



## Phase 2

### Potential Solutions

Through a review of the resources and previous studies, initial potential resiliency projects were identified. Then the Community Action Team brainstormed additional project ideas and reviewed what progress had already been made on previously identified projects. Finally, the citizen survey results were used to guide the chosen implementation locations and prioritization of projects. Fifteen potential projects were identified, and five additional projects were identified as currently in progress. The initial proposed project list is provided in tables below.

**Table 19 - Potential Projects (Part 1 of 3)**

Project Name	Project Description
<b>Stormwater Pump Stations</b>	This project was identified in the Currituck County Resilient Redevelopment Plan as Housing Action 2. <i>"Canals in northern Currituck County drain to a single crossing of NC 168, which leads to flooding in residential areas along canals during storm events. This project would include installation of three stormwater pump stations to reduce flooding from stormwater in canals at Ranchland Drive and Green View Road/Eagle Creek subdivision."</i>
<b>Marsh Sill and Shoreline Restoration - Coinjock Bay</b>	Marsh Sills at 3581 Caratoke Hwy - a marsh sill and shoreline restoration at this location serves to protect the roadway and has the potential to be developed as a public water access. This project was identified in the Draft Narrative Water Quality Monitoring and Remediation - Currituck Sounds Watersheds. Additionally, shoreline stabilization and marsh restoration are identified as Outer Banks Hazard Mitigation Plan actions #CUR11 and #CUR12 <i>"Work to pursue shoreline stabilization projects and regular shoreline monitoring"</i> and <i>"Currituck Sound Coalition will prioritize marsh restoration planning and design for storm surge mitigation benefits."</i>
<b>Marsh Sills - Tulls Creek Rd</b>	Marsh sills at 1485 Tulls Creek Rd - a marsh sill at this location serves to protect the roadway and additional water quality benefits. This project was identified in the Draft Narrative Water Quality Monitoring and Remediation - Currituck Sounds Watersheds. Additionally, shoreline stabilization and marsh restoration are identified as Outer banks Hazard Mitigation Plan actions #CUR11 and #CUR12 <i>"Work to pursue shoreline stabilization projects and regular shoreline monitoring"</i> and <i>"Currituck Sound Coalition will prioritize marsh restoration planning and design for storm surge mitigation benefits."</i>
<b>Bells Island Road Shoreline Protection</b>	A living shoreline at this location serves to protect the roadway which was identified as a hot spot in the citizen survey. This project was identified in the Draft Narrative Water Quality Monitoring and Remediation - Currituck Sounds Watersheds. Additionally, shoreline stabilization and marsh restoration are identified as Outer banks Hazard Mitigation Plan actions #CUR11 and #CUR12 <i>"Work to pursue shoreline stabilization projects and regular shoreline monitoring"</i> and <i>"Currituck Sound Coalition will prioritize marsh restoration planning and design for storm surge mitigation benefits."</i>



