	$0
Gap	$19,000,000+
Total	$19,000,000+

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Eric Port

PROJECT SPONSOR(S)

- Township committees

.POTENTIAL FUNDING RESOURCES

- New Jersey Department of Environmental Protection
- National Oceanic and Atmospheric Administration
- U.S. Department of Agriculture/Natural Resources Conservation Service
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service North American Wetlands Conservation Act
- Open Space Institute
- New Jersey Audubon
- DuPont – Clear Into the Future
- Public Service Electric and Gas Company
- The Nature Conservancy
- Ducks Unlimited
- PEW Charitable Trusts
- New Jersey Division of Fish and Wildlife
- Haskin Shellfish Research Laboratory

ADDITIONAL RESOURCES

- U.S. Army Corps of Engineers
- New Jersey Department of Environmental Protection
- Cumberland County Board of Chosen Freeholders
- Federal Emergency Management Agency
- New Jersey Environmental Infrastructure Trust
- New Jersey Economic Development Authority
- Cumberland County Department of Planning and Development
- Commercial Township Land Use Board
- Commercial Township Environmental Committee
- Downe Township Combined Planning Board
- Downe Township Environmental Commission
- Greenwich Township Environmental Commission
- Greenwich Township Combined Planning/Zoning Board
- Maurice River Township Land Use Board
- Maurice River Township Environmental Committee
- U.S. Fish and Wildlife Service
- Environmental Protection Agency
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Maurice River at Peak of the Moon Bank Stabilization

SUBCOMMITTEE

Shoreline Protection/Coastal Management

PRIORITY

Vital

DESCRIPTION

The purpose of this project is to obtain funding and technical assistance to provide effective and reliable shoreline diking along the Peak of the Moon portion of the Maurice River. This measure will minimize inundation of Commercial Township roads and businesses in Shellpile.

Commercial Township maintains a mile-long dike along a portion of the Maurice River locally known as the Peak of the Moon, from Main Street in Port Norris to Shellpile. This dike was breached by Superstorm Sandy's storm surge. When breached, floodwaters inundate the various businesses and marine establishments located in this area of Commercial Township, causing substantial damage and hardship. With only one flood control structure currently located along this section of the riverbank, floodwaters require an extended period of time to subside.

PROJECT GOAL

The goal of this project is to provide reliable flood protection to the residents and businesses of Commercial Township by reinforcing the structural integrity of the Peak of the Moon dike and adding flood-control structures. The two proposed flood-control structures will require aluminum risers, culverts, double flap-gates, concrete slabs, trash racks and ductile iron overflow pipe assemblies. Steel sheet piling, complete with coal tar coating, steel tie rods and walers, must be installed to protect both dikes. A living shoreline consisting of a stone sill and wetlands vegetation must be constructed along the entire Peak of the Moon riverbank.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

During Superstorm Sandy, this section of the riverbank suffered severe flooding and property damage. Berry Avenue, which provides sole access to the properties in this area, was closed for more than a week and could not be accessed by any vehicles in Commercial Township's emergency response fleet. These hazardous conditions require constant supervision and maintenance and greatly compromise safety for township officials, business owners and emergency responders.

By providing flood and erosion control along the Maurice River, Commercial Township will alleviate a significant hazard while improving the safety and function of the surrounding businesses and properties. In particular, these improvements will enhance operations for the New Jersey State Police Marine Services Facility at Bivalve during an emergency. The municipality intends to build upon this project with subsequent construction phases that will further alleviate the damaging effects of flooding.

ACTION STEPS
- Secure funding
- Prepare a detailed design
- Hire a contractor
- Obtain permits

SUMMARY COST ESTIMATE

Funded	$0
Gap	$3,343,900
Total	$3,343,900

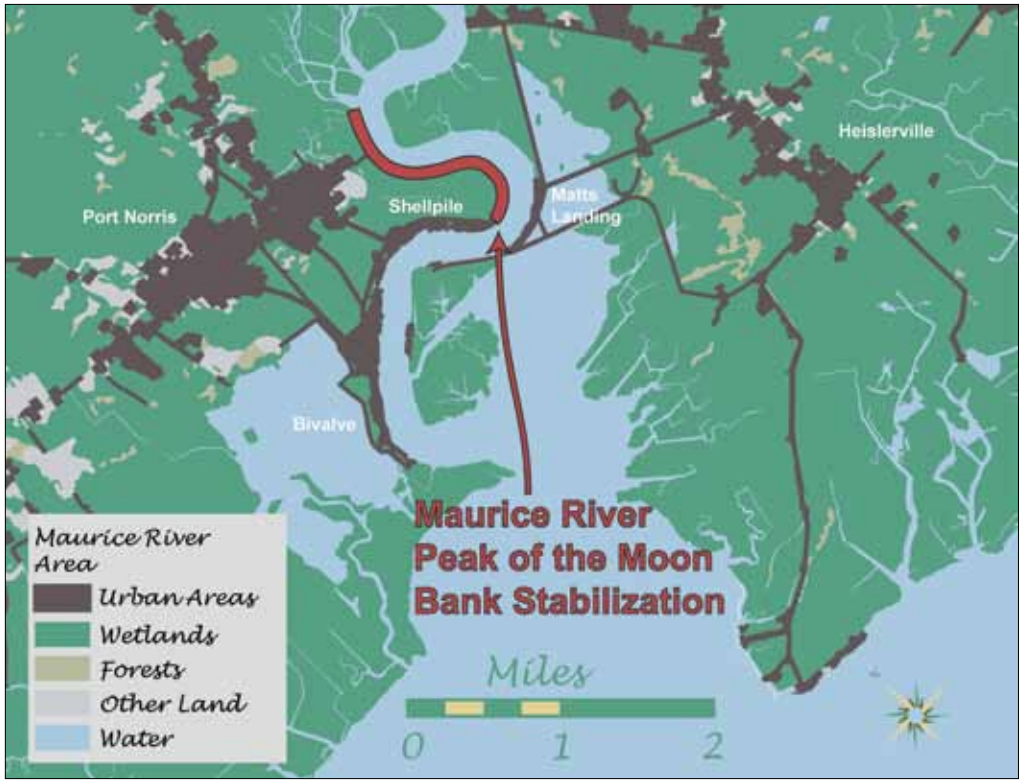
More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)
- Tom McKee

PROJECT SPONSOR(S)
- Commercial Township

POTENTIAL FUNDING RESOURCES
- Federal Emergency Management Agency - Hazard Mitigation Grant Program
- U.S. Army Corps of Engineers
- New Jersey Department of Environmental Protection

ADDITIONAL RESOURCES
- U.S. Army Corps of Engineers
- Federal Emergency Management Agency
- New Jersey Department of Environmental Protection
- Partners of the Delaware Estuary
- Cumberland County
- Haskin Shellfish Research Laboratory
- Ducks Unlimited
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.dfda.gov
- The FEMA New Jersey Community Resource Guide



Data Source: NJDEP Land Use/ Land Cover 2007

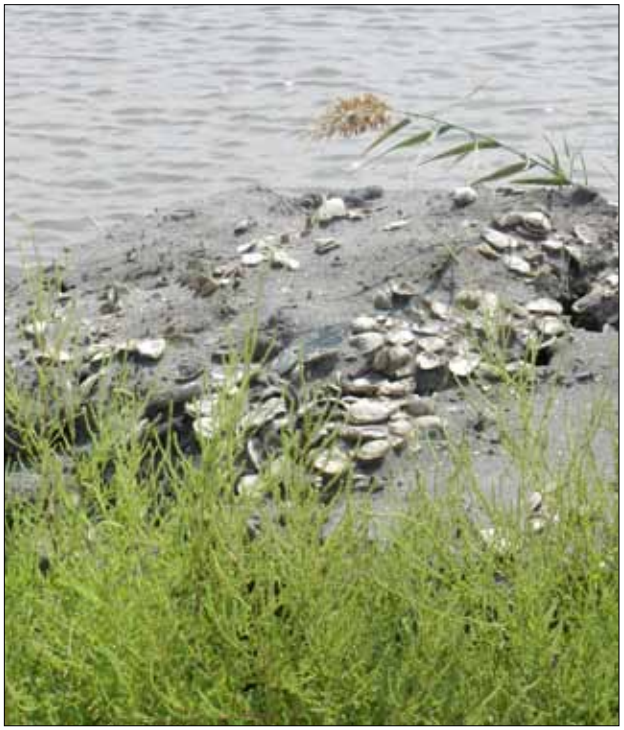
Maurice River at Bivalve Bank Stabilization

SUBCOMMITTEE

Shoreline Protection/Coastal Management

PRIORITY

Vital



DESCRIPTION

This project seeks funding for shoreline protection and flood control along the Maurice River at Bivalve. The goal of the project is to provide effective and reliable shoreline protection and flood control along the Berry Avenue, Miller Avenue and High Street riverfront.

