

6.2 LOCALLY-SPECIFIC MITIGATION ACTIONS

6.2.1 Review of Current and Completed Hazard Mitigation Actions

Requirement §201.6(c)(3)(ii): [The mitigation strategy **shall** include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

Requirement: §201.6(c)(3)(ii): [The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.

The Cost-Benefit Review

The Cost Benefit Review comprises an analysis that compares the project cost to both tangible and non-tangible benefits. Tangible benefits are those benefits that could be considered in a comprehensive Benefit-Cost Analysis (BCA). Non-tangible benefits include public support, political will, and life safety.

The Benefit-Cost Analysis (BCA)

All mitigation projects that are considered for FEMA's Hazard Mitigation Assistance (HMA) program funding will have a comprehensive BCA completed using FEMA approved BCA software. Both the State Hazard Mitigation Officer (SHMO) and the Flood Mitigation Assistance program coordinator can aid with the BCA. This analysis will be the basis by which the County, municipality, or University either pursues a FEMA grant or seeks funding elsewhere. Only cost-effective eligible projects will be submitted for funding under the HMA program.

The mitigation actions from the 2015 Plan were reviewed at the Face-Face Meetings with Municipals and again at the Stakeholder Workshop held on March 2, 2020 and edited as necessary. In addition to the meetings, the County emailed and phoned the municipals to provide updates and held an internal conference call to get updates to the Unincorporated Actions. Tables 6.2.1 provides a listing of all mitigation actions, their adoption status, and timeline for completion, priority, and their current status. New Actions that were identified have been added and indicated as such for each jurisdiction. The information on priority and funding is all kept within the Supporting Information Appendix or available upon request.

6.2.2 Review of Current and Completed Hazard Mitigation Actions

Requirement §201.6(c)(3)(ii): [The mitigation strategy **shall** include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

Requirement §201.6(c)(3)(iv): For multi-jurisdictional plans, there **must** be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

One major challenge realized during the Plan Update was that there are many small projects and mitigation measures that are handled by Community Transportation Funds or other State funding through the State Legislators for communities. Some of these projects are highlighted with our Steering Committee member, New Castle Conservation District, however, most are not recorded as a mitigation measure or shared since they typically do not acquire federal funding.

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Table 6.2.1 – Ongoing and New Mitigation Actions

Action	Description/Lead Agency	Priority	Status
	If Agency is not listed-action defaults to Jurisdiction in heading		Or it was a cancelled action per Status
Arden			
2015-1	Work closely with the County and continue to improve public outreach within the community to include distributing informative pamphlets and other outreach materials and workshops to educate citizens about hazard awareness./ Arden / NCC OEM & Council	Medium	Ongoing – Continuous Action – Pamphlets from NCC OEM Distributed to residents through County Councilperson
2015-2	Establish emergency notification procedures for rail and Interstate HAZMAT incidents and chemical facilities. Cancel	NA	Cancel – In place through DENS Notices through NCC OEM, DNREC, DSP or DEMA
2015-3	Retrofit Guild Hall so that it can be used as a temporary shelter/ Arden/NCC OEM and DHSS	Medium	Ongoing – Evaluate in connection with Action 2020-3, with DHSS, ARC, and OEM
2020-1	Create a Storm Water Management Plan / Arden & DNREC / \$ 50,000	High	New Action – Within 1 year Implement a Storm Water Management Plan for flooding issues
2020-2	Implement a Water Management Plan / Arden / \$ 500,000+	High	New Action – Implement a contract or service to improve water service to the Village (5 years)
2020-3	Upgrade Buzzware Village Center for emergency shelter use / Arden and NCC OEM / \$ TBD up to \$ 100,000	Low	New Action – In connection with 2015-3, evaluate any required improvements and determine viable use as an emergency shelter. (5 years)
2020-4	Village Wide Tree Risk Assessment / Arden / \$ TBD up to 50,000	Low	Evaluate risk from tree damages; Increased storm severity risks significant damage and safety.
Ardencroft			
2015-1	Investigate appropriate mitigation measures to protect 16 lease holders adjacent to the creek. Assess Perkins Run flooding potential. / Ardencroft	Low	Ongoing, needs some evaluation work to be done through NCCD or Engineering firm, Action 2015-7 will be combined, description updated.
2015-2	Develop and implement an information awareness system to include notification, mail outs, recorded messages, and email during and after an event. / Ardencroft	Low	Ongoing, Village is looking into a system
2015-3	Ensure adequate training and resources for emergency organizations and personnel.	NA	Cancel – NCC OEM conducts CERT Training
2015-4	Conduct Community Emergency Response Team (CERT) classes for emergency response personnel	NA	Cancel – per above
2015-5	Increase the number of trained citizen emergency responders.	NA	Cancel – same as 2015-3
2015-6	Conduct a vegetative vulnerability assessment to determine what plant types pose a wind, water, or snow hazard to private and public property. / Ardencroft	Low	Ongoing- Village is still conducting a determination of appropriate resources to conduct this survey.