**Table 20 - Potential Projects (Part 2 of 3)**

Project Name	Project Description
<b>Sewer Feasibility Study</b>	A long term feasibility study of possible solutions, potential cost, and funding options for future sewer and septic system replacement and repair throughout the county. Concern over pollution from failing sewer systems (specifically Eagle Creek, Waterfront Drive, was an issue raised in the citizen survey.
<b>Storm Drainage Maintenance (Ditch Maintenance)</b>	Work with private landowners and NCDOT to ensure maintenance of drainage ditches and maximize the capability of existing drainage systems and minimize flooding from rainfall and poor drainage. The county has made a significant effort but does not have a permanent funding source. This was identified in the Currituck County Resilient Redevelopment Plan as Environmental Action 4 and was identified as a common concern in the citizen survey. <i>"This project would provide funding to identify priority roadside ditches and drainage structures for maintenance and work with NCDOT to implement a maintenance program."</i>
<b>Public Education and Outreach Program</b>	A targeted education and outreach program regarding the benefit of natural areas and flood risk, preparedness, insurance and mitigation. In the OBXHMP actions #CUR34 and CUR#35 were to send targeted outreach to repetitive loss property owners and pre-FIRM property owners, respectively. OBXHMP action #CUR31 was to <i>"Educate property owners on the natural and beneficial functions of floodplains, watersheds, and other natural/coastal areas"</i> FIRM education and Outreach was also identified as Housing Action 3 in the Currituck County Resilient Redevelopment Plan.
<b>Elevate Structures</b>	Establish a grant program to provide assistance to elevate structures and homes that are currently below the BFE or are repetitive loss properties, to meet current ordinance requirements and protect against flooding and sea level rise.
<b>Outer Banks Outfalls</b>	This project was identified in the Currituck County Resilient Redevelopment Plan as Economic Development Action 1. <i>"Many residential areas on the Currituck County Outer Banks are private, with privately-maintained roads and water/sewer systems. Some of these areas stayed flooded for several days following Hurricane Matthew, which affects the County's economy as this area is primarily rental properties and vacation homes. This project would allow the County to acquire portable generators and a portable stormwater pump station to assist in removing stormwater from these areas. The County would also install permanent outfall pipes to the Atlantic Ocean; acquire easements on private property to locate the portable pump when needed. The County would also acquire a Coastal Area Management Act (CAMA) major permit to install the outfalls. These outfalls would be capped on both ends during normal conditions and used only in an emergency when the State permits pumping to the ocean."</i>



**Table 21 - Potential Projects (Part 3 of 3)**

Project Name	Project Description
<b>Waterlily Road Improvements Study</b>	This project was identified in the Currituck County Resilient Redevelopment Plan as Infrastructure Action 3. Additionally, the project area was identified as a hot spot in the citizen survey. <i>"This project would provide funding for a study to evaluate alternatives for elevating Waterlily Road to reduce risk of being inundated during flood events, in coordination with NCDOT."</i>
<b>Bells Island Road Improvements Study</b>	This project was identified in the Currituck County Resilient Redevelopment Plan as Infrastructure Action 4. Additionally, the project area was identified as a hot spot in the citizen survey. <i>"This project would provide funding for a study to evaluate alternatives for elevating Bells Island Road to reduce risk of being inundated during flood events, in coordination with NCDOT."</i>
<b>Knotts Island Marsh Causeway Improvements Study</b>	This project was identified in the Currituck County Resilient Redevelopment Plan as Infrastructure Action 4. Additionally, the project area was identified as a hot spot in the citizen survey. <i>"This project would provide funding for a study to evaluate alternatives for elevating Marsh Causeway to reduce risk of being inundated during flood events, in coordination with NCDOT."</i>
<b>Tulls Creek Road Area Improvements Study</b>	This project was identified in the Currituck County Resilient Redevelopment Plan as Infrastructure Action 4. Additionally, the project area was identified as a hot spot in the citizen survey. <i>"This project would provide funding for a study to evaluate roadway and drainage improvements on Tulls Creek Road, Old Tulls Creek Road, and Rocky Top Road to reduce risk of roads being inundated for extended periods, in coordination with NCDOT."</i>

In addition to potential new projects, a list of currently in-progress or recent projects is listed below.

**Table 22 - In-Progress Projects (Part 1 of 2)**

Project Name	Project Description
<b>Shoreline Stability Study/Beach Nourishment - Pine Island, Corolla &amp; Carova</b>	A shoreline stability study is currently in progress to determine vulnerability and shoreline change trends and recommendations as to further action for beach nourishment. However, the citizen survey indicated a desire for beach nourishment for the Currituck beaches.
<b>Property Buyout</b>	Property buyouts of repetitive loss properties. Properties bought out through the FEMA buy-out program can be used for limited purposes and would primarily serve as land returned to an open space condition and associated increased infiltration and natural floodplain function.
<b>Groundwater lowering systems</b>	This project is identified in the Outer Banks Hazard Mitigation Plan action #CUR6 <i>"Enhance existing and/or implement new groundwater lowering systems in low-lying coastal areas."</i> <i>"Lowering system in place at Whalehead subdivision with ongoing enhancements in place. Future system being pursued for Ocean Sands/Crown Point subdivision. New projects have been identified and expansion of existing systems are also planned."</i>