About 1.5 miles of privately owned riverfront properties are in active use along the Maurice River in Commercial Township. This portion of the riverfront parallels Berry Avenue, Miller Avenue and parts of High Street. Shore protection measures at these properties vary and largely consist of makeshift berms and dikes. During Superstorm Sandy, this section of the riverbank suffered severe flooding and property damage.

PROJECT GOAL

The goal of this project is to provide reliable flood protection to the residents and businesses of Commercial Township by building structurally sound dikes, living shorelines and effective reliable flood control structures.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

During Superstorm Sandy, this section of the riverbank suffered severe flooding and property damage. Parts of this section of the waterfront were closed for more than 48 hours and could not be accessed by any vehicles in Commercial Township's emergency response fleet. These hazardous conditions require constant supervision and maintenance, and greatly compromise safety for township officials, business owners and emergency responders.

By providing flood and erosion control along the Maurice River, Commercial Township will alleviate a significant hazard while improving the safety and function of the surrounding businesses and properties.

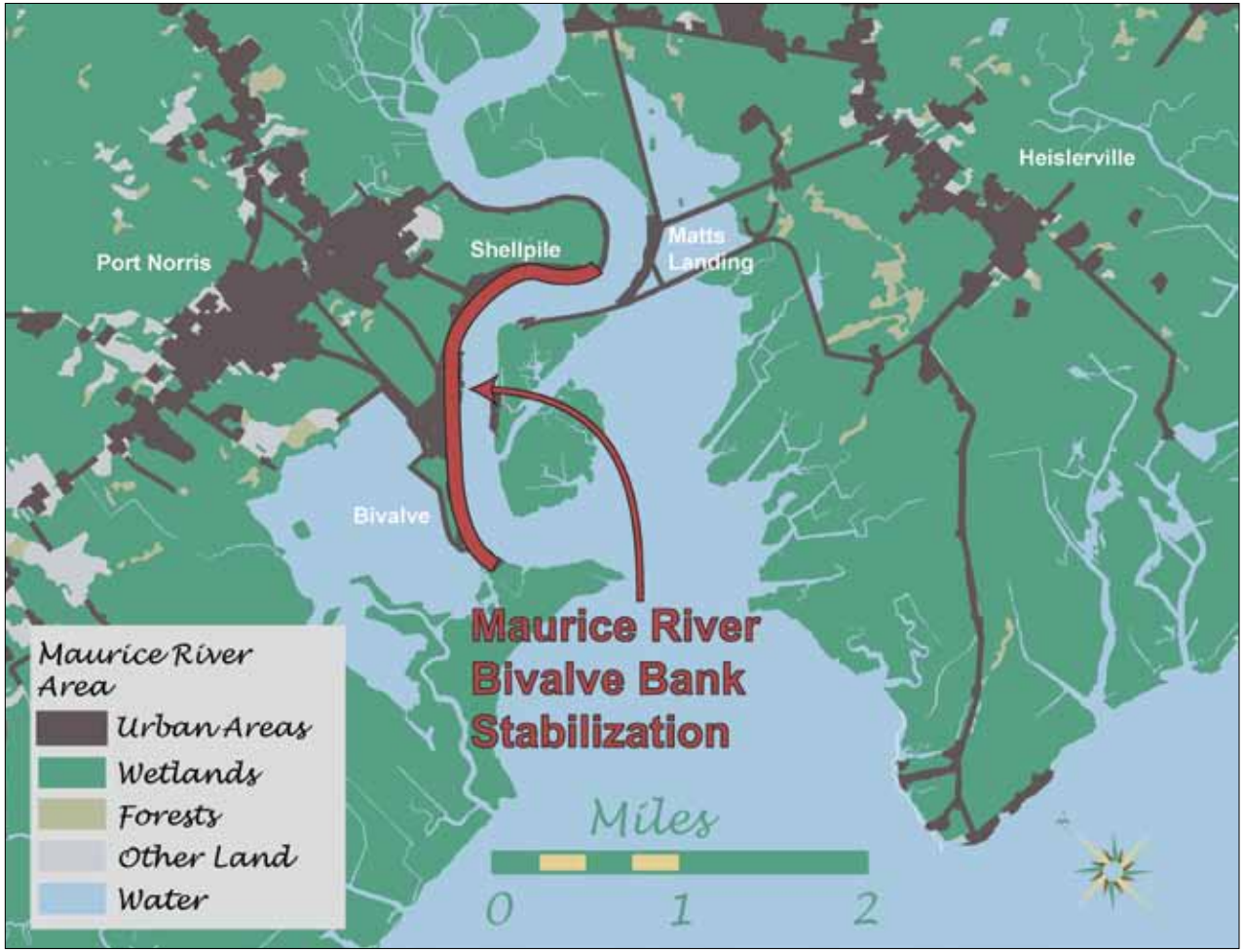
ACTION STEPS

- Conduct full assessment of conditions along the waterfront
- Produce cost estimates for needed improvements
- Identify funding
- Prepare detailed designs
- Hire a contracting company
- Obtain permits

SUMMARY COST ESTIMATE

Funded	$0
Gap	TBD after Peak of the Moon project
Total	TBD after Peak of the Moon project

More detailed cost estimates for this project are listed in the Appendix.



Data Source: NJDEP Land Use/ Land Cover 2007

PROJECT ADVOCATE(S)

- Tom McKee

PROJECT SPONSOR(S)

- Commercial Township

POTENTIAL FUNDING RESOURCES

- Federal Emergency Management Agency - Hazard Mitigation Grant Program
- U.S. Army Corps of Engineers
- New Jersey Department of Environmental Protection
- New Jersey Department of Transportation

ADDITIONAL RESOURCES

- U.S. Army Corps of Engineers
- Federal Emergency Management Agency
- New Jersey Department of Environmental Protection
- Partnership for the Delaware Estuary
- Bayshore Center at Bivalve/Rising Tides Forum
- Cumberland County
- Haskin Shellfish Research Laboratory
- Ducks Unlimited
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

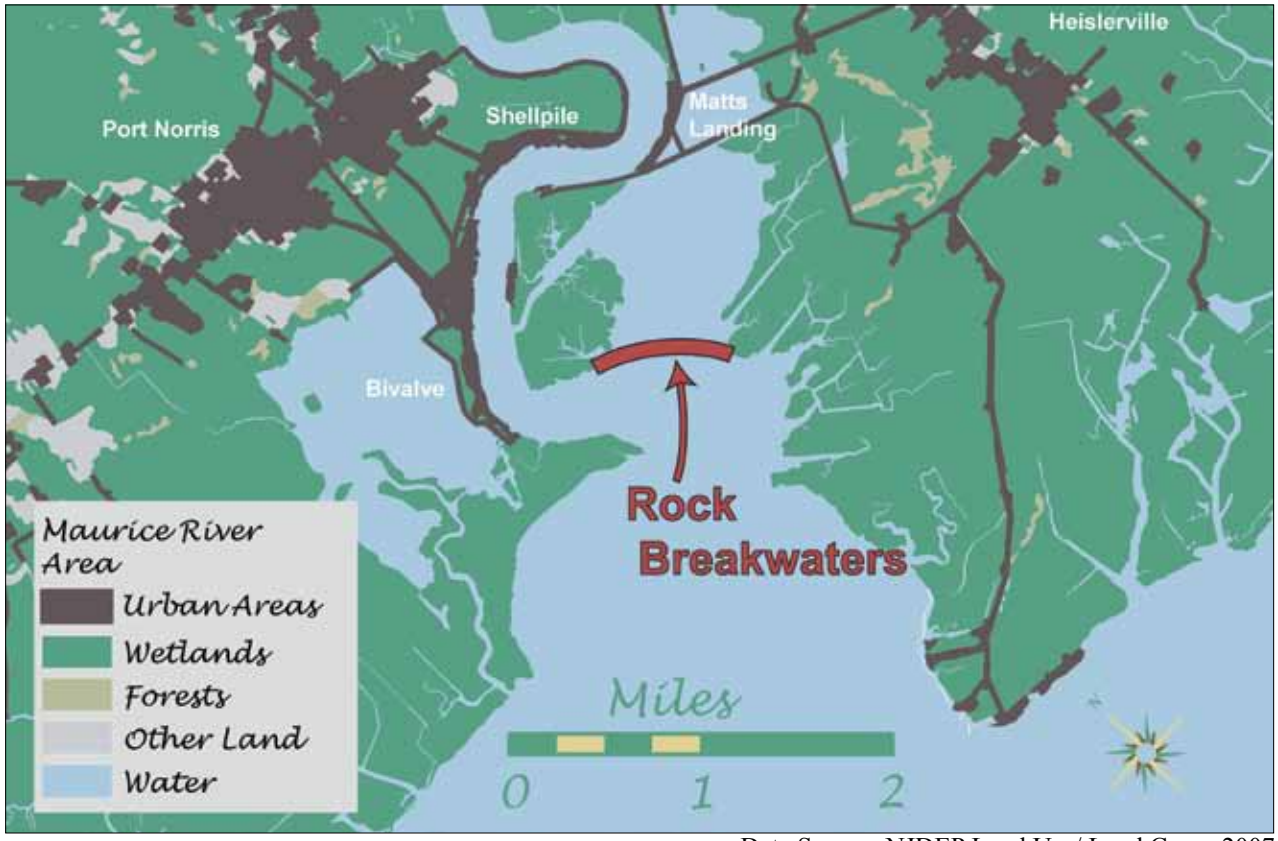
Maurice River Northwest Reach Bank Stabilization and Marsh Re-Establishment