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2015-7	Conduct an assessment to determine the vulnerability if Perkins Run overtops its banks (Due to increased population growth, development, and encroachment).	NA	Combine with Action 2015-1
Ardentown			
2015-1	Prepare Candlelight Theater as needed for use as a shelter or search for another location in cooperation with the State Shelter Strategy / Ardentown, NCC OEM, DHSS / \$ 1,000	Low	2020-Change in Action Description and Priority to Low
2015-2	Develop a call out database to notify residents in the event of a disaster.	Medium	Cancelled
2015-3	Marsh Road Property Acquisition Project / Ardentown and NCCD	Low	Completed Oct. 2016
2020-1	Survey Storm Water Issues / Ardentown and NCC / \$ 10,000+	Medium	New Action 2020- Ongoing Implementation
2020-2	Scan Town Data to preserve information to prevent loss of Town Data and History / Ardentown and State Archives / \$ 1,000-\$ 5,000	Medium	New Action 2020 – Implementation within 1 year
2020-3	Village Wide Tree Risk Assessment / Ardentown / \$ Unknown	Low	New Action 2020- Ongoing
Bellefonte			
2015-1	Work closely with and obtain assistance from the County to implement an information awareness system to include notification, mail outs, recorded messages, and email during and after an event. Continue to send out hazard notifications via the State/County Police Alert System and through the Brandywine Hundred Fire Company.	Medium	Ongoing-Facebook and Next Door groups have been implemented.
Delaware City			
2015-1	Create displays for use at public events (health fair, public awareness day, county fair, etc.). DC Main Street, DCFC, Town.	Medium	Ongoing-Delaware City has multiple public events which Town and Fire Company have displays and outreach.
2015-2	Construct flood barrier, drainage improvements, and wetlands enhancements for Dragon Run. Town	High	Delaware City was awarded a \$920,000 FEMA Grant to address the Washington Street flooding issues. City also received \$500,000 funding from DNREC, funds in the state FY15 budget, which provides \$1,475,000 to address flooding issues on Washington Street and Monroe and Madison Streets. Project completed. New Castle Conservation District worked to complete a restoration of the tide gate for Dragon Run @ DE River, supported by State funding in 2016.

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2015-3	Evaluate solutions for flooding of Route 9 at Dragon Run which is a major evacuation route out of Delaware City. DELDOT/Town	High	Ongoing. DELDOT Working with Town to repair and reset gates.
2015-4	Provide training for Delaware City Town Council on the CRS program and encourage residents to participate. Town Admin.	Medium	Completed-Ongoing Action
2015-5	Construct flood barrier and drainage improvements along C&D Canal and evaluate wetlands enhancements. ACE	Medium	Fort DuPont bulkhead project ongoing with the Army Corps of Engineers.
2015-6	Develop a Phragmites elimination program. ACE, Town Admin.	Medium	Ongoing. Town in currently working on this project with State Forestry and Army Corps of Engineers..
2015-7	Replace or eliminate tidal flushing pipe and valve at Old Locks.	Medium	Town is unfamiliar with this action. Will need to evaluate further.
2015-8	Washington Street Flood Mitigation Project	Medium	Combined with Action 2015-2; Completed Fall 2019.
Elsmere			
2015-1	Implement stormwater study recommendations. / Elsmere	Medium	Completed-Adopted Stormwater Code Part II Chapter 190 in 2017. This action will remain for further information and study the formation of a Utility as recommended by DELDOT.
2015-2	Increase the storage capacity of the Little Mill, Chestnut Run, Silverbrook, Derrickson Run and other creeks throughout the Town.	Medium	No progress, funding required. This Action can be connected to 2015-1
2015-3	Evaluate storm water management infrastructure.	Medium	Not started. Further evaluation required to determine number of additional drains, culverts, and to remove clogs in pipes
2015-4	Study and recommend solutions to alleviate the periodic flooding threat on Chestnut Run at Kirkwood Hwy (SR-2) , added in 2020 - Chestnut Run at VA Hospital, and Little Mill by Fuel station. / DELDOT and Elsmere	Medium	Army Corps has completed some work at the VA Hospital which has helped. Rest of Action slight progress on assessment.
2020-1	Water Supply to the CSX Wilsmere Rail Yard for Fire Protection	High	Lack of available fire suppression water supply at Rail Yard. Challenges with communication with CSX and coordinating a solution for providing Hydrants.
Middletown			
2015-1	Conduct a vulnerability assessment of the Town's water distribution system, to identify measures designed to reduce the potential impacts of natural hazards./ Middletown DPW	Medium	Ongoing. Installed Chlorine scrubber and scrubber alarms to neutralize any release and notify the Town of release/activation of the scrubber. All businesses within the Town limits must provide a date for when they will have backflow prevention devices on their water service connection lines. This will prevent cross contamination of the Town's water distribution system. The Town and Artesian Water restrict fire hydrant connections throughout the