**Table 23 - In-Progress Projects (Part 2 of 2)**

Project Name	Project Description
<b>Dune Restoration</b>	Support for projects to plant and stabilize dunes. This was included as a project in the Outer Banks Hazard Mitigation Plan as action #CUR10. <i>"Evaluate allocating a portion of occupancy tax toward the dune protection program and shoreline restoration, and expand extent of the dune protection program to include grant support of sand fencing."</i> This was also included in the Currituck County Resilient Redevelopment Plan as Environmental Action 3. <i>"Dune Enhancement: Dunes serve as natural mitigation and protection from storms. This project would provide funding for dune plantings, sand fencing, importing sand, and other appropriate measures to repair and enhance frontal dunes."</i>
<b>Coinjock Water Main</b>	This project was identified in the Currituck County Resilient Redevelopment Plan as Infrastructure Action 1. <i>"The mainland water system runs primarily north and south. The southern part of the County's mainland is separated by the USACE Intracoastal Waterway (Coinjock Canal). In 2006, a new 12-inch water main was horizontally directional drilled (HDD) under the canal after the previous water main failed. The only water treatment plant is located in the center portion of the county north of the Coinjock Canal. There are two elevated water towers located south of the Coinjock Canal. Should the water main under the Coinjock Canal break, the southern portion of the county would be out of water in approximately one day. This project would install a backup water main across the Coinjock Canal consisting of approximately 450 feet of 18-inch HDPE bored under the bed of the Coinjock Canal and approximately 150 feet of connection on each end."</i>

Projects were then prioritized through two surveys, one sent to the CAT and one to the citizens who indicated a desire to remain involved and receive updates in the initial citizen survey. The survey listed each project idea and asked respondents to rank them as Lowest Priority, Low Priority, Neither Low Priority nor High Priority, High Priority, or Highest Priority, which was then assigned a numeric value of 1-5 respectively. See Appendix C for the full surveys and results. The projects were then sorted by average score and ranked. To assign priority to the CAT survey and second citizen survey results, the top four projects were ranked high priority, the bottom four were ranked low priority, and the remainder were ranked medium priority. Consideration of the CAT priority, Citizen priority, and additional factors such as cost, effort required, and alignment with program goals was made and an overall priority was assigned to each project.

**Table 24 - Project Prioritization (Part 1 of 2)**

Project Name	CAT Average	CAT Ranking	CAT Priority	Citizen Average	Citizen Ranking	Citizen Priority	Final Priority
<b>Storm Drainage Maintenance (Ditch Maintenance)</b>	4.4	1	High	4.08	1	High	<b>High</b>
<b>Guinea Mill Run Drainage Improvements - Culvert and Channel Modifications</b>	4.2	2	High	3.29	6	Medium	<b>High</b>



Table 25 - Project Prioritization (Part 2 of 2)

Project Name	CAT Average	CAT Ranking	CAT Priority	Citizen Average	Citizen Ranking	Citizen Priority	Final Priority
<b>Moyock Area Drainage Study</b>	4.2	2	High	3.22	9	Medium	<b>High</b>
<b>Tulls Creek Road Area Improvements Study</b>	4	4	High	3.27	8	Medium	<b>High</b>
<b>Public Education and Outreach Program</b>	3.8	5	Medium	3.39	4	High	<b>Medium</b>
<b>Stormwater Pump Stations</b>	3.6	6	Medium	3.31	5	Medium	<b>Medium</b>
<b>Outer Banks Outfalls</b>	3.2	10	Medium	3.69	2	High	<b>Medium</b>
<b>Sewer Feasibility Study</b>	2.8	14	Low	3.46	3	High	<b>Medium</b>
<b>Marsh Sill and Shoreline Restoration - Coinjock Bay</b>	3.2	10	Medium	3.28	7	Medium	<b>Medium</b>
<b>Bells Island Road Shoreline Protection</b>	3.4	8	Medium	3.2	10	Medium	<b>Medium</b>
<b>Bells Island Road Improvements Study</b>	3.4	6	Medium	3.04	13	Low	<b>Medium</b>
<b>Knotts Island Marsh Causeway Improvements Study</b>	3	12	Low	3.2	10	Medium	<b>Medium</b>
<b>Waterlily Road Improvements Study</b>	3.4	8	Medium	2.98	14	Low	<b>Medium</b>
<b>Marsh Sills - Tulls Creek Rd</b>	3	12	Low	3.16	12	Low	<b>Low</b>
<b>Elevate Structures</b>	2	15	Low	2.94	15	Low	<b>Low</b>

## Project Portfolio

From the initial project list, 13 projects have been further developed for inclusion in the project portfolio. All the projects selected were given a priority ranking of either high or medium. However, that does not preclude further development of any of the remaining projects initially ranked low priority.