SUBCOMMITTEE

Shoreline Protection/Coastal Management

PRIORITY

Vital



Data Source: NJDEP Land Use/ Land Cover 2007

DESCRIPTION

This project seeks funding and technical assistance for the Maurice River Northwest Reach bank stabilization and re-establishment of the marsh. It is dependent on a U.S. Army Corps of Engineers' feasibility study.

The Northwest Reach is a branch closest to the mouth of the Maurice River in Cumberland County's Delaware Bayshore. In recent years, storm erosion of the Maurice River in its "lower" reaches (mouth) has cut through what was known as "Basket Flats" and the north bank of "Northwest Reach." Barges placed at Basket Flats more than 15 years ago to dampen wave energy are no longer effective. Superstorm Sandy eroded and breached a dike north of Northwest Reach. The dike in turn breached a county road, virtually isolating Matt's Landing. If complete breakthrough of the dike had occurred, Bivalve, Shellpile, Matt's Landing and the reaches they access could have been lost to siltation in a few years. The result would be lost commerce and industry. Floodwaters could have inundated the forests and pushed through to Heislerville and Menhaden Road. Additionally, Delaware Bay water could have brought saltwater intrusion to portions of the Maurice River, which could have severely impacted fish species habitat.

PROJECT GOAL

Objectives of this project:

- to prevent the Maurice River from pushing through the Matt's Landing impoundment dike
- to prevent breach of the Matt's Landing impoundment dike which, in turn, will prevent flooding to Matt's Landing, impoundment ponds and abutting forest areas
- to maintain county road access to Matt's Landing

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

Residents of villages in the townships along the Maurice River will be able to retain their employment in the respective maritime fields, which in turn sustains the townships. This project would protect the dikes and prevent breaches and siltation after severe storm events. It is recommended that this project be completed in coordination with the Delaware Bay and Maurice River maintenance dredging projects.

ACTION STEPS

- Complete feasibility study by the U.S. Army Corps of Engineers
- Determine partners
- Identify funding sources
- Acquire approvals from the New Jersey Department of Environmental Protection
- Implement the project in phases

SUMMARY COST ESTIMATE

Funded	$0
Gap	$2,000,000 to $6,000,000
Total	$2,000,000 to $6,000,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Ben Stowman
- Tom McKee

PROJECT SPONSOR(S)

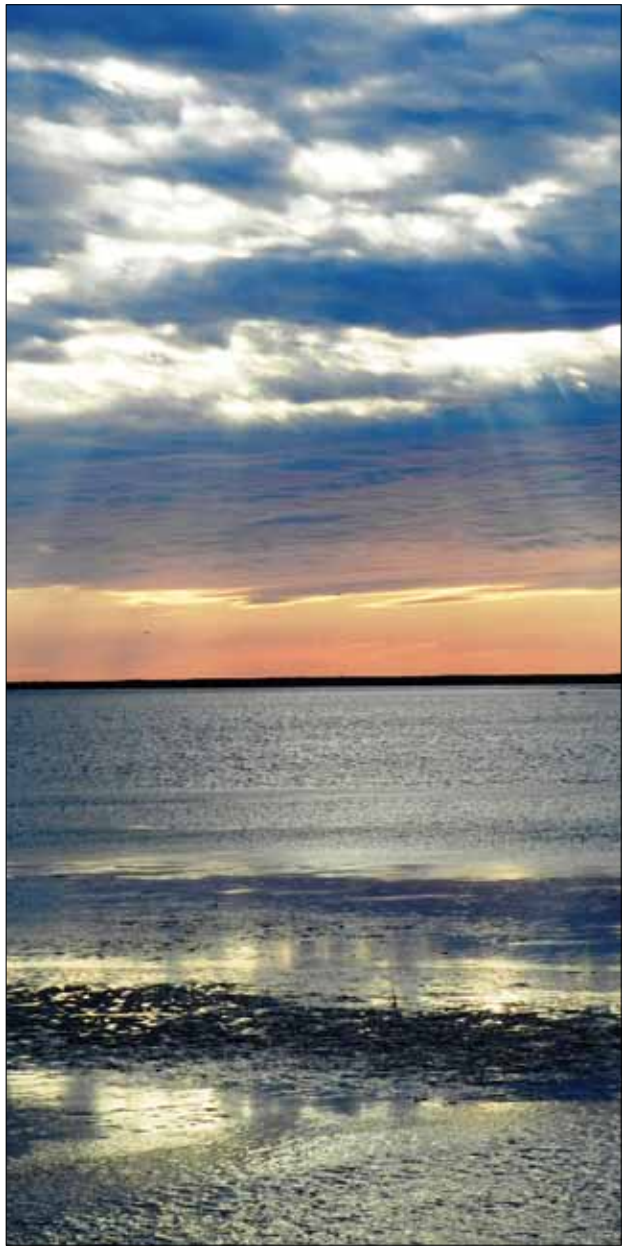
- Maurice River Township
- Commercial Township
- Cumberland County

POTENTIAL FUNDING RESOURCES

- U.S. Army Corps of Engineers
- New Jersey Department of Environmental Protection
- Federal Emergency Management Agency
- Environmental/Habitat Organizations
- National Fish & Wildlife Foundation
- Department of the Interior

ADDITIONAL RESOURCES

- U.S. Army Corps of Engineers
- New Jersey Department of Environmental Protection
- Federal Emergency Management Agency
- Partnership for the Delaware Estuary
- Cumberland County
- Haskin Shellfish Research Laboratory
- Maurice River Township
- Commercial Township
- Bayshore Center at Bivalve/Rising Tides Forum
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide



Mouth of Cohansey River Restoration – Including Dredging

SUBCOMMITTEE

Shoreline Protection/Coastal Management

PRIORITY

Vital

DESCRIPTION

Background - The Cohansey River has been used since Colonial times for maritime commerce. The mouth of the Cohansey is marked by several miles of saltwater marshland. Agriculture developed along the river, notably in Greenwich Township. Settlements along the navigable part of the Cohansey include Greenwich, Fairton (in Fairfield Township) and Bridgeton. In the early years, most of the ships used in oystering were built on the Maurice and Cohansey rivers. Vegetable products and other materials were transported from the Cohansey River to destinations up the Delaware Bay.

Over the years, as Bridgeton expanded with a public dock and ramp to the Cohansey, smaller boats made use of the river. Downriver, larger marinas serve commercial and recreational fishing vessels. In Greenwich Township, one of the marinas has a "dock and dine" restaurant. Several dikes along the banks and in the marsh areas adjacent to the Cohansey protect Greenwich Township and acres of farmland.

In recent years, two to three of the lower reaches at the mouth of the Cohansey River have sustained significant erosion. One of the meanders along the Delaware Bayshore was breached and Superstorm Sandy further eroded the mouth of the river. Another reach at the mouth of the river is breached and could alter the navigation channel. This degradation is impeding navigation and moving the salt wedge further upriver.