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			community. If a business needs water for their projects, they can only connect at Public Works.
2015-2	Develop a water restriction policy that can be implemented during drought conditions. / Middletown DPW	Medium	Ongoing. Notification System has been updated with a new system and data is updated annually.
2015-3	Develop an Emergency Operations Plan with an integrated evacuation procedure for the Town in cooperation with DELDOT's NCC Evacuation Plan. / Town Manager, Town Planner, NCC OEM, DELDOT	High	Ongoing. Updated Description of Action 2015-3, EOP is under development.
2015-4	Develop a website to notify residents of important information before, during and after emergencies, storms, etc. (include links to other major sources of information: DEMA, FEMA, DELDOT and the weather channel).	Medium	Completed 2017. Website is up and running and updated. Social Media Account created.
2015-5	Perform Sharondale outfall rehabilitation to eliminate erosive velocities of stormwater runoff in the outfall.	Low	Completed August 2017.
2020-1	Develop and Establish a Drainage Code. / Middletown Administration / \$ 1,000-1,500	Medium	In progress, implementation within six to twelve months. Town General Funds being utilized.
2020-2	Consider participation in the NFIP's Community Rating System (CRS) / Town Administration / \$ Unknown	Low	Consider voluntary participation into the CRS Program. Assessment of program required as first step. Unknown Implementation schedule.
2020-3	Coordinate with Emergency Services to identify available resources and increase preparedness awareness. / Town and other agencies as needed / \$ Unknown	High	New Action for 2020. Begin as soon as practical
2020-4	Identify an Alternate location for Middletown Town Hall to provide continuity of operations in the event of a disaster or the building is compromised. / Town Administration and other agencies / \$ Unknown	Medium	Town is providing a generator at the existing Town Hall Site, however, an alternate government location should be established.
New Castle			
2015-1	Introduce railroad crossings at main highway intersections with gate and better signals (three major roadways cross the railroad near schools, businesses and residential areas). / Town / DELDOT Railroad program / Norfolk Southern RR / \$ Unknown	High	Washington St. Crossing has been completed. Ferry Cut Off Crossing originally scheduled for Summer 2020, now postponed to Summer 2021.
2015-2	Develop a detailed flood vulnerability study for the entire City along the Delaware River and Bay to focus on coastal/riverine flooding from severe storm events and sea level rise. / Town Admin / DNREC Coastal Programs	High	Ongoing-Vulnerability Assessment completed Feb. 2018. Dike Alternatives Plan completed Nov.2019. Working on Next Action Steps, and bulkhead repairs. Pier reconstruction completed. Phase 2 is in design/development for Ferry/River Cruise capability.
2015-3	Work with railroad lines to notify citizens of hazardous shipments that run through the City of New Castle. / Town / NCC OEM & DEMA	High	Railroad feels it is a security risk to announce hazmat shipment schedules but has demonstrated a unified communication/cooperation for training and response with DEMA.

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2015-4	Enhance building code. / Town Admin / Town Building	High	Ongoing- Currently with Solicitor's office for legislative preparation.
Newark			
2015-1	Assess damages sustained to city property following a disaster. EM	High	2020 Update-Ongoing, training identified.
2015-2	Retrofit storm sewer system. / DPW	Low	2020 Update-Ongoing for drainage improvements. Per Stormwater Plan of 2017.
2015-3	Preserve riparian buffer along White Clay Creek. / DPW	Medium	2020 Update- Ongoing per the Conservation Advisory.
2015-4	Inspect stormwater outfalls and maintain stormwater management facilities annually. / DPW	Medium	2020 Update-Now an operational component of DPW per Stormwater Plan.
2015-5	Conduct six inspections of creek annually. /DPW	Medium	2020 Update-Now an operational component of DPW per Stormwater Plan.
2015-6	Continue storm drain spill response. / DPW	High	2020 Update – Action updated to “Continue”, ongoing DPW operational component.
2015-7	Continue tree maintenance program. / DPW	High	2020 Update- Action updated to “Continue” as this is an ongoing operation now.
2015-8	Own generation back up power at varied voltages and place at critical loads and substations. / DPW	High	2020 Update- Ongoing, backup power installed at booster station with FEMA Grant.
2015-9	Manage storage area at designated parkland for debris composting. / DPW	Medium	2020 Update-Action updated to “Manage”, as storage site was established and now managed by City DPW.
2015-10	Keep Christina Creek clear of obstruction, including 11 bridge culverts. / DPW	High	2020 Update- Per DNREC Decree and Stormwater Plan, operational component integrated into DPW. Completed.
2015-11	Clean catch basins and grates three times a year. / DPW	High	2020 Update- Per Stormwater Plan, now an operational component of DPW.
2015-12	Routinely inspect all construction E & S measures. / DPW	Medium	2020 Update-Per State Regs, this is schedule for DPW. Ongoing action.
2015-13	Study and recommend solutions to alleviate the periodic flooding threat on the Christina River at Nottingham Road (SR-273), Barksdale Road, near the Christina River at the Newark CSX rail line and Casho Mill Road, on the Christina River at W Chestnut Hill Road/Rittenhouse Park, on the Christina River at Welsh Track Road, and on White Clay Creek at Paper Mill Road, ADDED and on Julie Lane near Casho Mill Road. / Multiple Depts.	Medium	2020 Update-DELDOT projects still in funding and planning phase. Newark projects in planning phase.
2015-14	Support cost effective property acquisitions through Federal grants. / EM	Low	2020 Update-Still investigating potential properties viable for acquisition.
2010-7	Install a Backup Generator to NW Booster Station / Newark DPW	High	Ongoing-PDM Grant awarded FY 2017 in progress, continued from PDM FY2010
2020-1	Construct Stormwater Management facility at previous site of UD Rodney Dorm acquired by City, into a park. / DPW / \$ 9 million	High	New Action for 2020, work already started per Capital Referendum
2020-2	Investigate use of previously abandoned sanitary sewer force main at Silverbrook pump station for emergency bypass. / Newark DPW	Medium	New Action for 2020- Funding amt. Unknown at this time.
Newport			
2015-1	Initiate wetlands protective measures along the Christina River.	High	Cancel this Action, DNREC responsible

