

7 Mitigation Action Plans

Requirement §201.6(c)(3)(iii): [The mitigation strategy section shall include an] action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

This section provides the mitigation action plans for each participating jurisdiction. The plans are organized as follows:

- ▶ Wake County (Unincorporated Area)
- ▶ City of Raleigh
- ▶ Town of Apex
- ▶ Town of Cary
- ▶ Town of Fuquay-Varina
- ▶ Town of Garner
- ▶ Town of Holly Springs
- ▶ Town of Knightdale
- ▶ Town of Morrisville
- ▶ Town of Rolesville
- ▶ Town of Wake Forest
- ▶ Town of Wendell
- ▶ Town of Zebulon

Additional details on each mitigation action are provided by jurisdiction in their respective annex of this plan.

SECTION 7: MITIGATION ACTION PLANS

Table 7.1 – Mitigation Action Plan, Wake County (Unincorporated Area)

Wake County											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Prevention											
P-1	Conduct a groundwater assessment using a network of wells and leading to a groundwater model that can enhance the understanding of groundwater capacity, threats and vulnerabilities in response to growth and weather.	1	1	Drought	High	Wake Environmental Services, Wake Water Partnership, USGS	\$1,565,000	Non-departmental operating expense and USGS	3-5 years	In-Progress – Carry Forward	Program scope established and project is underway. Wake County is partnering with USGS to conduct this study.
P-2	Oversee completion of planned reclaimed water projects per the County’s approved Community Improvement Program (CIP).	4	2	Drought	Moderate	Raleigh, Wake County	\$16,000,000	Annual budget process	2-3 years	In-Progress – Carry Forward	Completed several reclaimed water projects in RTP and others directly related to County facilities. Project has three phases; phases 1 and 2 are complete.
Property Protection											
PP-1	Identify road network segments no longer maintained by NCDOT and provide funding and planning resources for mitigation and recovery efforts to communities to ensure infrastructure and transportation resiliency. Assist in reinstating water and sewer services post disaster.	3	1	All	Moderate	Wake County Community Services	\$100,000,000	Annual budget ordinance	Ongoing - Next 5 years	New	N/A
Natural Resource Protection											
NRP-1	Partner with other governmental units and other interested parties to jointly identify and acquire 30,000 acres of open space lands.	3	2	Flood, Drought, Landslide, Extreme Heat	High	Wake County Community Services	\$335,000,000	Open Space Bonds	3-5 years	In-Progress – Carry Forward	The County has purchased approximately 7,634 acres since the program’s inception. It will take several decades as indicated to complete. In 2018 voters approved \$120m Parks, Greenways, Recreation and Open Space Bond. \$26m available for 2019.
Structural Projects											
SP-1	Replace emergency generators located at facilities that serve as emergency shelter locations based on their scheduled end of life cycle.	3	1	All	Moderate	Wake County Facilities Design & Construction	\$1,400,000	Local and Federal Grant	More than 5 years	New	N/A
SP-2	Construction of a new Emergency Operations Center adequate for the size and complexity of the jurisdiction	2	1	All	Moderate	Wake County Emergency Management	\$6,500,000	Local	3-5 years	New	N/A
Emergency Services											
ES-1	Recovery Plan. Develop a comprehensive disaster recovery plan for Wake County consistent with the vision and goals described in PPD-8 and the National Disaster Recovery Framework.	4	2	All	Moderate	Wake County Emergency Management	\$150,000	Local	3-5 years	New	N/A
ES-2	Upload dam failure inundation maps to Everbridge system for notification and evacuation.	1	2	Dam Failure	High	Wake County Emergency Management	Staff time	Local	1 year	New	N/A
Public Education and Awareness											
PEA-1	Emergency Planning and Community Right-to-Know Act (EPCRA) High Hazard Chemicals Awareness. Identify chem facilities, potential impact zones, and potentially affected communities. Inform public and provide resources and education.	1	1	Hazardous Material	Moderate	Wake County Local Emergency Planning Committee	\$15,000	Local funding, donations	2-3 years	New	N/A
PEA-2	Increase public awareness and participation in the Ready Wake program and resources.	1	1	All	Moderate	Wake County Fire Services, Emergency Management	\$10,000	Federal Grants and Local	2-3 years	New	N/A

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Table 7.2 – Mitigation Action Plan, City of Raleigh