PROJECT GOAL

This project is dependent on a feasibility study by the U.S. Army Corps of Engineers. The goal included in the conceptual plan would:

- create submerged reefs just off the last reach of the river
- create Living Shorelines and other "soft" approaches to re-establish the banks of the existing lower meanders/reaches
- use dredged material from the Delaware River Bay Channel and the Cohansey River for this flood mitigation and ecosystem restoration mission

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

- The salt wedge will not move upstream
- The public will be protected from flooding during severe storms
- The communities will maintain the commerce/recreation/tourism industries
- Agriculture and historical preservation in Greenwich Township would benefit
- The mouth of the river will be maintained for navigation

ACTION STEPS

- Consult with the U.S. Army Corps of Engineers to determine results of the feasibility study
- Identify project partners
- Identify all funding sources
- Obtain state and Federal permits
- Implement project in phases

SUMMARY COST ESTIMATE

Funded	$0
Gap	$5,000,000
Total	$5,000,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Eric Port
- Steve Carnahan

PROJECT SPONSOR(S)

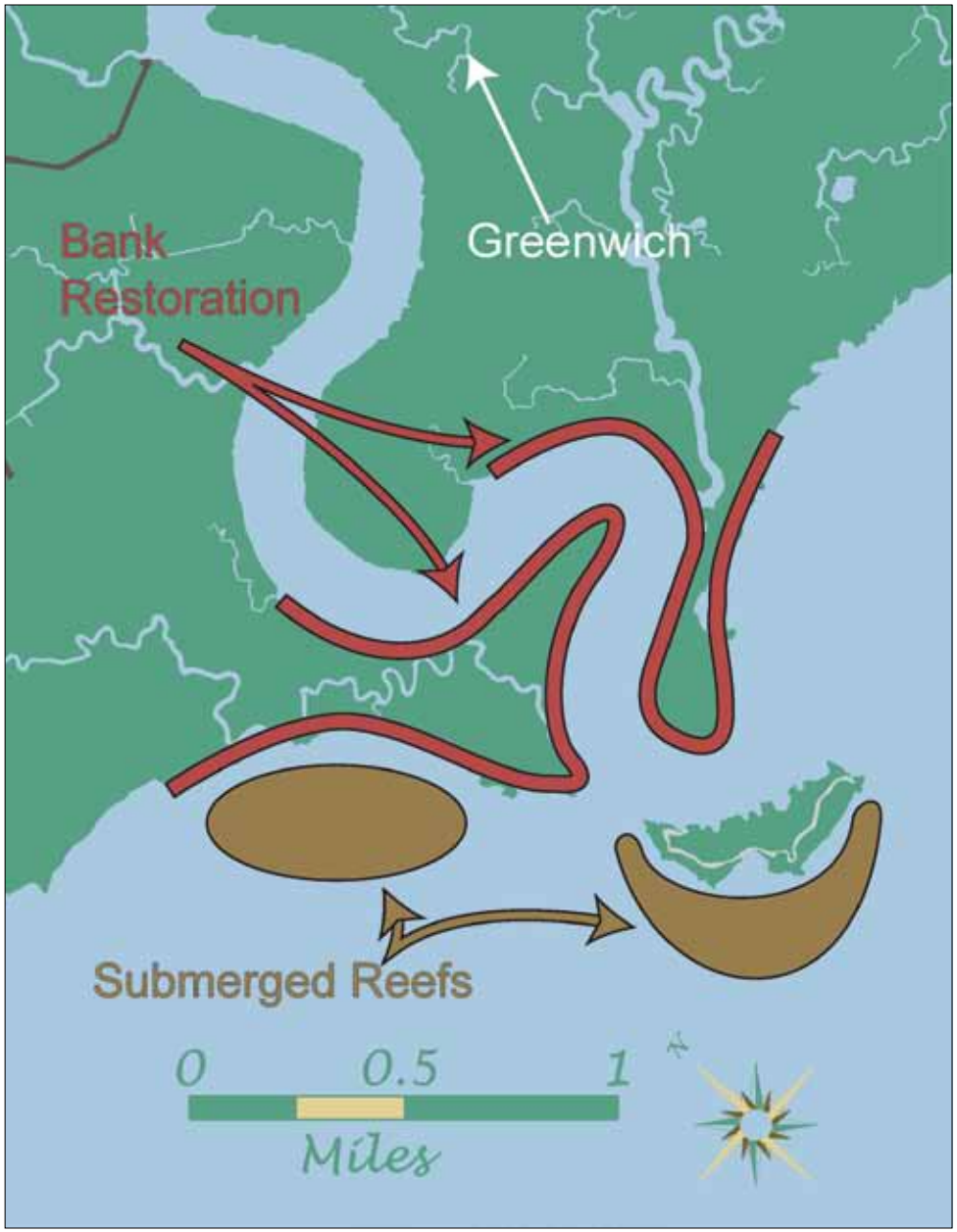
- Greenwich Township
- Cumberland County

POTENTIAL FUNDING RESOURCES

- New Jersey Department of Environmental Protection
- National Oceanic and Atmospheric Administration
- U.S. Department of Agriculture/Natural Resources Conservation Service
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service North American Wetlands Conservation Act
- Open Space Institute
- New Jersey Audubon
- DuPont – Clear Into the Future
- Public Service Electric and Gas Company
- The Nature Conservancy
- Ducks Unlimited
- PEW Charitable Trusts
- New Jersey Division of Fish and Wildlife
- Haskin Shellfish Research Laboratory

ADDITIONAL RESOURCES

- U.S. Army Corps of Engineers
- New Jersey Department of Environmental Protection
- Cumberland County Board of Chosen Freeholders
- Federal Emergency Management Agency
- New Jersey Environmental Infrastructure Trust
- Cumberland County Department of Planning and Development
- Greenwich Township Environmental Commission
- Greenwich Township Combined Planning/Zoning Board
- U.S. Fish and Wildlife Service
- Environmental Protection Agency
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide



Data Source: NJDEP Land Use/ Land Cover 2007

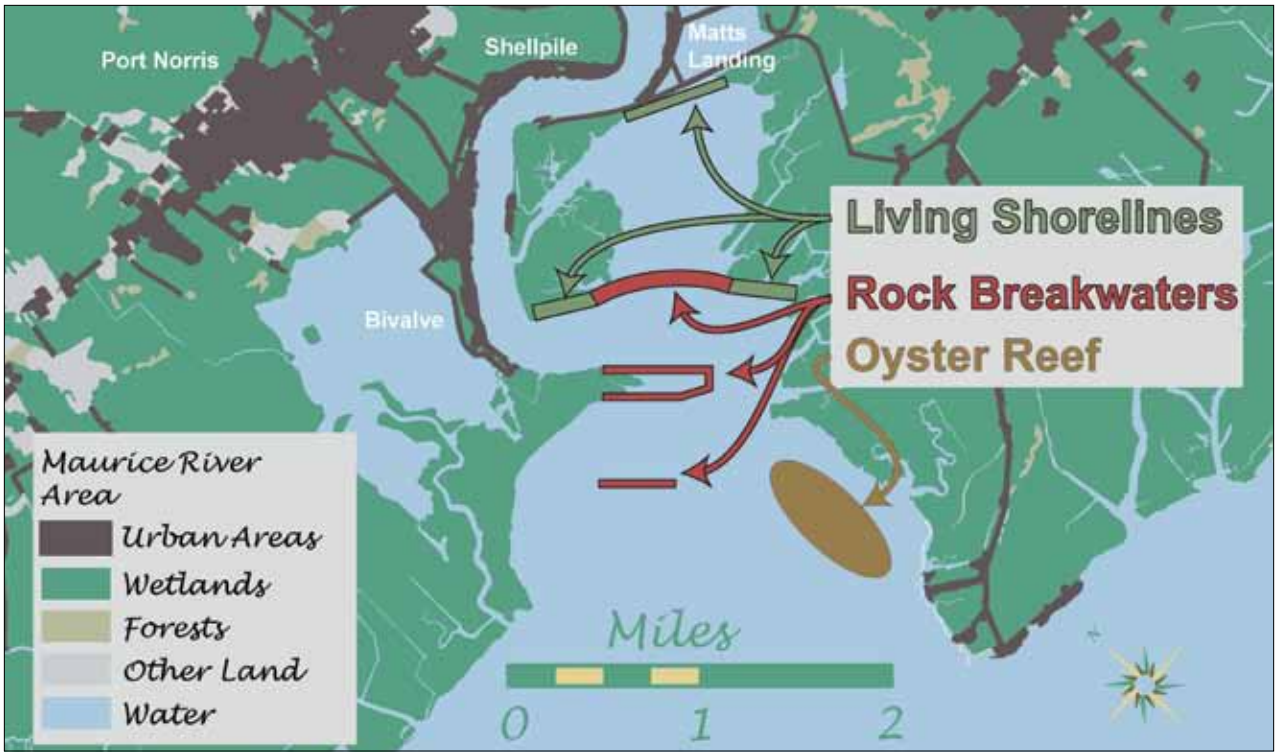
Mouth of Maurice River Restoration – Including Dredging

SUBCOMMITTEE

Shoreline Protection/Coastal Management

PRIORITY

Vital



Data Source: NJDEP Land Use/ Land Cover 2007

DESCRIPTION

This project seeks technical assistance and financial resources to plan, design and implement a shoreline protection project for the Mouth of the Maurice River. The project would include dredging and placement of sediments in a marsh/shoreline restoration location.