**Table 26 - Portfolio Project #1**

<b>Project Name</b>	Storm Drainage Maintenance (Ditch Maintenance)
<b>Project Description</b>	Work with private landowners and NCDOT to ensure maintenance of drainage ditches throughout the county and maximize the capability of existing drainage systems and minimize flooding from rainfall and poor drainage. The county has made a significant effort but does not have a permanent funding source. This was identified in the Currituck County Resilient Redevelopment Plan as Environmental Action 4 and was identified as a common concern in the citizen survey. The county has existing mapping of the major drainage ways throughout the county and institutional knowledge of problem areas. This project would provide funding to establish a program and plan to work with NCDOT to implement a maintenance program to target priority roadside ditches and structures, including the hot spots identified in the citizen surveys. In the project prioritization process, this project was selected as the top priority by both the CAT and citizens.
<b>Hazard(s) Addressed by Project</b>	Flooding
<b>Type of Solution</b>	Infrastructure
<b>Project Estimated Cost</b>	\$101K - \$250K
<b>Potential Implementation Funding Sources</b>	General Fund, Grant Funds, Tax or tax incentive program
<b>Projected Estimated Timeline</b>	1 year to establish, then ongoing
<b>Priority Rating</b>	High
<b>Project Map</b>	N/A






**Table 27 - Portfolio Project #2**

<b>Project Name</b>	Guinea Mill Run Drainage Improvements - Culvert and Channel Modifications
<b>Project Description</b>	Full design, permitting, and implementation of upsized culverts and channels in Guinea Mill Run. This project works to improve drainage in the Guinea Mill Run watershed outside of Moyock. This area was identified as a hot spot in the first citizen survey and has been a known problem area. In 2018, a Guinea Mill Run Hydrology and Hydraulics study was completed by the US Army Corps of Engineers through the Planning Assistance to States program That study recommended "Improvement Plan 3." This plan included clearing and snagging of all the canals, modification of culvert structures and channel modification of Guinea Mill Run Canal.
<b>Hazard(s) Addressed by Project</b>	Flooding
<b>Type of Solution</b>	Infrastructure
<b>Project Estimated Cost</b>	\$1,000,000 - \$4,000,000
<b>Potential Implementation Funding Sources</b>	General Fund, Grant Funds
<b>Projected Estimated Timeline</b>	2-5 years (1 year design and 1-4 years implementing improvements)
<b>Priority Rating</b>	High
<b>Project Map</b>	



**Table 28 - Portfolio Project #3**

<b>Project Name</b>	Moyock Area Drainage Study
<b>Project Description</b>	Drainage study and improvements of the Moyock township. This project was identified in the Currituck County Resilient Redevelopment Plan as Environmental Action 1. Additionally, the general area and several of the specific drainages were identified as hot spots in the citizen survey. NC 168 runs through Moyock and in many locations limits drainage from the areas of Moyock west of NC 168. Drainages to be included in this study include: Eagle Creek, Western Canal, and Roland Creek Canals; Moyock Service District ditches #1-6; Ranchland drainage; Baxter Lane Ditch; Newtown Area Ditches; Survey Road ditch to Roland Creek; Summit Farms culvert and ditches; and NC 168 culverts.
<b>Hazard(s) Addressed by Project</b>	Flooding
<b>Type of Solution</b>	Infrastructure
<b>Project Estimated Cost</b>	\$251K - \$500K
<b>Potential Implementation Funding Sources</b>	General Fund, Grant Funds
<b>Projected Estimated Timeline</b>	2-5 years (1 year drainage study and 1-4 years implementing recommended improvement)
<b>Priority Rating</b>	High
<b>Project Map</b>	