City of Raleigh											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Prevention											
P-1	Establish a Lake Preservation Policy that encourages private property owners to preserve existing lakes and ponds, and in certain circumstances provides for public assistance.	4	1	Flood	Moderate	Raleigh Engineering Services	\$100,000 - \$1m	Local	1 year	In-Progress – Carry Forward	City Stormwater has also worked with the Stormwater Management Advisory Commission to develop recommendations to further enhance the lake preservation program. It is anticipated that the revised program will be considered by City Council during calendar year 2019. Enhancements would include the continued ability to restore and upgrade dams and spillways associated with safety improvements as well as removal of dams to protect safety and restore natural conditions
P-2	Develop ongoing multi-year program of detailed basin studies for each watershed in City's jurisdiction. Fifteen basin studies are complete with 10 additional studies budgeted in the capital program. (CRS 410).	2	2	Flood	Moderate	Raleigh Engineering Services	\$100,000 - \$1m	Local	1 year	In-Progress – Carry Forward	City Stormwater is currently working on an Integrated Stormwater Management Master Plan. Basin studies will be reviewed and updated as needed with further improvement needs and opportunities identified and prioritized. Reduction of flooding hazards remains a key priority for improvement projects.
P-3	Planning Commission to consider program to develop future conditions floodplain mapping for all FEMA mapped areas (this is already done for non-FEMA mapped areas). The program would consist of a multi-year capital program for mapping for all FEMA streams in the ETJ and consideration of changes to development regulations in these areas. Future conditions would be based on expected development per the Comprehensive Plan and zoning maps.	4	2	Flood	Moderate	Raleigh Engineering Services	\$100,000 - \$1m	Local	3-5 years	In-Progress – Carry Forward	The preliminary maps that have all FEMA floodplain in the city studied for future conditions. Our ordinance is already set up to enforce these areas. Once the maps are effective this effort will be complete.
P-4	Reallocation of Falls Lake water conservation pool; increased available storage for water supply by 4.1B gallons	2	1	Drought	High	Public Utilities Department	No cost	N/A	Ongoing - Next 5 years	New	N/A
P-5	Implementation of a regional mutual aid contract between local water utilities which would describe how the utilities would provide assistance if a partner utility experienced a water shortage	2	2	Drought	High	Public Utilities Department	Variable - depends on volume of water transferred between systems	Public Utilities Dept	Ongoing - Next 5 years	New	N/A
P-6	Develop a written Resiliency Plan for City of Raleigh operations and services, including infrastructure resilience, community resilience, ecosystem resilience and governance resilience.	4	1	All	High	Office of Sustainability	Less than \$100,000	Unknown	2-3 years	New	N/A
P-7	Water Shortage Response Plan which uses a hydrologic model (OASIS) to establish risk based drought triggers that are designed to reduce water demand before severe drought conditions and also when to exit drought triggers when conditions improve.	2	2	Drought	Moderate	Public Utilities Department	No cost	N/A	Ongoing - Next 5 years	New	N/A
P-8	Update and maintain GIS data of building footprints, parcels, and critical facilities, and use it to regularly identify buildings in need of mitigation.	2	2	All	Moderate	Raleigh Information Technology, GIS staff	Staff time	Local	Ongoing - Next 5 years	New	Updated data will be used in future plan updates and risk assessments and to identify properties that should be prioritized for mitigation.
Property Protection											
PP-1	Develop ongoing program designed to utilize Federal grant resources to assist private property owners in relocating existing structures out of flood hazard zones. (CRS 500/510/520)	3	2	Flood	Moderate	Raleigh Engineering Services	\$100,000 - \$1m	Local, Federal	3-5 years	In-Progress – Carry Forward	The city is cataloging potential candidates for relocation based on our current repetitive loss list. Staff has developed a scoring system based on cost benefit for relocation.

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City of Raleigh											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
PP-2	Develop an ongoing program designed to utilize Federal grant resources to assist private property owners in elevating existing structures located within flood hazard zones. (CRS 510/530)	3	2	Flood	Moderate	Raleigh Engineering Services	\$100,000 - \$1m	Local, Federal	3-5 years	In-Progress – Carry Forward	To further this initiative, the city is cataloging potential candidates for elevation based on our current repetitive loss list. Staff has developed a scoring system based on cost benefit for elevation that would compare the projects to relocation and retrofits.
PP-3	Develop an ongoing program designed to utilize Federal grant resources to assist private property owners in renovating and retrofitting existing structures in flood hazard zones to reduce vulnerability to flooding damage.	3	2	Flood	Moderate	Raleigh Engineering Services	\$100,000 - \$1m	Local, Federal	Ongoing – next 5 years	In-Progress – Carry Forward	City staff evaluates potential candidates and approaches property owners for mitigation help.
PP-4	Program to install emergency electrical generators at all public utility facilities. Current focus on redundant generators at critical facilities, second fuel truck and completion of 100% generator coverage in Garner area.	3	1	All	High	Raleigh Public Utilities	\$100,000 - \$1m	Local	2-3 years	In-Progress – Carry Forward	We now have emergency backup power generators at all our critical facilities except for our South Raleigh Operations Facility. However, we can relocate supplies, material and teams to any of our other facilities per our emergency operational planning. Also, per our Hurricane Florence AAR we are conducting emergency fuel capacity studies for our generators at our largest wastewater treatment plant and both our water treatment plants. A fuel truck is not in the works but we have emergency fuel contracts with Red Star and also exploring dual use of natural gas to power some of our energy resiliency to give us an added layer.
Structural Projects											
SP-1	Install cameras in flood prone areas throughout the City of Raleigh to allow us to view these locations and make informed decisions as it relates to flooding	2	2	Flood, Hurricane	Moderate	City of Raleigh Transportation	\$100,000 to \$1m	Unknown	3-5 years	New	N/A
Emergency Services											
ES-1	Provide and enhance technical rescue capabilities more equitably throughout the City.	2	1	Dam Failure, Flood, Hurricane, Severe Weather, Severe Winter Storm, Tornado, Wildfire	High	Raleigh Fire	\$100,000 - \$1m	Local	2-3 years	In-Progress – Carry Forward	We continually look at our technical rescue capabilities and adjust as needed. The initiative to add 1 Heavy Rescue and 2 Squads has been completed. Additionally, we've added 1 company (12 personnel) to the team, upgraded water rescue equipment, increased water rescue certified personnel from 20 to 60, required 100% of members be Technical Rescuer and Vehicle Extrication certified and are working toward 100% certification for all members in all the other technical rescue disciplines.
ES-2	Provide after-action report of emergency response to severe weather events in order to improve planning for future disasters.	2	2	Hurricane, Severe Weather, Severe Winter Storm, Tornado	High	Raleigh Fire and Emergency Management	\$100,000 - \$1m	Local	Ongoing- Post Event	In-Progress – Carry Forward	After-action report made for Hurricane Florence and will continue to be made for all subsequent weather events.
ES-3	Maintain a standard operating guideline to direct operational planning prior to anticipated weather emergencies.	2	1	All	High	Raleigh Fire and Emergency Management	\$100,000 - \$1m	Local	Ongoing – next 5 years	In-Progress – Carry Forward	The City's Emergency Operation Plan outlines our standard operating guidelines and has been adopted as an official document used prior to and during weather emergencies.
ES-4	Design GIS programming capable of providing real-time data to emergency managers and historic data for future emergency response planning.	2	2	All	High	Raleigh City Manager and Information Technology	\$100,000 - \$1m	Local	3-5 year	In-Progress – Carry Forward	The IT Department led a citywide effort to develop a Situational Analysis Smart Dashboard for the Emergency Operations Center and refined it in real time as new types of data, such as current wind speed, were identified as critical to the safety of the public and city workers during an emergency. The Smart Dashboard was first deployed for Hurricane Florence. The dashboard is cross-departmental, with real-time progress tracking, covering a range of emergency management issues from debris in streets and closures, malfunctioning traffic signals, flood monitoring and 911 call data.