Coastal storms have caused significant erosion of the Maurice River at its mouth and "lower" reaches. In recent years, a breach formed at the "Basket Flats" and at the north bank of "Northwest Reach." Barges placed at "Basket Flats" more than 15 years ago to dissipate wave energy are no longer effective. Superstorm Sandy further eroded and breached a dike constructed by the New Jersey Division of Fish and Wildlife north of Northwest Reach. This, in turn, led to a breach of a county road, isolating an area known as Matt's Landing. Any additional breaches could cause siltation that suspends navigation at Bivalve, Shellpile and Matt's Landing. Breaches could also cause the salt wedge to migrate further upriver and adversely affect environmental habitat.

This project is dependent on a feasibility study by the U.S. Army Corps of Engineers. The project, as proposed by the Partnership for the Delaware Estuary, includes:

- Creation of a mussel/oyster "living" reef in the Maurice River "Cove" or "Fowler Island" (or both) to reduce wave/storm energy
- Establishment of a breakwater at Basket Flats (at the site of the barges) and conversion to a natural island/peninsula as well as completely restoring the south side of the Northwest Reach
- Re-establishment of the Northwest Reach with pilings and/or other hard structures filled in with dredged material
- Elevation of mudflats between the Northwest Reach and Matt's Landing

PROJECT GOAL

The goal of this project is to stop the storm erosion and establish sustainable reaches for navigational safety.

SUSTAINABILITY/RESILIENCY OPPORTUNITIES

This project would allow residents of the villages in the townships along the Maurice River to retain their employment in the maritime industry, which in turn sustains the townships. The project would also protect the public from flooding during severe storms.

"The Mouth of the Maurice River has the greatest value to the county as a whole and to the state because of the industries that are supported there. ... The clam processing plant is located here. It has nowhere else to move to in the state if it closes down. That's about a $200 million a year loss to the state. It's about a $12 million loss to the county. If the oyster industry were to go away because the ports were lost here in the Mouth of the Maurice River, that's about an $18 million regional economic value. The crab landings that come through near the Mouth of the Maurice River are valued at about $12 million a year. All those are very large numbers for the poorest or second poorest region in the state."

David Bushek, Director of Rutgers University's Haskin Shellfish Research Laboratory

ACTION STEPS

- Complete feasibility study by the U.S. Army Corps of Engineers
- Identify partners
- Identify funding sources
- Acquire New Jersey Department of Environmental Protection permits in cooperation with the U.S. Army Corps of Engineers' regulatory process
- Implement the project in phases

SUMMARY COST ESTIMATE

Funded	$0
Gap	$50,000,000
Total	$50,000,000

More detailed cost estimates for this project are listed in the Appendix.

PROJECT ADVOCATE(S)

- Ben Stowman
- Tom McKee
- Meghan Wren

PROJECT SPONSOR(S)

- Maurice River Township
- Commercial Township
- Cumberland County

POTENTIAL FUNDING RESOURCES

- U.S. Army Corps of Engineers
- New Jersey Department of Environmental Protection
- Federal Emergency Management Agency
- Environmental/Habitat organizations
- Department of the Interior
- National Fish and Wildlife Foundation

ADDITIONAL RESOURCES

- U.S. Army Corps of Engineers
- New Jersey Department of Environmental Protection
- Federal Emergency Management Agency
- Rutgers Haskin Shellfish Research Laboratory
- Bayshore Center at Bivalve/Rising Tides Forum
- Partnership for the Delaware Estuary
- Cumberland County
- Haskin Shellfish Research Laboratory
- Maurice River Township
- Commercial Township
- Grants.gov
- Catalog of Federal Domestic Assistance: http://www.cfda.gov
- The FEMA New Jersey Community Resource Guide

Implementation

Next Steps

As this phase of the planning process comes to a close, it will be important to build on this momentum in a manner that leads toward implementation of projects. It is important to remember that recovery from a disaster is a process, not an event. Not all the projects will be implemented immediately or simultaneously and some—shoreline protection projects, for instance—may take years to accomplish. Fortunately, in addition to the resources identified in this *Cumberland County Delaware Bayshore Recovery Plan*, the New Jersey Recovery Fund has supported two initiatives that are dedicated to plan implementation. New Jersey Future has committed a Recovery Manager and the Bayshore Center at Bivalve has committed its Rising Tides Forum to the execution of the plan.

Shoreline Protection Issues

The Shoreline Protection and Coastal Management Subcommittee submitted 10 shoreline projects to address long-term shoreline problems that were exacerbated by Superstorm Sandy. The subcommittee met Nov. 13, 2013, with representatives from the U.S. Army Corps of Engineers, the American Littoral Society, Cumberland County Engineering Department and Cumberland County Planning Department.

The Army Corps' representative discussed numerous program authorities and the details on how each program authority is used. The details of the project scopes were compared to the program requirements in order to get a general idea of what program authority could be used to address the shoreline projects/issues. For the Army Corps to proceed with project assistance, however, the local municipality or Cumberland County must write a letter of intent to sponsor the project. This pre-requisite needs to be completed if the Corps' assistance is needed.

Tapping into University Resources

As this *Cumberland County Delaware Bayshore Recovery Plan* is being written, FEMA's Community Recovery Assistance team has been developing relationships with area universities to recruit student interns. Requested responsibilities include assistance with grant writing. Business and economics majors are being recruited to help develop tourism and business development plans; community planners and environmental majors to design informational wayfinding signage; and architects to design streetscapes. It would benefit the *New Jersey Delaware Bayshore Long-Term Recovery Committee* to keep informed of these university relationships and utilize them to their full advantage.

Hazard Mitigation Plan

Hazard mitigation projects, such as activities designed to mitigate the impacts of flooding and storm surge, **must be** included in the Cumberland County Multijurisdictional Hazard Mitigation Plan in order to receive funding from FEMA Mitigation. Commercial, Downe, Greenwich and Maurice River townships are a participating jurisdiction in the Cumberland County Multijurisdictional Hazard Mitigation Plan, which is currently under revision. The Hazard Mitigation Plan (HMP) is an important tool in the four communities' arsenal of recovery tools. Demonstrating a particular project's inclusion in the HMP strengthens a project's chances of being funded, especially via the various FEMA mitigation grant programs (i.e., Hazard Mitigation Grants, Pre-Disaster Mitigation, and Flood Mitigation Assistance). For this reason, it is important to keep the HMP current, updating it regularly to ensure desired projects are well-poised for funding.

Collaboration & Cooperation

One of the most important elements for maintaining momentum is to continue to work as a team, within the *New Jersey Delaware Bayshore Long-Term Recovery Committee*, subcommittees and the local communities—supporting each other so that projects move forward.

Implementing the capacity building projects; establishing the Bayshore Council, Eco-tourism/Business Improvement Task Force and Shore Protection team and hosting the Bayshore Resiliency Roundtable and Bayshore Conference are excellent ways to bolster collaboration and cooperation among local, regional and state agencies and organizations. Continued integration of these new efforts with the regional and local efforts throughout the Cumberland County Bayshore will be a key to the success of this plan.

Regionalism and the increased capacity gained from partnerships will enable the community to leverage resources for a wide variety of recovery actions. For the past decade, there has been a steady and marked shift in Federal, state and foundation grant programs towards funding regional and multijurisdictional projects rather than single-purpose, single-jurisdiction projects. Private investors, businesses, developers and financial institutions are also increasingly requiring larger impact areas as criteria for funding projects. The Cumberland County Delaware Bayshore area fits these definitions.

It will be important to keep all of the partners informed of the local efforts, and seek to secure support from these organizations for projects in this plan. This will help to identify resources (technical, in-kind and financial) for plan implementation.

Identify and Pursue Catalyst Projects

Not all projects featured in this *Cumberland County Delaware Bayshore Recovery Plan* can be implemented immediately. There are many factors that affect the length of time it takes to develop, design and implement a project.