**Table 29 - Portfolio Project #4**

<b>Project Name</b>	Tulls Creek Road Area Improvements Study
<b>Project Description</b>	Drainage/road improvement study and implementation of recommended improvements for the Old Tulls Creek Rd, Tulls Creek Rd, and Rocky Top Rd area. This project was identified in the Currituck County Resilient Redevelopment Plan as Infrastructure Action 4. Additionally, the project area was identified as a hot spot in the citizen survey. The study would evaluate different options of drainage improvements and elevating the roadway to reduce the risk of roads being inundated for extended periods. For optimal project success this study should be done in coordination with NCDOT.
<b>Hazard(s) Addressed by Project</b>	Flooding
<b>Type of Solution</b>	Infrastructure
<b>Project Estimated Cost</b>	\$51K - \$100K
<b>Potential Implementation Funding Sources</b>	General Fund, Grant Funds
<b>Projected Estimated Timeline</b>	2-5 years (1 year study and 1-4 years implementing recommended improvement)
<b>Priority Rating</b>	High
<b>Project Map</b>	



**Table 30 - Portfolio Project #5**

<b>Project Name</b>	Public Education and Outreach Program
<b>Project Description</b>	A targeted education and outreach program regarding the benefit of natural areas and flood risk, preparedness, insurance and mitigation. In the Outer Banks Hazard Mitigation Plan actions #CUR34 and CUR#35 were to send targeted outreach to repetitive loss property owners and pre-FIRM property owners, respectively. OBXHMP action #CUR31 was to educate property owners on the natural and beneficial functions of floodplains, watersheds, and other natural/coastal areas. FIRM education and Outreach was also identified as Housing Action 3 in the Currituck County Resilient Redevelopment Plan. High levels of public awareness and resulting preparedness for disaster events improves resiliency by either mitigating the potential effects of a storm event or improving the recovery as a result of advance preparations and measures such as flood insurance.
<b>Hazard(s) Addressed by Project</b>	Flooding, Sea Level Rise
<b>Type of Solution</b>	Public Education
<b>Project Estimated Cost</b>	N/A
<b>Potential Implementation Funding Sources</b>	General Fund, Grant Funds
<b>Projected Estimated Timeline</b>	1 year to establish, then ongoing
<b>Priority Rating</b>	Medium
<b>Project Map</b>	N/A



**Table 31 - Portfolio Project #6**

<b>Project Name</b>	Stormwater Pump Stations
<b>Project Description</b>	The design and installation of three stormwater pump stations to reduce flooding from stormwater in canals at Ranchland Drive and Green View Road/Eagle Creek subdivision This project was identified in the Currituck County Resilient Redevelopment Plan as Housing Action 2. Canals in northern Currituck County drain to a single crossing of NC 168, which leads to flooding in residential areas along canals during storm events. The installation of the three pump stations would serve to alleviate the strain on this crossing and reduce flooding in several Moyock area hot spots identified in the citizen survey.
<b>Hazard(s) Addressed by Project</b>	Flooding
<b>Type of Solution</b>	Infrastructure
<b>Project Estimated Cost</b>	\$501K - \$1M
<b>Potential Implementation Funding Sources</b>	General Fund, Grant Funds
<b>Projected Estimated Timeline</b>	2 years
<b>Priority Rating</b>	Medium
<b>Project Map</b>	<p>The map is an aerial photograph of a residential and agricultural area. Three blue dots are placed on the map, each labeled 'Stormwater Pump Stations'. The dots are located in a central area where a network of canals or roads intersects. The surrounding area shows a mix of green fields, brownish agricultural plots, and some residential buildings.</p>