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City of Raleigh											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
ES-5	Continue to conduct disaster tabletop exercise program.	2	1	All	Low	Raleigh Public Utilities, Fire, Police, City Manager, Emergency Management, and Engineering Services	\$100,000 - \$1m	Local	Ongoing – next 5 years	In-Progress – Carry Forward	Tabletop disaster exercises continue to occur with all EOC partners prior to the anticipated peak of hurricane season. These trainings take place each year to ensure staff are comfortable in their EOC roles and to handle staff turnover.
ES-6	Establish cross-functional team to develop Debris Management Plan. Team should work to identify and prepare additional debris management sites.	2	1	Flood, Tornado, Earthquake, Severe Winter Storm, Severe Weather, Hurricane	Moderate	City of Raleigh Transportation	\$100,000	FEMA, City of Raleigh general fund support	1 year	New	N/A
Public Education and Awareness											
PEA-1	Utilize existing Everbridge advisory software to issue Heat Advisory Alerts targeted to vulnerable neighborhoods	1	2	Extreme Heat	High	Communications/ Sustainability	Less than \$100,000	COR Operating Funds	2-3 years	New	N/A

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Table 7.3 – Mitigation Action Plan, Town of Apex

Town of Apex											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Prevention											
P-1	Revise and update the regulatory floodplain boundary, including flood studies.	2	2	Flood	Moderate	Public Works & Transportation (Floodplain Administrator)	Staff Time	Town Funds	Ongoing - Next 5 years	In-Progress – Carry Forward	Action revised.
P-2	Develop an environmental committee that meets regularly to discuss issues and recommend projects.	2	2	All Hazards	Moderate	Water Resources (Stormwater and Utility Engineering Manager)	Staff Time	Town Funds	Ongoing - Next 5 years	In-Progress – Carry Forward	The Town Council's Environmental committee has been established and meets approximately every 2 months
P-3	Encourage the use of Low Impact Development techniques.	4	2	Flood, Landslide, Drought, Hurricane, Extreme Heat	Low	Water Resources (Stormwater and Utility Engineering Manager)	Staff Time	Town Funds	Ongoing - Next 5 years	In-Progress – Carry Forward	Ongoing activity that has seen more results in last 5 years and will continue to be prioritized.
P-4	Use system development fees to help fund public projects	3	2	Flood, Wildfire, Tornado, Severe Winter Storm, Severe Weather, Drought, Hurricane	Moderate	Water Resources (Stormwater and Utility Engineering Manager)	Unknown	Local Development Fees	3-5 years	In-Progress – Carry Forward	Action revised.
P-5	Update the UDO & Design and Development Manual to incorporate proper species selection and practices for planting and maintenance into the landscape ordinance.	4	1	Flood, Severe Winter Storm, Severe Weather, Drought, Hurricane	Moderate	Planning Dept.	Staff Time	Local	2-3 years	In-Progress – Carry Forward	Action revised.
P-6	Incorporate GIS data and risk analysis into the development review process.	4	2	All	Moderate	Fire Dept. & Planning Dept.	Staff Time	Local	Ongoing - Next 5 years	In-Progress – Carry Forward	Action revised.
P-7	Create a Stormwater Utility to fund the Town's Stormwater Program.	2	2	Flood	Moderate	Water Resources (Stormwater and Utility Engineering Manager)	\$100,000	Local	2-3 years	New	Implement: 2021
P-8	Continue to use "Neighbors Helping Neighbors" program to help low income Apex Utility customers pay their utility bills.	3	2	Extreme Heat, Severe Winter Storm	Moderate	Finance Dept/Western Wake Crisis Ministry	None	Local	Ongoing - Next 5 years	New	Has been in use for years but is just now being recognized as contributing towards mitigating impacts of high heat and cold weather.
P-9	Salt local roads before Severe Winter Storm & plow after snow and ice fall.	3	2	Severe Winter Storm	Moderate	Public Works & Transportation		Local	Ongoing - Next 5 years	New	On-going activity that is just now being added as mitigation for Severe Winter Storms.
Property Protection											
PP-1	Adopt and enforce the Fire Prevention Code.	4	1	Wildfire, Hazardous Materials Incident	Moderate	Fire Department	Staff Time	Local	Ongoing - Next 5 years	New	N/A
PP-2	Annually update the comprehensive occupancy pre-plan program with local data for use in risk analysis.	4	2	Flood, Wildfire, Hazardous Materials Incident, Radiological Emergency	Moderate	Fire Department	Staff Time	Local	Ongoing - Next 5 years	In-Progress – Carry Forward	Action revised.
PP-3	Restore streams to slow the speed of water and reduce erosion to prevent both private property loss and public infrastructure damage.	3	2	Flood	Moderate	Water Resources (Stormwater and Utility Engineering Manager)	Over \$500,000	Local & Federal	Ongoing - Next 5 years	New	N/A
Natural Resource Protection											
NRP-1	Middle Creek Greenway (Miramonte to Holly Springs).	3	2	All	Moderate	Apex Parks and Recreation	\$2,870,000	Local	3-5 years	In-Progress – Carry Forward	under construction
NRP-2	White Oak Creek Greenway.	3	2	Flood	Moderate	Apex Parks and Recreation	\$284,000	Local	3-5 years	In-Progress – Carry Forward	under construction
NRP-3	During development review, ensure new development complies with floodplain development restrictions listed in UDO Section 6.2 Flood Damage Prevention Overlay District.	4	2	Flood	Moderate	Public Works and Transportation (Floodplain Administrator)	Staff Time	Local	Ongoing - Next 5 years	New	N/A