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2015-2	Work with the County to conduct a detailed flood vulnerability study for the entire Town. / Town / NCC DLU / \$ 20,000	High	New Flood Maps effective 1/22/20 assisted. Town would participate in a Countywide flood study as cost is prohibitive.
2015-3	Study and recommend solutions to alleviate the periodic flooding threat on the Christina River at Interstate 95/US 141/202.	Low	DELDOT Action-Progress due to changes in Rt. 141 ramps.
2020-1	Install catch basins throughout Town. / Town Admin / \$ TBD	Medium	2020 New action. Needed for stormwater and drainage improvements to reduce road flooding.
2020-2	Install two (2) new sewer pump stations in the Industrial Park / Town / \$ TBD	Medium	2020 New Action. Needed to improve sewer flows out of the low lying area.
Odessa			
2015-1	Establish a comprehensive all- hazards warning system. / Odessa	Medium	Action handled by the State System DENS through NCC OEM.
2015-2	Educate residents on hazards that can impact the community.	High	Ongoing-In partnership with Odessa Fire and NCC OEM
2015-3	Develop an evacuation policy for the Town.	Low	Completed. Plan is encompassed within the DELDOT Transportation Evacuation Plans with NCC OEM.
2015-4	Update the local Flood Damage Prevention Ordinance.	Medium	Completed. Ordinance Adopted on Dec. 1, 2014 and amended on March 2, 2015
2015-5	Encourage citizens to purchase flood insurance. Town Admin	Low	Ongoing-Ordinance April 2012 to join NFIP and annual notice posted each year to residents.
2015-6	Identify and evaluate shelters.	High	Cancel-Emergency Shelters are identified by NCC OEM in cooperation with DHSS, DEMA, and Red Cross. Opening is determined by OEM Coordinator at Town Request.
2015-7	Study and recommend solutions to alleviate the periodic flooding threat on Appoquinimink River at Main Street (SR-299) DELDOT	High	DELDOT Project. Not started. Lack of funding at proximity projects. Will revisit at annual updates.
2010-5	Develop and Improve Public Water Distribution system. Town Admin	High	Reinstated Action. The water system is being evaluated for contractual operations and improvements.
Townsend			
2015-1	Develop an educational and outreach program for residents, business owners and government employees to include specific actions that can be taken to reduce the impact of natural hazards. Town Admin	Medium	Ongoing- Town Website through State server started in 2015 with News and Resident Information. Continued information distribution being considered.
2020-1	Research and Consider adoption into the NFIP. / Townsend / DNREC & NCC OEM, NCC DLU / \$ Unknown	High	New Action 2020. Consider reviewing benefits and feasibility of CAV and ordinance to enter the NFIP.
2020-2	Evacuation Flow Study for Town due to limited outlets / Townsend / DELDOT & NCC OEM	Medium	New Action 2020. Review the evacuation routes and population to determine traffic flow operations.