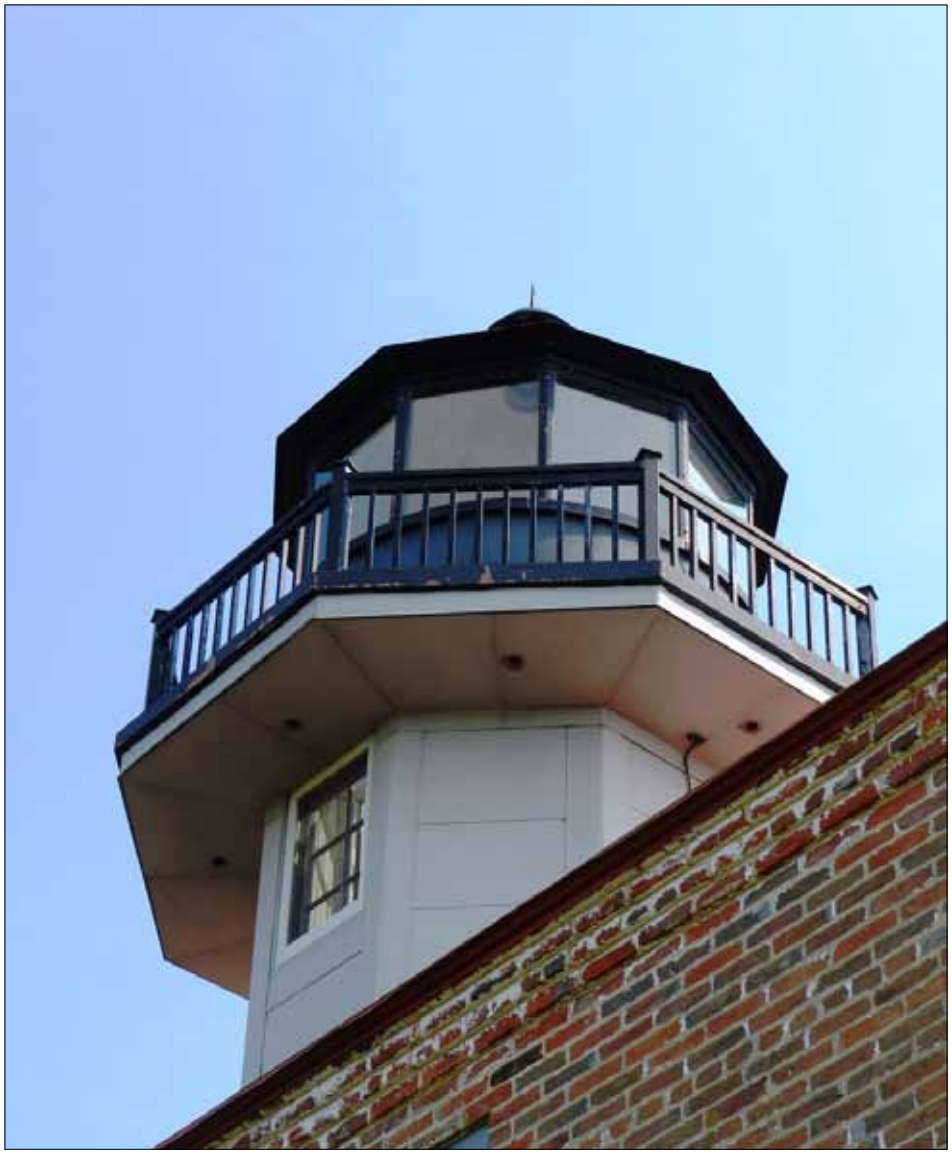
Therefore, it is important to identify "catalyst" projects as a priority. Catalyst projects are high-profile initiatives that, as they are implemented, attract additional investment and development/redevelopment to occur in close proximity to the initial project. A catalyst project demonstrates the community commitment for recovery and will often cross sectors such as an economic development project stimulating a shore protection project.

Revise Recovery Leadership Roles and Responsibilities

The *New Jersey Delaware Bayshore Long-Term Recovery Committee* established clear roles and responsibilities during the recovery planning process. As the planning process transitions into implementation, roles and responsibilities may need to be redefined and the committee structure adjusted to accommodate project advocates and other stakeholders. The recovery committee and its successor organization(s)—Bayshore Council, Rising Tides Forum/shore protection team, Eco-Tourism/Business Improvement Task Force—should continue to identify individuals and organizations that can play lead, support or advisory roles for projects. Creating an organizational matrix will provide a structure to help the recovery committee to maintain communication with project leaders.

Establish a Recovery Communications Strategy

The *New Jersey Delaware Bayshore Long-Term Recovery Committee* should continue to develop an official communication strategy through the Rising Tides Forum to help ensure that effective information sharing takes place. For example, these meetings should include an agenda that has each project lead or advocate reporting on the status of their projects, milestones achieved and barriers they are encountering. In addition, a communication strategy should provide information to residents of the community and media outlets as an ongoing activity. Other tools to help strengthen communication include regular newsletters, recovery websites and social media sites.



Funding and Capacity Building Resources

New Jersey Resiliency Network

Sustainable Jersey, a nonprofit organization that administers a certification program to support and reward municipalities in New Jersey as they pursue sustainability programs, will provide communities with direct and indirect recovery (and resiliency) assistance through the New Jersey Resiliency Network. The network will work closely with communities over the next 18 to 36 months, providing direct technical assistance and helping municipalities find resources to help them move beyond recovery. By mid-December, Sustainable Jersey will launch a statewide needs assessment that will ask local officials about the specific types of assistance needed. Concurrently, its resiliency managers will meet personally with local officials in an as-yet-undefined 10-county area, including Cumberland, to review and discuss the assessment and begin a discussion about resources currently available.

Once the needs assessment is completed, Sustainable Jersey will connect communities with the resources that meet their specific needs. Where there are gaps in resources, the organization will try to address them by reaching out to the New Jersey Resiliency Network providers and beyond for assistance.

Funding Summit

The League of Municipalities hosted a resource and funding workshop Dec. 10, 2013, to help match community recovery project needs with technical resources and funding opportunities. The purpose is to help get some priority projects off the ground in a few of the communities that have been heavily impacted by Superstorm Sandy. The workshop would also help to begin getting critical information out to the broader group of communities that really need it.

Philanthropic Community

The *New Jersey Delaware Bayshore Long-Term Recovery Committee* should develop a close relationship with the Council of New Jersey Grantmakers, a group that is expected to attend the Funding Summit. This organization is a pipeline to the world of philanthropy, a project funding resource that should not be ignored.

New Jersey Community Resource Guide — Federal, State and Regional Resources

The New Jersey Community Resource Guide identifies specific agencies and organizations that can potentially be tapped for either funding or technical assistance resources to implement community recovery and revitalization projects. The guide, included as a companion disk to this *Cumberland County Delaware Bayshore Recovery Plan*, provides an overview of hundreds of Federal, state and regional funding and technical assistance sources, both public and private.

All grant programs have specific eligibility requirements for applicants. Some programs will fund only 501(c)(3) charitable nonprofits, while others fund only local government entities. Some grants are available to both types of applicants. Therefore, public-private partnerships are important to maximize funding, capacity building and other opportunities.

Some programs limit their funding to communities that meet specified eligibility criteria, such as falling within a certain geographic area or possessing certain demographic characteristics, such as high poverty or unemployment rates. Some designations specifically target more urban areas for assistance while others specifically target rural areas. Examples of designations, often referred to as designated areas or zones, that provide funding opportunities for the Cumberland County Delaware Bayshore region include:

- Food deserts in metropolitan areas *
- Economically distressed communities: Commercial Township (Municipal Revitalization Index-529); Downe Township (MRI-515); Greenwich Township (MRI-525); Maurice River Township (MRI-457)**
- Housing or economic development hot zones
- Health professional shortage areas and/or medically underserved areas

*An area, most likely found in low-income communities, where affordable healthy food is difficult to obtain, particularly for those without access to an automobile.

**The Municipal Revitalization Index (MRI) ranks New Jersey's municipalities according to eight separate indicators that measure diverse aspects of social, economic, physical and fiscal conditions in each locality. The Index highlights the 100 municipalities that are most in need of revitalization (distressed) in New Jersey. The MRI acts primarily as a social measure and is used as a factor in distributing certain "need based" funds. The MRI, last updated in 2008, was previously called the Municipal Distress Index (MDI). The only change between the two is that the ranking order has been reversed. Today it is measured from most affluent (1) to most distressed (566). There were 566 municipalities in New Jersey in 2008.

The Rising Tides Forum

Before the Long Term Recovery Planning Process began, The Rising Tides Forum was convened by the Bayshore Center at Bivalve for dialogue and action in response to the rising sea levels. The goal of the Rising Tides Forum is to focus the attention and energies of the region on readiness for sea level rise and sustainability for this and future generations. In response to Superstorm Sandy, the forum's mission was expanded to incorporate long-term community recovery efforts. The elements of the forum include: ad hoc task forces for special interest groups and special projects; quarterly meetings of a steering committee; and an annual forum that brings stakeholders together to present the latest information and research findings, and to seek feedback on the region's progress. The forum's outreach and communication activities include: periodic public announcements and alerts, sea level rise workshops and outreach to stakeholder groups regarding specific local issues. Forum membership draws upon a wide variety of constituencies, including: elected and appointed municipal, county and state officials; the business community; the environmental community; and the media. The Forum will continue as an ongoing roundtable discussion.