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Town of Apex											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
NRP-4	During development review, ensure new development complies with UDO stream buffer standards.	4	2	Flood	Moderate	Water Resources (Stormwater and Utility Engineering Manager)	Staff Time	Local	Ongoing - Next 5 years	New	N/A
NRP-5	During development review, ensure SCMs are designed in accordance with State criteria to safely pass 100-year storm.	4	2	Flood	Moderate	Water Resources (Stormwater and Utility Engineering Manager)	Staff Time	Local	Ongoing - Next 5 years	New	N/A
Structural Projects											
SP-1	Improve communications abilities for emergency response by building new fiber optic internet infrastructure and replacing current radio systems.	2	1	All	Moderate	Police Dept	\$915,000	Local	3-5 years	New	N/A
SP-2	Build Jessie Drive to connect TenTen Rd and NC-55. This will provide greater connectivity and make evacuation faster & safer.	3	2	All	Moderate	Public Works and Transportation	\$6,000,000	Local	3-5 years	New	N/A
SP-3	Relocate Beaver Creek Sewer Line out of the creek.	3	2	Flood, Wildfire, Severe Winter Storm, Hurricane	Moderate	Water Resources (Stormwater and Utility Engineering Manager)	\$1,500,000	Local	3-5 years	New	N/A
SP-4	Finish the Peakway loop road. Will provide greater connectivity, faster emergency response times, and make evacuation faster & safer.	3	2	All	High	Public Works and Transportation	\$20,000,000	Local	More than 5 years	New	Design work is in progress
Emergency Services											
ES-1	Construct Fire Station #6	3	2	All Hazards	Moderate	Apex Fire	\$4,175,000	Local	3-5 years	New	N/A
ES-2	Construct Fire Station #7	3	2	All Hazards	Moderate	Apex Fire	\$4,000,000	Local	More than 5 years	New	N/A
ES-3	Relocate Fire Station #3 from its existing location because of the impacts of widening NC-55.	3	1	All Hazards	Moderate	Apex Fire	\$4,000,000	Local	More than 5 years	New	N/A
ES-4	Keep Town website updated with information about Shearon Harris Siren Testing.	1	2	Radiological Incident	Moderate	Apex Public Information Officer	Staff Time	Local	Ongoing - Next 5 years	New	Ongoing activity that's just now being recognized for its mitigation potential
Public Education and Awareness											
PEA-1	Town website and utility billing announcing National Preparedness Month (September) reminding citizens to have a plan and be prepared.	1	1	All	Moderate	Administration (Communications Officer)	Less than \$100,000	Local	Ongoing - Next 5 years	In-Progress – Carry Forward	On-going activity to be implemented annually
PEA-2	Include Environment Education Station and classroom at Nature Park.	1	1	All	Moderate	Apex Parks and Recreation	\$1,000,000	Local	3-5 years	Not Started – Carry Forward	New target completion date is 2022
PEA-3	Post warning signage at local parks for lightning.	1	1	Severe Weather	Moderate	Apex Parks and Recreation	\$100,000	Local	3-5 years	Not Started – Carry Forward	New implementation schedule is 3-5 years
PEA-4	Hand out hazard educational materials at Apex festivals.	1	1	All	Moderate	Planning Dept. & Water Resources	Less than \$1,500	Local	Ongoing - Next 5 years	New	N/A
PEA-5	Use Social Media to inform residents about local hazards.	1	1	All	Moderate	Apex Public Information Officer & Planning Dept.	Staff Time	Local	Ongoing - Next 5 years	New	N/A

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Table 7.4 – Mitigation Action Plan, Town of Cary

Town of Cary											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Prevention											
P-1	Town's Comprehensive Plan- The Town has an existing comprehensive plan which includes land use, parks and recreation, open space, transportation, utilities, and environment.	4	2	All	High	Cary Planning	\$1M for plan development; implementation ongoing	General Fund	2-3 years	In-Progress – Carry Forward	Cary's comprehensive plan, called alternately the Cary Community Plan and the Imagine Cary Plan was finalized on January 24, 2017. Implementation in-process.
P-2	Adaptive Approach to Stormwater	4	1	Flood	High	Cary Stormwater	\$900,000	General Fund and \$300K Grant	Ongoing	New	Multi-pronged approach including 5 key components: 1) Working Group of residents and local experts to learn and advise 2) Maintenance, including Condition Assessment (a separately listed "action") 3) Open Space, examining how open space and tree canopy provide stormwater benefits 4) Model, hiring a firm to build a dynamic rainfall-runoff model to establish a baseline and test solutions and scenarios 5) Ordinance, looking at the stormwater ordinance as a way to achieve our risk mitigation goals
P-3	Stormwater Condition Assessment Program	4	2	Flood	High	Cary Stormwater	\$750,000	General Fund	2-3 years	New	In phase 4, (1-GIS Assessment Tool, 2-GIS Mapping Data and assessment, 3-Modeling, 4-Maintenance) Assessment Tool completed. GIS Mapping 99% completed.
P-4	Develop flood model for upper Swift Creek watershed	2	2	Flood, Hurricane	High	Cary Stormwater	Unknown	Town Funds	1 year	New	N/A
P-5	Develop flood model for Symphony Lake	2	2	Flood, Hurricane	High	Cary Stormwater	Unknown	Town Funds	2-3 years	New	N/A
P-6	Engineering evaluation of Tryon Road dam	2	2	Dam Failure	Moderate	Cary Stormwater	Unknown	Town Funds	3-5 years	New	N/A
P-7	Conduct study and develop improvement plan for Twin Lakes dam	2	2	Dam Failure	High	Cary Stormwater	Unknown	Town Funds	3-5 years	New	N/A
P-8	Conduct flood study on Town-owned lake/dam, including breach analysis	2	2	River Flooding, Dam Failure	High	Cary Stormwater	Unknown	Town Funds	2-3 years	New	N/A
P-9	Triangle Regional Resiliency Partnership	4	1	River Flooding, Wildfire, Drought, Extreme Heat	Moderate	Town of Cary	Variable (depending on outside consultants)	General Funds	Ongoing	New	On-going partnership among Triangle area jurisdictions intended to do joint resilience planning and action. The group's first deliverable of a Triangle Regional Resilience Assessment was finalized late 2018. The group is continuing to meet and consider how it may implement recommendations of the assessment together.
Property Protection											
PP-1	Culvert Replacement - Arbor Brook	3	2	Flood	High	Cary Stormwater	\$400,000	General Fund	1 year	New	Replace existing culverts with larger culverts
PP-2	Culvert Replacement - Two Creeks	3	2	Flood	High	Cary Stormwater	\$800,000	General Fund	1 year	New	Replace existing culverts with larger culverts
Natural Resource Protection											
NRP-1	Downtown Park	3	2	Flood	High	Cary Stormwater and Facilities	\$750,000	General Fund	2-3 years	New	In planning phase. Implementing SW management above and beyond state requirements. Detention of 2, 5 and 10-year storm reduces scour on receiving stream.
NRP-2	Buffer and UTB Protection	3	2	Flood	High	Cary Stormwater and Cary Planning	Over \$10,000,000	Private (Developer) Funds	Ongoing - Next 5 Years	New	Extra 50-foot buffer (UTB) on USGS streams; no buffers platted in lots.
Structural Projects											
SP-1	Infrastructure improvements on Summer Lakes Dr.	3	2	Flood	High	Cary Stormwater	\$900,000	General Fund	1 year	New	Replace existing undersized culverts
SP-2	Infrastructure improvements on Vincrest Ct	3	2	Flood	High	Cary Stormwater	\$400,000	General Fund	2-3 years	New	Replace existing undersized culverts
SP-3	Update Water Shortage Response Plan	2	4	Drought	High	Town of Cary	Staff Time	N/A	1 year	New	N/A