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Wilmington			
2015-1	Educate and encourage citizens to purchase and install backflow preventers in flood-prone homes. / Wilm. DPW	Medium	Ongoing-Plumbing Code updated in 2018.
2015-2	Continue to increase public education—people should be ready to survive for three days without power. / Wilm. OEM	High	Ongoing-Wilm. OEM conducts outreach and annual Blue Rocks Event.
2015-3	Continue to increase public education for all hazards.	High	Ongoing. This action is being combined with Action 2015-2 for future.
2015-4	Evaluate the adequacy of existing code to address potential wind-related damages / Wilm. L & I	Low	Addressed in the update to Building Code adoption of IBC 2018 Standard.
2015-5	Reduce the likelihood of sewer overflow during flood events through real-time control (RTC). / Wilm. DPW	Medium	2020 Update- Ongoing Operational component in DPW.
2015-6	Develop building construction code requiring shatter-proof glass for new city buildings. / Wilm L&I	Medium	Completed in late 2018 with Adoption of IBC Standard 2018 into Code
2015-7	Establish a citywide disaster recovery/business continuity plan. / Wilm. OEM and all departments	High	2020 Update- In progress, final draft plan in review, update done with NCC OEM/VPC, LLC through DHS Funding.
2015-8	Coordinate with the Department of Public Works to apply traffic flow study to evacuation procedures. / Wilm. OEM and DPW	High	2020 Update-this action has been delayed/interrupted by current major road projects through DELDOT.
2015-9	Evaluate Comprehensive Plan to check for hazard mitigation elements.	High	This Action will be cancelled. Handled by the AHMP process and State.
2015-10	Ensure NIMS training for all appropriate City personnel and engage in tabletop exercises. Wilm. OEM	Medium	Ongoing-conducted NIMS training and city personnel have engaged in tabletop and functional exercises.
2015-11	On South Wilmington Wetland Park - Reestablish wetland to process stormwater from South Wilmington Area east of Walnut Street, south of A street; Partial separation of stormwater in Southbridge and from Garaches Lane./ Wilm. DPW / \$ 25 million	Medium	Ongoing Action-2020 Update-Phase 1 Construction began Nov. 2019 to begin dewatering and excavation, building wetland channels and landscaping. Summer 2021 expected completion.
2015-12	Reestablish drainage along RR property between New Castle Avenue and Christiana Avenue to relieve street flooding on New Castle Avenue and to create a drainage path for the redevelopment of the Southbridge Extension area. / Wilm. DPW	Low	Completed. Date not available from Wilmington. Vulnerability study also in progress through NOAA Planning Grant.
2015-13	Develop an Emergency Management GIS training program (including hardware and software). / Wilm. OEM and DPW	Medium	Ongoing-2020 Update, 3 DPW GIS Techs added to staff, trained and integrated with WOEM.
2015-14	Study and recommend solutions to alleviate the periodic flooding threat on Brandywine Creek at E 12 th Street/Wilmington Industrial Park and on Shellpot Creek at Governor Printz Blvd (US 13). DPW	Low	2020 update-DELDOT Action in cooperation with Wilm. DPW. Not started.
2010-4	Implement a Tree Maintenance Program. Wilm. DPW	Medium	2020 Update-This was a 2010 completed action that has been renewed by Wilm. DPW, and funded in the 5-year Capital Program as an ongoing maintenance item.

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2010-8	Stormwater Retention Ponds near 2 nd and Webb Streets. / Wilm. DPW	Medium	2020 Update-Action from 2010 Completed list has been renewed by City for ongoing work in this area.
Unincorporated Areas of the County			
2015-1	Continue public education and outreach program to educate residents and business owners (who possess hazardous chemicals and compounds) about the protective actions that can be taken to eliminate or reduce property loss and injury. / NCC OEM	Medium	2020 Update-Ongoing-NCC OEM conducts outreach along with NCC LEPC.
2015-2	Conduct annual training exercises based on the actions recommended in the revised New Castle County Comprehensive Emergency Management Plan (CEMP) to comply with FEMA CPG 101 version 2, and HSEEP guidelines / NCC OEM	High	2020 Update-Completed update of CEMP in 2016; Exercises ongoing annually, including Dam Failures, Flood Response, Radiological, HazMat, and Cyber.
2015-3	Implement phase II of channel improvements to reduce the identified flooding problems in Little Mill Creek. / NCC DPW, NCCD, ACE / \$ 43.2 million	Low	2020 Update-Phase II Completed September 2015. Reduced flood levels.
2015-4	Develop a Countywide uniform GIS database and use County data as a baseline. Share GIS data among the levels of government and update with all agency GIS Technicians. Data should include Dam Hazards and Inundation areas. ADD 2020 – create a GIS database of stormwater and drainage facilities. / NCC GIS	Medium	2020 Update-Ongoing. NCC GIS has established multiple new layers (IE, Dam inundation and locations) within the database for EM and has worked on the Statewide GIS User Group. This action also encompasses the challenges of HAZUS and NCC GIS and UD partnership to overcome these challenges.
2015-5	Conduct a study to determine the vulnerability of the CRFM sewage along the Christiana River that stretches 10 miles from I-95 to Wilmington. NCC DPW	Medium	2020 Update-Ongoing. Location markers installed; Repairs of \$10m underway; Planning and Design for a redundant line underway.
2015-6	Update the critical facilities database every three years. Identify critical infrastructure that would pose issues to evacuation and communications. / NCC OEM, NCC GIS	High	2020 Update-This effort is being combined with 2015-4 to work with GIS Team for a layer of critical facilities that is updated automatically based upon parcel data.
2015-7	Revise the New Castle Emergency Operations Plan to comply with FEMA's CPG 101 v.2, and coordinate risk-based planning from holistic to project level with involvement from all stakeholders.	High	Completed. NCC CEMP Major Revision made during 2013 to 2016 with Promulgation in Dec. 2016.
2015-8	Implement culvert improvements in coordination with DelDOT culvert and bridge improvements to reduce flooding in the Forest Hills Park area.	Low	2020 Update-This action was unknown by NCC internally. Best information is that this was completed through DELDOT Blue Ball Barn and Rt. 202/Rt. 141 Improvements.
2015-9	Reduce pollution discharges via storm water systems throughout New Castle County. NCC DPW	Medium	2020 Update- Ongoing effort by DPW through the NPDES Permit Implementation.
2015-10	Elevate homes within the Bayview Beach community as funding allows. NCC OEM	High	2020 Update-DR-4090 PA Grant awarded 2014, for 9 homes; Design/Engineering complete, not able to complete construction due to bids. FY 18 PDM Grant applied/awarded for 4 of those homes. FY 19 PDM Grant applied for other 4, 1 home withdrew. Ongoing.