**Table 32 - Portfolio Project #7**

<b>Project Name</b>	Outer Banks Outfalls
<b>Project Description</b>	Installation of stormwater outfalls for large storm events along the Currituck Outer Banks. This project was identified in the Currituck County Resilient Redevelopment Plan as Economic Development Action 1. Following significant storms, such as hurricanes and tropical storms, many residential areas on the Currituck Outer Banks remain flooded for several days because water has nowhere to run off to and the soil cannot infiltrate further. This project would include design and then acquiring portable generators, a portable stormwater pump station to assist in removing stormwater from these areas, and installation of permanent outfall pipes to the Atlantic Ocean. These outfalls would be capped on both ends during normal conditions and used only in an emergency when the State permits pumping to the ocean. The County would also require a Coastal Area Management Act (CAMA) major permit to install the outfalls and easements on private property for the pumps. Outer Banks residential areas were identified as hot spots in the citizen survey and flooding and the resulting limited access to the area has a detrimental impact on the County's as this area is primarily rental properties and vacation homes.
<b>Hazard(s) Addressed by Project</b>	Flooding, Sea Level Rise, Hurricane and Tropical Storm
<b>Type of Solution</b>	Infrastructure
<b>Project Estimated Cost</b>	\$251K - \$500K
<b>Potential Implementation Funding Sources</b>	General Fund, Grant Funds
<b>Projected Estimated Timeline</b>	2-5 years
<b>Priority Rating</b>	Medium
<b>Project Map</b>	N/A



**Table 33 - Portfolio Project #8**

<b>Project Name</b>	Sewer Feasibility Study
<b>Project Description</b>	A long-term feasibility study of possible solutions, potential cost, and funding options for future sewer and septic system replacement and repair throughout the county. Concern over pollution from failing sewer systems (specifically Eagle Creek, Waterfront Drive), was an issue raised in the citizen survey. Although some fixes are underway, rising groundwater and increased flooding events will likely increase the frequency of sewer system failures in the future.
<b>Hazard(s) Addressed by Project</b>	Rising Groundwater, Flooding
<b>Type of Solution</b>	Planning Study
<b>Project Estimated Cost</b>	
<b>Potential Implementation Funding Sources</b>	General Fund, Grant Funds
<b>Projected Estimated Timeline</b>	1 year
<b>Priority Rating</b>	medium
<b>Project Map</b>	N/A




**Table 34 - Portfolio Project #9**

<b>Project Name</b>	Marsh Sill and Shoreline Restoration - Coinjock Bay
<b>Project Description</b>	Shoreline restoration uses techniques such as installation of marsh sills, plantings, and oyster bags or rock to stabilize the shoreline. This project includes design and installation of approximately 770 LF of shoreline restoration at 3581 Caratoke Hwy. A marsh sill and shoreline restoration at this location serves to protect the roadway and has the potential to be developed as a public water access. This project was identified in the Draft Narrative Water Quality Monitoring and Remediation - Currituck Sounds Watersheds. Additionally, shoreline stabilization and marsh restoration are identified as Outer Banks Hazard Mitigation Plan actions #CUR11 and #CUR12; to pursue shoreline stabilization projects and regular shoreline monitoring and prioritization of marsh restoration planning and design for storm surge mitigation benefits.
<b>Hazard(s) Addressed by Project</b>	Flooding, Shoreline erosion, Sound Water Quality
<b>Type of Solution</b>	Nature Based
<b>Project Estimated Cost</b>	\$50,000 - \$100,000
<b>Potential Implementation Funding Sources</b>	General Fund, Grant Funds
<b>Projected Estimated Timeline</b>	1 year
<b>Priority Rating</b>	medium
<b>Project Map</b>	






**Table 35 - Portfolio Project #10**

<b>Project Name</b>	Bells Island Road Shoreline Protection
<b>Project Description</b>	Living shorelines use plantings and other natural elements such as oyster bags or rock to stabilize the shoreline. This project proposes to design and install living shorelines along a 4,500 LF stretch of Bells Island Rd. A living shoreline at this location serves to protect the roadway which was identified as a hot spot in the citizen survey. This project was identified in the Draft Narrative Water Quality Monitoring and Remediation - Currituck Sounds Watersheds. Additionally, shoreline stabilization and marsh restoration are identified as Outer banks Hazard Mitigation Plan actions #CUR11 and #CUR12; to pursue shoreline stabilization projects and regular shoreline monitoring and prioritization of marsh restoration planning and design for storm surge mitigation benefits.
<b>Hazard(s) Addressed by Project</b>	Flooding, Shoreline erosion, Sound Water Quality
<b>Type of Solution</b>	Nature Based
<b>Project Estimated Cost</b>	
<b>Potential Implementation Funding Sources</b>	General Fund, Grant Funds
<b>Projected Estimated Timeline</b>	1 year
<b>Priority Rating</b>	medium
<b>Project Map</b>	