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Town of Cary											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
SP-4	Water System Risk Analysis	3	1	All	High	Town of Cary	\$89,000	General Fund	Ongoing - 1 Year	New	The Water System Risk Analysis is a comprehensive look at the risks to our water system. It is being done to comply with the American Water Infrastructure Act of 2018. It will result in a new emergency response plan for our water system.
Emergency Services											
ES-1	Provide and enhance technical rescue capabilities throughout the Town.	2	1	All	High	Cary Fire	Unknown	Local	Ongoing - Next 5 Years	In-Progress – Carry Forward	Cary's Fire Department has a technical rescue training program that we coordinate with Morrisville and Apex, NC. We train on all disciplines of technical rescue.
ES-2	Provide after-action report of emergency response to severe weather events in order to improve planning for future disasters.	2	2	All	High	Cary Fire, Water Resources, and Facilities Design & Transportation Services	Unknown	General Fund	Ongoing - Next 5 Years	In-Progress – Carry Forward	Cary's key emergency response departments have formal after-action meetings to learn from what went well and seek opportunities to improve. This occurs after each event, so is ongoing in nature.
ES-3	Establish a relationship/partnership with the Renaissance Computing Institute (RENCI) to create a web-based tool capable of providing real-time flood data to emergency managers and historic data for future emergency response planning.	2	2	All	Low	Cary Fire and Technology Services	Unknown	General Fund	Ongoing – Next 5 Years	In-Progress – Carry Forward	Still in the early stages of developing this partnership.
ES-4	Partnership with FBI Terrorism Task Force	2	2	Terrorism	Moderate	Town of Cary, Town of Cary Police	\$100,000	General Fund	Ongoing	New	Since 2011 the Town of Cary Police have an officer assigned full time to the FBI Terrorism Task Force to maintain a relationship with the FBI. FBI Terrorism Task Force located in the FBI Raleigh Office located in the Town of Cary off Cary Parkway near US 1. Wake County Emergency Management has a plan for large scale events that impact Wake County. Those plans include guidance for law enforcement as part of a multi-agency response to all sorts of issues that could include the unlikely event of a terrorist attack.
ES-5	Inclement Weather Response Plan	2	1	Severe Winter Storm, Thunderstorm, Hurricane	Moderate	Town of Cary, Town of Cary Public Works	\$100,000 - \$1 Million (depending on number and type)	General Fund	Ongoing	New	The town commits significant Town-wide resource allocation and operational commitment to ensuring all aspects of winter weather events are planned, executed, and reviewed to maximize positive recovery outcomes for its citizens. The Town has similar structure and programs for thunderstorm or wind events.
Public Education and Awareness											
PEA-1	Environmental Education "green infrastructure" signage on Dry Avenue Properties that were bought out due to flooding. Signs to be installed early 2019	1	1	Flood	Low	Cary Stormwater and Sustainability	\$11,000	Local	Ongoing - Next 5 Years	New	N/A
PEA-2	Citizen volunteers make up the Community Emergency Response Team (CERT). CERT training is a Citizens Corps program designed to enable citizens to care for themselves and their neighbors during the first three days following a disaster event. Participants are educated about disaster preparedness, CERT organization, light search and rescue, medical care, fire extinguisher use and disaster psychology.	1	2	All	Moderate	Cary Police Department and Fire Department	\$1,000/year	Donations	Ongoing - Next 5 Years	New	N/A

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Table 7.5 – Mitigation Action Plan, Town of Fuquay-Varina