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2015-11	Identify critical locations for additional environmental monitoring to aid in mitigation and response. / NCC OEM, NCC DPW, DGS/DEOS / \$ 5-10k	Medium	2020 Update-Carousel Pond had a water level monitor station installed in 2013 and operational in 2014. Additional stations are being evaluated for weather monitoring.
2015-12	Integrate Functional and Access Needs into Emergency Plans and Identify mitigation measures consistent with this population. / NCC OEM and State Agencies	High	2015 New Action. 2020 Update – DHSS/DPH has created a Access & Functional Needs Working Group that NCC OEM is a member. Ongoing progress.
2015-13	Evaluate the following potential projects for various mitigation measures: Rockland Mills Community Flooding (Flood proofing, Channel improvements, etc.); DuRoss Heights properties for acquisition/elevation; Town of Christiana properties for acquisition/elevation; Port Penn Dike and properties for elevation. NCC OEM and DPW Env. Section	Medium	2020 Update-Rockland Mills Warning coordination completed in 2015, progressing on a flood mitigation solution, study by NCCD; DuRoss Heights properties submitted for FEMA Grant, both owners withdrew. Port Penn study completed through NOAA Grant. Ongoing.
2015-14	Study and recommend solutions to alleviate the periodic flooding threat at the following locations: • Near Shellpot Creek at Governor Printz Blvd (US 13) & Merchants Square Shopping Center. • Christina River at Interstate 95/US 202 near Coppers Island. • White Clay Creek at Stanton Christiana Road (SR-4, SR-7), near the Delaware Park Racetrack. • Nonesuch Creek at Airport Road. • Christina River at Churchmans Road (SR-58). • Christina River at Churchmans Road (SR-58). • Christina River at the intersection of S Old Baltimore Pike and W Main St (SR-7). • Muddy Run at Salem Church Road. • Red Lion Creek at River Road (SR-9). • Back Creek at the intersection of Churchtown Road and Clayton Manor Drive. • Delaware City Port Penn Road just north of the village of Port Penn. • Augustine Creek at Saint Augustine Road. • Silver Run at Silver Run Road. • Appoquinimink River at Silver Run Road. • Drawyer Creek at Marl Pit Road. • A tributary of the Appoquinimink River at Old Corbitt Road. / DELDOT	Medium	2020 Update-Drainage improvements completed at Shellpot/Gov Printz; White Clay Creek @ DE Park drain basins increased; Nonesuch Creek @ Airport Road ongoing challenges, work in progress; Silver Run at Silver Run Road, bridge replacement to begin 2021; Old Corbitt Road bridge being abandoned, no funding available. All others not started.
2015-15	Study and recommend solutions to alleviate the stormwater flooding threat on Fox Run Shopping Center on Pulaski Highway near Glasgow. / NCCD	Medium	2020 – No update available for this project.
2015-16	Support cost effective acquisition, elevation, and wet/dry floodproofing projects for all municipalities and unincorporated areas in the County. / NCC OEM and NCCD	Medium	2020 - Application submitted to FMA for 2204 Valley Ave. Naamans Manor
2015-17	Evaluate solutions for flooding of Route 72 between the refinery and Route 13 which is major evacuation route out of Delaware City. / DELDOT	High	2020 Update – Not started. No funding identified for survey.
2015-18	Implement the 25 specific recommendations by the Delaware Sea Level Rise Advisory Committee per the 2014 Report, for all municipalities. Various lead agencies per Report	High	2020 Update- DE Hurricane study and OEM is considering sea level rise for evacuation zones and routes. Other regulatory items are being developed. SLR was considered in the Coastal Zone Act Conversion Permit Regulations. Ongoing.