**Table 36 - Portfolio Project #11**

<b>Project Name</b>	Bells Island Road Improvements Study
<b>Project Description</b>	Drainage/road improvement study and implementation of recommended improvements for Bells Island Rd. This project would fund for a study to evaluate alternatives for elevating Bells Island Road to reduce risk of being inundated during flood events. Bells Island Rd is the only land access to the Bells Island area, so inundation of the roadway can cut off access or create unsafe driving conditions for individuals who attempt to drive the road anyway. This could be done in conjunction with, or in place of, the Bells Island Road Shoreline Protection project. This project was identified in the Currituck County Resilient Redevelopment Plan as Infrastructure Action 4. Additionally, the project area was identified as a hot spot in the citizen survey. For optimal project success this study should be done in coordination with NCDOT.
<b>Hazard(s) Addressed by Project</b>	Flooding, Shoreline erosion
<b>Type of Solution</b>	Infrastructure
<b>Project Estimated Cost</b>	\$51K - \$100K
<b>Potential Implementation Funding Sources</b>	General Fund, Grant Funds
<b>Projected Estimated Timeline</b>	2-5 years (1 year study and 1-4 years implementing recommended improvement)
<b>Priority Rating</b>	Medium
<b>Project Map</b>	



**Table 37 - Portfolio Project #12**

<b>Project Name</b>	Knotts Island Marsh Causeway Improvements Study
<b>Project Description</b>	Drainage/road improvement study and implementation of recommended improvements for the Knotts Island Marsh Causeway. This project would provide funding for a study to evaluate alternatives for elevating Marsh Causeway to reduce risk of being inundated during flood events. The Knotts Island Marsh Causeway is the only land access to Knotts Island, so inundation of the roadway can severely limit access, requiring use of the ferry or create unsafe driving conditions for individuals who attempt to drive the road anyway. This project was identified in the Currituck County Resilient Redevelopment Plan as Infrastructure Action 4. Additionally, the project area was identified as a hot spot in the citizen survey. For optimal project success this project should be completed in coordination with NCDOT.
<b>Hazard(s) Addressed by Project</b>	Flooding, Shoreline erosion
<b>Type of Solution</b>	Infrastructure and/or Nature Based
<b>Project Estimated Cost</b>	\$101K - \$250K
<b>Potential Implementation Funding Sources</b>	General Fund, Grant Funds
<b>Projected Estimated Timeline</b>	2-5 years (1 year study and 1-4 years implementing recommended improvement)
<b>Priority Rating</b>	Medium
<b>Project Map</b>	



**Table 38 - Portfolio Project #13**

<b>Project Name</b>	Waterlily Road Improvements Study
<b>Project Description</b>	<p>Drainage/road improvement study and implementation of recommended improvements for the Waterlily Road. This project would provide funding for a study to evaluate alternatives for elevating Waterlily Road to reduce risk of being inundated during flood events. Waterlily Rd is the only land access to the Piney Island and Church Island Area, so inundation of the roadway can cut off access or create unsafe driving conditions for individuals who attempt to drive the road anyway. This project was identified in the Currituck County Resilient Redevelopment Plan as Infrastructure Action 3. Additionally, the project area was identified as a hot spot in the citizen survey. For optimal project success this project should be completed in coordination with NCDOT.</p>
<b>Hazard(s) Addressed by Project</b>	Flooding, Shoreline erosion
<b>Type of Solution</b>	Infrastructure and/or Nature Based
<b>Project Estimated Cost</b>	\$51K - \$100K
<b>Potential Implementation Funding Sources</b>	General Fund, Grant Funds
<b>Projected Estimated Timeline</b>	2-5 years (1 year study and 1-4 years implementing recommended improvement)
<b>Priority Rating</b>	Medium
<b>Project Map</b>	