Town of Fuquay-Varina											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Prevention											
P-1	Require pre and post construction certification for residential lot development within 10 feet of Wake County Flood Hazard Soils.	4	1	Flood	Moderate	Fuquay-Varina Planning	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Part of permit review process
P-2	Annually calculate acreage of flood prone property preserved as open space.	2	2	Flood, Hurricane	Moderate	Fuquay-Varina Planning	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Part of an annual report
P-3	Map storm water drainage system as part of Phase II Stormwater Management Plan.	2	2	Flood	High	Fuquay-Varina Engineering	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Part of infrastructure acceptance / ongoing project to work on historical data inclusion
P-4	Provide for public dissemination building inspections brochures regarding high winds, water damage prevention, and tie downs for accessory structures.	1	1	Flood, Tornado, Hurricane, Severe Weather	Moderate	Fuquay-Varina Inspections	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Brochures continuously made available to public at Town Hall
P-5	Review and update of drought policy for water conservation	2	2	Drought	High	Fuquay-Varina Planning	Budgeted Staff Time	Annual Budget	3-5 years	New	N/A
P-6	Review and update requirements for mast arms to be installed over strain poles	3	2	Severe Weather, Severe Winter Storm, Hurricane, Tornado	Moderate	Fuquay-Varina Planning	Budgeted Staff Time	Annual Budget	3-5 years	New	N/A
P-7	Review and update the 2014 Comprehensive Systemwide Parks, Recreation & Cultural Resources Master Plan for inclusion of hazard safety information at facilities	4	2	Flood, Earthquake, Extreme Heat, Severe Weather, Tornado	High	Fuquay-Varina Planning and Parks, Recreation, & Cultural Resources	Budgeted Staff Time	Annual Budget	3-5 years	New	N/A
Property Protection											
PP-1	Continue to enforce the Flood Damage Prevention Ordinance for all new construction or substantial building rehabilitations.	4	1	Flood, Hurricane	High	Fuquay-Varina Planning	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Part of development and permit review process
PP-2	Require minimum finished floor elevation in known FEMA flood hazard zones be minimum 2' above base flood elevation.	4	1	Flood, Hurricane	High	Fuquay-Varina Planning and Inspections	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Part of development and permit review process
PP-3	Identify and inventory buildings that are located in FEMA flood zones to determine which structures may be prone to flooding (possible relocation and/or elevation).	3	1	Flood, Hurricane	High	Fuquay-Varina Planning and Engineering	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	We reference the Dept of Public Safety's report
Natural Resource Protection											
NRP-1	Work with the U.S. Army Corps of Engineers on wetland protection.	4	1	Flood, Hurricane	Moderate	Fuquay-Varina Planning	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Part of development and permit review process
NRP-2	Use Open Space Ordinance to protect wildlife habitat.	4	1	All	Moderate	Fuquay-Varina Planning	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Part of development and permit review process
NRP-3	Notify Wake County of any illegal stream dumping instances	3	1	Flood, Dam Failure, Hurricane	Moderate	Fuquay-Varina Planning and Public Utilities	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Continued function of normal operation
NRP-4	Enforce standards for tree protection and control of clear cutting (Town has received legislative authority to enact tree protection and control of clearcutting standards.)	4	1	Flood, Wildfire, Landslide	High	Fuquay-Varina Planning	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Part of development and permit review process
NRP-5	Install low flow/high efficiency toilets at new town hall	3	1	Drought	Low	All Departments	To Be Determined	Annual Budget	1 year	New	N/A
Structural Projects											
S-1	Install a generator at the new town hall	3	1	All	High	All Departments	To Be Determined	Annual Budget	1 year	New	N/A
S-2	Install security cameras on new town hall	3	1	Terrorism	High	All Departments	To Be Determined	Annual Budget	1 year	New	N/A
Emergency Services											
ES-1	Maintain current warning system with local sirens on elevated platforms and use of the Emergency Broadcast System.	1	2	All	High	Fuquay-Varina Planning, Fire and Police	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Continued function of normal operation
ES-2	Coordinate an incident command course for all Town employees, related to Emergency Operations Plan and Disaster Operations Plan for the Town.	2	1	All	Moderate	Fuquay-Varina Fire and Police	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Lack of staffing has prevented implementation

SECTION 7: MITIGATION ACTION PLANS

Town of Fuquay-Varina											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
ES-3	Conduct a scenario-based training exercise, related to Emergency Operations Plan and Disaster Operations Plan for the Town.	2	1	All	Moderate	Fuquay-Varina Fire and Police	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Lack of staffing has prevented implementation
ES-4	Assist Wake County Emergency Management with updating list of local hazardous materials sites.	2	1	Hazardous Materials Incident, Radiological Emergency	Moderate	Fuquay-Varina Fire and Wake County Emergency Management	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Continued function of normal operation
ES-5	Continue Pre-Fire Incident Plan program for all commercial facilities within the Town limits.	3	2	All	High	Fuquay-Varina Fire	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Continued function of normal operation
ES-6	Address securing and cleaning up affected hazardous areas when revising Disaster Operations Plan.	4	2	All	High	Fuquay-Varina Planning, Fire and Police	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Continued function of normal operation
ES-7	Continue to evaluate and improve response and recovery methods following each hazard event.	2	2	All	High	Fuquay-Varina Fire and Police	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Continued function of normal operation
ES-8	Finalize implementation of new/updated radio communication equipment.	2	1	All	Moderate	Fuquay-Varina Fire and Police	\$55,000	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Police Department's portion completed. Fire Department anticipated completion, June 2019
Public Education and Awareness											
PEA-1	Maintain floodplain maps for public use and produce other maps as needed.	1	1	Flood, Hurricane	Moderate	Fuquay-Varina Planning and Engineering	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Continued function of normal operation
PEA-2	Develop and maintain a hazard mitigation section on the Town website that is updated every 5 years as the plan is updated.	1	1	All	High	Fuquay-Varina Public Information and Information Technology	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Continued function of normal operation
PEA-3	Collect educational materials on disaster preparedness and display at public library and local government offices.	1	1	All	High	Fuquay-Varina Planning, Inspections, Police, and Fire	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Lack of staffing has prevented implementation
PEA-4	Educate public on importance of channel maintenance as part of Phase II Stormwater Management Plan.	1	1	Flood, Dam Failure, Hurricane	Moderate	Fuquay-Varina Engineering	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Continued function of normal operation
PEA-5	Work with local real estate agents to ensure that potential buyers are aware of properties that are exposed to potential flood damage.	1	1	Flood, Dam Failure, Hurricane	Moderate	Fuquay-Varina Planning	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Continued function of normal operation
PEA-6	Require delineation of Wake County Flood Hazard Soils, FEMA flood zones, and wetlands on final plats.	3	2	Flood, Dam Failure, Hurricane	Moderate	Fuquay-Varina Planning	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	In-Progress – Carry Forward	Part of development and permit review process
PEA-7	Annual participation in Severe Weather Preparedness Week (March 3-9) via Weather Channel (social media campaign, newsletter, published materials)	1	1	All	High	Fuquay Varina Planning and Public Information	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	New	N/A
PEA-8	Annual participation in National Preparedness Month (September) Ready.gov (social media campaign, newsletter, published materials)	1	1	All	High	Fuquay Varina Planning and Public Information	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	New	N/A
PEA-9	Annual participation in Hurricane Prep Week (May 13-19) ReadyNC.gov (social media campaign, newsletter, published materials)	1	1	Flood, Landslide, Hurricane	High	Fuquay Varina Planning and Public Information	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	New	N/A
PEA-10	Annual participation in Earthquake Awareness Month and National Earthquake Drill (February & October) Ready.gov (social media campaign, newsletter, published materials)	1	1	Earthquake	High	Fuquay Varina Planning and Public Information	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	New	N/A
PEA-11	Annual participation in National Dam Safety Awareness Day (May 31) Ready.gov (social media campaign, newsletter, published materials)	1	1	Dam Failure	High	Fuquay Varina Planning and Public Information	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	New	N/A
PEA-12	Structured public education through social media, brochures, and flyers in critical facilities	1	1	All	High	Fuquay Varina Planning, Fire & Police, and Public Information	Budgeted Staff Time	Annual Budget	Ongoing - Next 5 Years	New	N/A