The Partnership for the Delaware Estuary

The Partnership for the Delaware Estuary is a nonprofit organization established in 1996 to take a leadership role in protecting and enhancing the Delaware Estuary, where fresh water from the Delaware River mixes with salt water from the Atlantic Ocean. It is one of 28 National Estuary programs designated by Congress throughout the coastal United States that are working to improve the environmental health of the nation's estuaries. Its staff works with partners in three states to increase awareness, understanding and scientific knowledge about the Delaware Estuary, the region's most important cultural, economic and recreational resource. Its mission is to lead science-based and collaborative efforts to improve the tidal Delaware River and Bay, which spans Delaware, New Jersey and Pennsylvania.

Bayshore Sustainable Infrastructure Planning Project

The Partnership for the Delaware Estuary is working with the Bayshore Center at Bivalve and other partners on a project supported by the New Jersey Recovery Fund. The project, called the Bayshore Sustainable Infrastructure Planning Project (BaySIPP), focuses on Downe Township, Commercial Township and Maurice River Township. The goal of the project is to develop community-vetted actions to improve the resilience of these three Cumberland County Bayshore communities.

Members of the BaySIPP Steering Committee include: The Partnership for the Delaware Estuary, Bayshore Center at Bivalve, Downe Township, Commercial Township, Maurice River Township, Cumberland County, Rutgers Haskin Shellfish Research Laboratory, Natural Lands Trust, The Nature Conservancy and New Jersey Future.

The project work plan involves three phases. First, the project will work to identify common values between conservation organizations and communities and to identify places and topics that all parties agree need to be examined. In the next phase, scientists from the Steering Committee organizations will work alongside other Steering Committee members to identify opportunities for green infrastructure and possibly areas of need for other types of work. Scientists will also help to provide information regarding the feasibility of implementing certain types of options. In the third phase, project partners will work to transform options identified as having high priority and high feasibility into marketable actions.

Appendix

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Project Cost Estimates

INTERGOVERNMENTAL RELATIONS

Bayshore Council/Conference

- Staff time to coordinate
- Venue: contingent on space donated by one of the participating municipalities or organizations
- Lunch refreshments: participants could be asked to bring a covered dish for lunch or provide snacks and water
- Printing and postage: **$1,000**

Bayshore Resiliency and Sustainability Education and Outreach

- Budget: **$20,000**
- Assumption: **$5,000** per township, estimated in 2009 Cumberland County Multijurisdictional Hazard Mitigation Plan.

Bayshore Resiliency Roundtable

- **$1,000 to $5,000**
- Publicity, printing and postage
- Venue space could be donated by one of the participating municipalities or organizations
- Lunch, refreshments: Participants could be asked to bring a covered dish for lunch; provide snacks and water

TOURISM AND ECONOMIC DEVELOPMENT

Bayshore Eco-Tourism/Business Improvement Task Force

- **$50,000** to support a full-time Tourism advocate
- **$50,000** to support a full-time Economic Development advocate

Bayshore Marketing and Destination Plan

- Consultant: **$30,000 to $50,000**
- Committed: **$0**
- Funding gap: **$0 to $10,000**

Business Retention and Recruitment Plan

- Plan development: **$50,000 to $65,000**

Business Plan Initiatives Implementation

- Business retention initiatives - **$300,000**
- Open closed businesses – task force staff time plus **$15,000** printing, outreach, county 'open house'
- Business Recruitment - task force staff time plus **$10,000** printing, travel, outreach
- Cottage industry initiative - task force staff time plus **$10,000** printing, outreach, support network
- Resiliency Grant and Loan Program - task force staff plus **$250,000/year**

TOURISM AND ECONOMIC DEVELOPMENT

Tourism Initiatives Implementation

- Marketing Campaign: **$50,000**
- Way finding: **$25,000**
- Site and Village Entry Improvements: **TBD**
- Route 55/47 Gateway Improvements: **TBD**
- Farm/Seafood Market: **$20,000**
- Hyperlocal media outlet: **$30,000/year**

Maurice River Rails-to-Trails

- Existing Road or Trail to Be Signed **$68,136**
- Trail on Abandoned Railroad Grade **$1,542,060**
- Restore Bridge between Carlisle Place Road and Mauricetown Bypass **$150,000**
- Total **$1,760,196**

Revitalizing Historic Bayshore Oyster Industry

- **$500,000 to $1,000,000 per year**

INFRASTRUCTURE

Emergency Generators

- To be determined by the size of each building and the number of buildings selected for the shelter
- Each generator install could range from **$40,000 to $200,000**

Public Water Supply Feasibility Study

- Feasibility Study **$30,000**
- Engineering and Permitting **TBD**
- Construction **TBD**

Road Elevations and Improvements

- Roadways along the Maurice River in Commercial Township **TBD**
- Newport Neck Road, Downe Township **$1,500,000**
- Fortescue Entrance Road, Downe Township **TBD**
- Bacon's Neck Road, Greenwich Township **$1,500,000**
- Main Street at Crowder Run in Dorchester, Maurice River Township **$875,000**
- Carlisle Place Rd at Crowder Run in Dorchester, Maurice River Township **TBD**
- Mauricetown Causeway, Maurice River Township **$795,000**
- Glade Road, between Heislerville and Delmont, Maurice River Township **$635,000**
- East Point Road, Maurice River Township **TBD**
- River Road in Leesburg, Maurice River Township **$408,000**
- Newell Road drainage improvements, Leesburg, Maurice River Township **$207,200**
- New Jersey Route 47 in Delmont, Maurice River Township **TBD**
- New Jersey Route 47 in Bricksboro, Maurice River Township **TBD**

INFRASTRUCTURE

Telecommunications Infrastructure Needs Assessment

- Feasibility Study **$50,000 to $100,000**
- Engineering and Permitting **TBD**
- Construction **TBD**

Transportation and Social Services Initiative

- One or two additional Cumberland Area Transit buses for Bayshore routes: **$200,000**
- Additional 20 hours of free nursing: **$120,000**
- Child care facility: **$100,000**
- Mental health practitioner/programs: **$75,000**
- Literacy and family programming: **$60,000**
- Addiction services: **$40,000**

Wastewater Management Feasibility Study

- Feasibility Study **$100,000 to $200,000**
- Engineering and Permitting **TBD**
- Construction **TBD**

SHORELINE PROTECTION AND COASTAL MANAGEMENT

Beach and/or Dune Restoration

- Thompson's Beach (1 mile) spent **$400,000**
- Moore's Beach spent **$300,000; $100,000 left**
- East Point Beach and Lighthouse (1 mile) **$1 million to $4.5 million/mile** *1
- Cox Creek Meadow and Beach (1 mile) **$1 million to $4.5 million** *1
- Fortescue (1.5 miles) $1 million to **$4.5 million/mile** *1
- Gandy's Beach (0.7 miles)*2 **$2 million to $4.5 million** *1
- Money Island (1.0 miles)*2 **$2 million to $4.5 million** *1

Remainder of Bayshore not listed above:

- Feasibility Study **$200,000 to $300,000**
- Implementation **$1 million to $4.5 million** *1

*1—Cost estimates vary by site according to the amount of work.
*2—Gandy's Beach, Money Island share beaches/shoreline and could be combined.

Berm/Levees (Upland/Marshland) Restoration

- Maurice River Township berm **$5.6 million**
- Strawberry Avenue/Milbourne Drive/Robinstown Road (Commercial Township) **$2.0 million**
- Delaware Avenue (Greenwich Township) **$850,000**

SHORELINE PROTECTION AND COASTAL MANAGEMENT

Bulkhead and Other Structures—Repair and Construction

Downe Township

- (Money Island) Provide bulkhead replacement at the end of Newport Neck Road **$530,000**
- (Fortescue) Provide bulkhead at Myers Marina and New Jersey Avenue **$125,000**
- (Fortescue) Replace Bulkhead at Frank Carpino Delaware Bay Campground **$750,000**
- (Fortescue) Bulkhead Replacement at Fortescue New Jersey State Marina **$2.8 million**
- Dividing Creek Improvements (new bulkhead needed) **$6.15 million**
- Fortescue Improvements (Bulkhead at Marina Inlet; Rock Jetty (800 feet); Beach Replenishment coming from other projects) **$3.93 million**
- Gandy's Beach Improvements (Bulkhead; Rock Jetty (200 feet), Beach Replenishment coming from other projects) $4.7 million
- Money Island Improvements (Bulkhead; Rock Jetty (300 feet), Beach Replenishment coming from other projects) **$2.4 million**

Maurice River Township

- Matt's Landing – Bulkhead repair along the marina area **TBD**
- East Point – At end of road (parking lot area); repair bulkhead and any parking lot undermining that occurred **TBD**