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2015-19	Encourage all municipalities to use the LIMWA (Limited Wave Action) to adjust mitigation projects to a higher elevation level in A zones, for sea level rise and better protection. Ordinance 14-126 requires structures built within the LimWA be constructed to Coastal High Hazard or V zone standards per 40.10.320 E NCC DLU	High	2020 Update- Bayview Beach and Port Penn Elevation projects took LIMWA into account for height. Ongoing.
2015-20	Evaluate and develop actions to mitigate the following areas that are vulnerable to flooding: Delmarva Power, Christina Crescent, Dupont on Powder Mill Road, Delaware Steeplechase Racetrack Property, Port of Wilmington, 350 Anchor Mill Road, 115 Christina Landing, 1237 Sussex Avenue, and 1301 E Twelfth Street. Various	High	2020 Update – all of these properties were ID'd during 2015 Vulnerability Assessment and are privately owned but the owners have not expressed interest in mitigation efforts at this time. Ongoing evaluation.
2015-21	Develop outreach programs to promote awareness of thunderstorm dangers. Include driver safety strategies for severe weather events that can be addressed by driver safety/education classes and by the media. Emphasize the importance of designing public and private buildings with structural bracing, shutters, laminated glass in window panes, and hail-resistant roof shingles or flashing to minimize damage.	Low	2020 Update- Action Cancelled. This is addressed in an Action 2015-24 and through DELDOT/Office of Highway Safety.
2015-22	Identify areas where power lines can be buried underground in order to offer the security of uninterrupted power during and after storms. However, consideration needs to be made for maintenance and repair, particularly in cold climates where soil freezes. / NCC DLU and DPW	Medium	2020 Update-Completed. Per DLU this effort is encouraged to the private developers of land but resides as a Benefit-Cost measure solely dependent on them. For NCC DPW, County facilities recently built have had this effort completed and have backup generators.
2015-23	Develop outreach programs to promote the importance of strengthening public and private structures against severe wind damage by encouraging wind engineering measures and construction techniques - structural bracing, straps and clips, anchor bolts, laminated or impact-resistant glass, reinforced pedestrian and garage doors, window shutters, waterproof adhesive sealing strips, or interlocking roof shingles. / NCC DLU	High	2020 Update-Action outside of NCC Wind Region code requirements. NCC Building Code updated in 2018 to IBC/ICC 2018 Standard. DLU is not pursuing further requirements. No outreach program exists.
2015-24	Develop outreach efforts to promote such items as noncombustible roof covering, fire safe construction, and the importance of clearing brush and grass away from buildings. Emphasize how the damage potential can be reduced by ensuring that structures are surrounded by defensible space or buffer zones (generally 30 to 100 feet and cleared of combustible materials). / NCC DLU and DSFMO	Low	2020 Update-No outreach program exists currently. This Action would have to be handled by the State Fire Marshal's Office under the State HMP.
2015-25	Encourage the adoption of building codes to require residential sprinkler systems installed in new construction. DE Fire Sprinkler Coalition	Medium	2020 Update-Delaware Fire Sprinkler Coalition is advocating residential sprinklers, and the FMO has established an FAQ Sheet for homeowners. There is no current pending legislation through NCC to pursue this currently. Ongoing Action.
2015-26	Identify areas where power lines can be buried underground in order to offer the security of uninterrupted power during and after winter storms. However, consideration needs to be made for maintenance and repair, particularly in cold climates where soil	Low	Duplicate Action of 2015-22

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	freezes.		
2015-27	Ensure regular training in and compliance with all safety procedures and systems related to the manufacture, storage, transport, use, and disposal of hazardous materials. / NCC OEM and NCC DPW	Medium	2020 Update-DPW has an SPCC Prevention Plan and Environmental Compliance maintains logs of any items of storage, etc. and has conducted training. Ongoing.
2020-1	Develop higher regulatory standards for construction and substantial improvements of critical facilities in high hazard areas. / NCC DLU/ \$ Staff Time	Medium	New Action for 2020.