SECTION 7: MITIGATION ACTION PLANS

Table 7.6 – Mitigation Action Plan, Town of Garner

Town of Garner											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Prevention											
P-1	Evaluate the need for regulations to encourage use of low impact development site planning principles to help control stormwater volume impacts.	4	1	Flood, Dam Failure, Hurricane	Moderate	Garner Engineering and Planning	Staff time	Local	2-3 years (2021)	Not Started – Carry Forward	Will be considered during our development code (UDO) update over the next 2 years
P-2	UDO: Continue to provide stream and creek buffers, and floodplain and wetland protection.	3	2	Flood, Dam Failure, Hurricane	High	Garner Planning	Staff time	Local	2-3 years (2021)	In-Progress – Carry Forward	Will be considered during our development code (UDO) update over the next 2 years
P-3	Provide adequate water supply through storage and interconnection with other public water systems.	3	2	Drought	Moderate	City of Raleigh and Garner Engineering	TBD	Local	2-3 years (2020)	In-Progress – Carry Forward	Support City of Raleigh's effort with the reservoir project at NC 50 and New Bethel Church Road
P-4	Garner Transportation Plan – Continue to address disaster preparedness (evacuation) through road interconnectivity, paved roads, and widening of roads.	4	2	Flood, Dam Failure, Earthquake, Hurricane, Severe Weather, Severe Winter Weather, Tornado, Hazardous Materials Incident, Radiological Emergency, Terrorism	Moderate	Garner Planning and Public Works	Improvement costs TBD on case-by-case basis	Local, State, Federal	Ongoing - Next 5 Years	In-Progress – Carry Forward	The Town's emergency preparedness plan follows the Wake County for routes. The Town's 2018 Transportation Plan does encourage and promote interconnectivity.
P-5	Develop for public dissemination building inspections brochures regarding high winds, water damage prevention, and tie downs for accessory structures.	1	1	Flood, Dam Failure, Earthquake, Hurricane, Severe Weather, Severe Winter Weather, Tornado	Moderate	Garner Inspections	Staff time and materials	Local	Ongoing - Next 5 Years	In-Progress – Carry Forward	We do this annually - seasonal brochures based on weather threats
P-6	The Town will inventory all its structures located within or immediately adjacent to known flood hazard areas.	2	2	Flood	Moderate	Garner Planning and Engineering	Staff time	Local	Ongoing - Next 5 Years	In-Progress – Carry Forward	Town reviews when data is available (Flood Plain mapping, new LIDAR data)
P-7	In the upcoming zoning and development ordinance update / re-write (UDO), look for ways discourage and steer high density residential and other at-risk populations (daycares, schools, and retirement facilities as examples)	4	1	Hazardous Materials	Moderate	Garner Planning and Fire / Building Inspections	Staff time	Local	2-3 years	New	The Town will update the UDO (Zoning & Development code) soon
Property Protection											
PP-1	The Town has a service to respond to requests and questions from citizens regarding actions they may take to improve drainage, halt erosion, and to relocate, renovate or retrofit structures being flooded.	1	1	Flood	Moderate	Garner Engineering	Staff time	Local, Private	Ongoing - Next 5 Years	In-Progress – Carry Forward	Normal operations; ongoing activity.
Natural Resource Protection											
NRP-1	Develop and adopt a conservation subdivision ordinance to help preserve significant natural features.	4	1	Flood, Hurricane, Severe Weather, Tornado, Winter Storm	Moderate	Garner Planning	Staff time	Local	2-3 Years (2021)	Not Started – Carry Forward	Will be considered during our development code (UDO) update over the next 2 years
Structural Projects											
SP-1	Pursue stream restoration projects	3	2	Flood	High	Garner Engineering	TBD	Local, Regional, State, Federal	2-3 Years (2021)	Not Started – Carry Forward	Consideration as a capital project under the "stormwater" category as problem areas are identified.
Emergency Services											
ES-1	Develop a Business Continuity Plan that is the primary document housing all disaster related plans and procedures including Hazard Mitigation Plan, Debris Management Plan, Multi-Hazard Plan as well as disaster response plans for all Town departments.	2	2	All Hazards	High	Garner Police, Public Works, and Administration	\$25,000-\$50,000	Local	2-3 Years	In-Progress – Carry Forward	Target 2021
Public Education and Awareness											