SHORELINE PROTECTION AND COASTAL MANAGEMENT

Bulkhead and Other Structures—Repair and Construction (Cont)

- East Point – Lighthouse water access point area – Repair bulkhead jetty / boat ramp damage that occurred. Possibly re-align to mitigate wave / storm action **TBD**

Greenwich Township

- Hancock's Harbor Marina (1500 linear feet) **$937,500**
- Greenwich Marina (1800 linear feet) **$1,125,000**

Creek Maintenance Dredging

- Fortescue Creek **$400,000**
- Nantuxent Creek **TBD**
- Oranoaken Creek **$450,000**

Maurice River Northwest Reach Bank Stabilization and Marsh Re-establishment

- **$2 million to $6 million, TBD**
- Mussel and Plant Tactics **$100 to $225/linear foot**
- Marsh Creation with Stone Sill **$250 to $700/ linear foot**
- Nearshore Oyster Reefs **$100 to $1,000/linear foot**
- Breakwaters **$400 to $1,000/linear foot**

*Estimates provided by the Partnership for the Delaware Estuary:

SHORELINE PROTECTION AND COASTAL MANAGEMENT

Dikes/Levees (Waterfront) Restoration

- Maple Avenue Levee **$3.5 million**
- Matt's Landing Impoundment Levee **$2.5 million**
- Several Levees in Commercial (particularly PSE&G) **TBD**
- Pine Mount Creek Levee **$2.4 million to $14 million**
- Mill Creek, Molly Wheaton Run and Mounces Creek Levees **$1.5 million to $3 million**
- Market Lane Levee **$750,000**

SHORELINE PROTECTION AND COASTAL MANAGEMENT

Maurice River at Peak of the Moon Bank Stabilization

- Clearing Site **$100,000**
- Mobilizations $50,000
- Wetlands Mitigation $200,000
- Steel Sheet Piling SF **$180,000**
- Coal Tar Epoxy Coating **$900**
- Steel Waler System $26,000
- Steel Tie Rod System **$18,000**
- 48-foot Ductile Iron Pipe, Tide Gate and Trash Rack **$70,000**
- 72-foot-by-48-foot Aluminum Water Control Structures (2) **$100,000**
- Stone Sill and Vegetation **$1,650,000**
- Soil Aggregate—32,000 cubic yards at **$5 per cubic yard $160,000**
- Dense-Graded Aggregate Base Course 6-foot thick **$75,000**
- Demobilization **$50,000**
- Construction Contingencies (10 percent) **$288,000**
- Construction Cost **$2,947,900**
- Permitting Fees **$100,000**
- Environmental Services **$50,000**
- Engineering Services **$140,000**
- Construction Services (including hiring company) **$106,000**

Total Estimated Project Cost $3,343,900

SHORELINE PROTECTION AND COASTAL MANAGEMENT

Maurice River at Bivalve Bank Stabilization

- **TBD** following completion of Maurice River at Peak of the Moon Bank Stabilization

Mouth of Cohansey River Restoration – Including Dredging

- **$5 million** (TBD by the U.S. Army Corps of Engineers)

Mouth of Maurice River Restoration – Including Dredging

- **More than $50 million: TBD** by United States Army Corps of Engineers

Project Relationships Spreadsheet

The *Cumberland County Delaware Bayshore Recovery Plan* presents 26 individual projects that, when completed, will help the community achieve its vision for long-term community recovery. Implementing some of these projects might have an impact on other projects. The chart on the following page illustrates the degree of interdependency between these projects.

Project Relationships to Other Projects

	PROJECT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	Bayshore Council/Conference																										
2	Bayshore Resiliency & Sustainability Education & Outreach																										
3	Bayshsore Resiliency Roundtable																										
4	Business Retention and Recruitment Plan																										
5	Business Plan Initiatives Implementation																										
6	Bayshore Eco-Tourism/Business Improvement Task Force																										
7	Bayshore Marketing and Destination Plan																										
8	Tourism Initiatives Implementation																										
9	Maurice River Rails-to-Trails																										
10	Historic Bayshore Oyster Industry Revitalization																										
11	Transportation and Social Services Initiative																										
12	Emergency Generators																										
13	Public Water Supply Feasibility Study																										
14	Road Elevations & Improvements																										
15	Telecommunications Infrastructure Needs Assessment																										
16	Wastewater Management Feasibility Study																										
17	Beach and/or Dune Restoration																										
18	Berms/Levees (Upland/Marshland) Restoration																										
19	Bulkheads and Other Hard Structures Restoration and Construction																										
20	Creek Maintenance Dredging																										
21	Dikes/Levees (Waterfront) Restoration																										
22	Maurice River at Peak of the Moon Bank Stabilization																										
23	Maurice River at Bivalve Bank Stabilization																										
24	Maurice River Northwest Reach Bank Stabilization and Marsh Re-Establishment																										
25	Mouth of Cohansey River Restoration — Including Dredging																										
26	Mouth of Maurice River Restoration — Including Dredging																										

Direct Impact
Possible Impact
Intersection

Rising Tides Forum

Oct. 22-23, 2013

Introduction

The Rising Tides Forum was created to explore ideas, share experiences and develop contacts for building resiliency among Cumberland County's Delaware Bayshore communities. Held over two days, Oct. 22-23, 2013, an initial symposium was hosted by the Bayshore Center at Bivalve and Cumberland County College in Vineland. It was sponsored by the Cumberland County Department of Planning and Development, Bayshore Center at Bivalve, Partnership for the Delaware Estuary, Cumberland County Chamber of Commerce and the Federal Emergency Management Agency.

Purpose

Discussions included the probabilities and consequences of sea level rise and the viability of introducing living shorelines to protect the Cumberland County Delaware Bayshore. The *New Jersey Delaware Bayshore Long-Term Recovery Committee* will continue working with FEMA, the State of New Jersey and New Jersey Future to ensure that the established recovery projects locate funding and reach fruition.

Oct. 22 Field Trip

The Rising Tides Forum began with a field trip to the Rutgers University-sponsored Living Shorelines Project at Matt's Landing on the Maurice River, Maurice Township. The project was a successful example of using native grasses as an alternative to stone material for shoreline protection.

Oct. 22 Evening Forum: "How Are We Doing?"

The panel discussion covered ways that Cumberland County's Delaware Bayshore can provide shoreline and community resiliency by combining traditionally engineered "hard" structure projects with "green infrastructure" projects. In planning for the future, actions such as elevating structures above the mandated Base Flood Elevation and mitigating roads and crucial infrastructure are paramount. The New Jersey Recovery Fund will be used to create living shorelines and provide future additional funding for "green" sustainable infrastructure. Permitting, policy, mitigation and urbanization were pressing topics.

Oct. 23 Workshop: "Linking Resiliency: Partnering Municipalities and NGOs with State and Federal Regulators for Shoreline Protection"

The workshop included Federal and private sector experts who discussed different resiliency options. There are numerous ways to protect wetlands from severe weather. One method, called Wave Energy Attenuation Devices, reduces the force of moderate waves during storms. These devices, designed by engineers and tested in the field, directly target the cause of shoreline erosion and associated impacts (i.e., energy). Another method would remove harmful materials and replace them with plants and seeds. In so doing, wildlife could return once a habitat is revitalized. To create additional stability, options included select sediment placement, making repairs inside the river mouth and monitoring.

There was also a discussion of the Sandy Comprehensive Study, which examines areas without coastal storm management options; a Beneficial Use Study that calls for using dredged materials for restoration purposes; technical guidance from the U.S. Fish and Wildlife Service that may affect wildlife/natural habitats; and a $400 million grant requested by the State of New Jersey for restoration work. Speakers emphasized the importance of keeping communication channels open and developing a comprehensive cost/benefit analysis on each project. A second symposium is planned to discuss permitting and funding.

MY HOPES FOR THE CUMBERLAND COUNTY DELAWARE BAYSHORE:

"The opportunities exist to use the Bayshore region as an example of how things could be done over time as climate changes and sea level rises, and those could then be transferred elsewhere in the country. It'll be great to see that happen."

David Bushek, Director of Rutgers University's Haskin Shellfish Research Laboratory

Participants

- Bayshore Center at Bivalve
- Bayshore Sustainable Infrastructure Planning Project
- Cardno ENTRIX (Delaware)
- Cumberland County Department of Planning
- Cumberland County Long-Term Recovery Group
- Cumberland County Office of Emergency Management
- Haskin Shellfish Research Laboratory
- Jacques Cousteau National Estuarine Research Reserve
- New Jersey Future
- Partnership for the Delaware Estuary
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- Young Environmental

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