University of Delaware Mitigation Actions (will be updated once UD internal planning process is complete)

University of Delaware - Wilmington and Newark Campuses			
1	Develop a strategy to abate asbestos campus wide.	Medium	Not started
2	Alleviate the water infiltration/flooding taking place within four University buildings on the Newark campus: New Castle Hall, Kent Hall, Sussex Hall, and Robinson Hall.	Medium	Not started
3	Utilize university administrative and academic resources for emergency management related projects.	Medium	Not started
4	Add utility meters at the building level for water, steam, chilled water, gas, and electricity on all buildings on the Newark campus	Low	Ongoing
5	Increase the occurrence of joint trainings and exercises between the State of Delaware, New Castle County, the City of Newark and the University of Delaware to strengthen the response partnership between these agencies.	Medium	Ongoing
6	Increase the overall preparedness level of the University Community through outreach and training of both the student and the employee population.	Medium	Ongoing
7	Develop an informational website which would be linked to the main site for Emergency Management. This site could be combined with the University and departmental social media tools (i.e. Facebook, Twitter, etc.).	Medium	Not started
8	Update individual departments' disaster preparedness plans and emergency action plans. Focus on educating departments on the importance of keeping these plans current and rethink unit planning – scale and process and consider combining plans.	Low	Ongoing
9	Improve access to required annual safety trainings for faculty, staff and students as well as tracking laboratory activities such as lab inspections, chemical inventory, etc.	Low	Ongoing

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10	Consider integrating effective mitigation practices and concepts into other relevant University plans (Examples include: the University Strategic Planning Initiative, Facilities Design Guidelines, Critical Incident Management Plan, etc.)	Medium	Not started
11	Continue to work closely with the State of Delaware, New Castle County and the City of Newark to ensure that the mitigation actions are coordinated effectively and are in harmony with that of the State, County and City. Collaborate with the local governments to improve the University's and the community's disaster resistance by conducting regular meetings with them to identify mitigation funds.	Medium	Ongoing
12	Develop procedures and documentation for the Information Technology recovery staff to ensure seamless operation of the Disaster Recover site thereby facilitating uninterrupted computer operations university-wide.	Medium	Not started
13	Procure advanced emergency notification systems to include an exterior Public Address System; an in-classroom emergency notification system in academic buildings and a dedicated non-University redundant website for emergency notifications in the event the www.udel.edu site becomes overwhelmed during a disaster situation.	High	Not started
14	Update the University Continuity of Operations Plan.	Medium	Not started

6.2.3 Prioritization and Action Plan

Once the mitigation actions are finalized, the Steering Committee developed a set of criteria: Social Considerations, Administrative Considerations, and Economic Considerations. The following questions were asked to evaluate criteria for project prioritization. Each jurisdiction then determines the priority of their actions and manages these priorities with updates to them within the comments during the annual review. The criteria are provided below as a guide for the jurisdictions and for information to those reviewing the actions.

Social Considerations – Life/Safety Impact

- Will the project have minimal/direct/or significant impact on the safety of businesses, residents, and properties?
- Will the proposed action adversely affect one segment of the population?
- Will the project be a proactive measure to reducing flood risk?

Administrative Considerations – Administrative/Technical Assistance

- Is there sufficient staff currently to implement the project?
- Is training required for the staff to implement this project?

Economic Considerations – Project Cost

- What is the approximate cost of the project?

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For each criterion, the level of importance (high, medium, or low) was determined based on the total number of points.

Prioritization Categories

- High priority – Total score of 14+
- Medium priority – Total score between 10 and 13
- Low priority – Total score >10

Prioritization Criteria						
Criteria	Points (High Score)	High Score (H)	Points (Medium Score)	Medium Score (M)	Points (Low Score)	Low Score (L)
Life/ Safety Impact	10	Significant impact on public safety for businesses, residents, properties	6	Direct impact on businesses, residents, properties	2	Minimal/negligible impact on businesses, residents, properties
Administrative/ Tech Assistance	5	No additional staff or technical support needed to implement action	3	and technical support needed to implement action	1	Significant administrative and technical support needed to implement action
Project Cost	5	(<\$25,000)	3	implement (\$25,000-	1	implement (>\$100,000)

Detailed information for each NEW mitigation action are included in the Supporting Information Appendix. Each action identifies:

- Community Name:** Jurisdiction
- Action Item:** Specific actions that, if accomplished, will reduce vulnerability and risk in the impact area. Actions are linked to the mitigation goals and objectives.
- Hazard(s):** The hazard(s) the action attempts to mitigate.
- Lead Agency/ Department Responsible:** The local agency, department or organization that is best suited to accomplish this action.
- Estimated Cost:** The approximate cost to accomplish the mitigation action.
- Funding Method:** How the cost to complete the action will be funded. For example, funds may be provided from existing operating budgets (General Revenue), a previously established contingency fund (Contingency/Bonds), or a federal or state grant (External Sources).
- Implementation Schedule:** When the action will begin, and when the action is expected to be completed.
- Priority:** 1) High priority—short-term immediate—reducing overall risk to life and property; 2) Moderate priority—an action that should be implemented in the near future due to political or community support or ease of implementation; 3) Low priority—an action that should be implemented over the long term that may depend on the availability of funds.

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This information is contained within the Appendix, however, also summarized within Table 6.2-1.