SECTION 7: MITIGATION ACTION PLANS

Town of Garner											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
PEA-1	Town website will be updated with public access to information pertaining to evacuation routes, emergency contact numbers, and detailed weather reports in case of emergency.	1	2	Flood, Hurricane, Earthquake, Severe Weather, Tornado, Severe Winter Storm, Wildfire, Hazardous Materials Incident, Radiological Emergency	Moderate	Police & Fire Departments, Garner Communications	Staff time	Local	Ongoing - Next 5 Years	In-Progress – Carry Forward	Target 2021
PEA-2	Develop and maintain a hazard mitigation section on the Town website.	1	1	All Hazards	Moderate	Garner Communications, and Garner IT	Staff time	Local	2-3 Years	Not Started – Carry Forward	Target 2021
PEA-3	Website - The Town maintains its own website which is able to provide up to date information for the public. Town continuously updates the site with additional resources.	1	1	All Hazards	High	Garner Police & Fire, Communications, and Garner IT	Staff time	Local	Ongoing - Next 5 Years	In-Progress – Carry Forward	Completed the initial effort; it is in place and on-going

SECTION 7: MITIGATION ACTION PLANS

Table 7.7 – Mitigation Action Plan, Town of Holly Springs

Town of Holly Springs											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Prevention											
P-1	Vision Holly Springs Comprehensive Plan - The Town has an existing Comprehensive Plan which includes Land Use, Parks and Recreation, Public Safety, Economic Development, Transportation, Public Utilities and Environment. This plan includes past and current conditions and sets goals for future needs of the Town. The Hazard Mitigation Plan will be incorporated as an additional component of the CGP at plan update.	4	2	All	Moderate	Holly Springs Planning & Zoning	To be determined	Local	1 year	In-Progress – Carry Forward	To be updated in 2019
P-2	Update Floodplain Development Regulations - The Town has an ordinance developed to minimize public and private losses due to flood conditions. The latest update of the Flood Damage Prevention Ordinance was May 2, 2006. (00-23).	4	1	Flood	High	Holly Springs Engineering	No cost	Local	3-5 Years	In-Progress – Carry Forward	Ordinance will be updated once the preliminary maps under review by FEMA/NCDEM are adopted
P-3	Implement Floodplain Development Regulations related to participating in the National Flood Insurance Program	4	1	Flood	High	Holly Springs Engineering	Staff time	Local	2-3 years	Not Started – Carry Forward	The Town restricts or prohibits uses which are dangerous to health, safety and property due to water or erosion hazards or which result in damaging increases in erosion or in flood heights or velocities. (00-23)
P-4	Floodplain Development Regulations - The Town has been a participating member of the National Flood Insurance Program since 1992, The Town evaluated the Town's potential participation in the Community Rating System (CRS) and determined that the amount of insured properties in the Town did not warrant participation in the CRS. However, staff will reevaluate this determination in the future through the implementation of the Floodplain Management Program.	4	1	Flood	High	Holly Springs Engineering	To be determined	Local	Ongoing - Next 5 Years	In-Progress – Carry Forward	Re-evaluate potential for CRS participation
P-5	Water Emergency Response Plan - Develop Water Emergency Response Plan in accordance with EPA mandate with wastewater emergency plan developed voluntarily.	3	2	All	High	Holly Springs Public Utilities, Engineering	To be determined	Local	3-5 years	In-Progress – Carry Forward	Plan review and update will ensure secondary water sources available during an emergency
Property Protection											
PP-1	Building Acquisition and Clearance - The Town is willing to develop a plan designed to utilize Federal grant resources to assist private property owners in purchasing properties located in flood hazard zones.	3	2	Flood	Low	Holly Springs Code Enforcement	Staff time; acquisition costs TBD on case by case basis	Local, State, Federal	2-3 years	Not Started – Carry Forward	Target for development of plan to enable this activity is now 2019-2021
PP-2	Building Relocation - The Town is willing to develop a plan designed to utilize Federal grant resources to assist private property owners in relocating existing structures out of flood hazard zones.	3	2	Flood	Low	Holly Springs Code Enforcement	Staff time; relocation costs TBD on case by case basis	Local, State, Federal	2-3 years	Not Started – Carry Forward	Target for development of plan to enable this activity is now 2019-2021
PP-3	Building Retrofit - The Town is willing to develop a plan to utilize Federal grant resources to assist private property owners in renovating and retrofitting existing structures in flood hazard zones to reduce vulnerability to flooding damage.	3	2	Flood	Low	Holly Springs Code Enforcement	Staff time; retrofitting costs TBD on case by case basis	Local, State, Federal	2-3 years	Not Started – Carry Forward	Target for development of plan to enable this activity is now 2020-2021
PP-4	Purchase of Open Space, Parks and Greenways - The Parks and Recreation Department is asking for \$500,000 for Capital Improvement Projects to purchase open space. The Town also works with Wake County and other agencies to find other funding for open space acquisition. Once funds are obtained the Town will acquire land consistent with Land Use and Master Open Space Plans.	4	2	Flood	Moderate	Holly Springs Parks and Recreation	Land Cost	County & State Agencies	More than 5 years	In-Progress – Carry Forward	Continually seeks new investments
PP-5	Backup Power to Fire and Police Stations – The Town provides backup power to all fire and police stations. Fire Station 1 – backup power provided by a grant; backup power to Fire Station 2 and Fire Station 3 and Police Station provided by local funds.	3	1	All	High	Holly Springs Public Safety	Requires new facility. Cost unknown at this time.	Local, Federal	3-5 Years	In-Progress – Carry Forward	Plans to be developed to establish backup power for Fire Station #3.

SECTION 7: MITIGATION ACTION PLANS

Town of Holly Springs											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
PP-6	Emergency Generator for Public Works Building	3	1	All	Moderate	Holly Springs Public Works	To be determined	Local	3-5 Years	In-Progress – Carry Forward	The Town currently has an emergency generator to provide power to the Front Office of the Public Works Building during emergencies. Future goal is to provide 100% generator power to the building.
PP-7	Install additional Generators	3	1	All	High	Holly Springs Public Utilities	To be determined	Local	1 year	In-Progress – Carry Forward	The wastewater treatment plant and sewer lift stations built after 1994 have generators. In emergency situations, the Town also has mobile generators to be used at lift stations built between 1985 – 1994 that are without permanent generators on site. Over the next ten years, the Town would like to purchase generators for lift stations that do not currently have generators.
Natural Resource Protection											
NRP-1	As part of the next phases(s) of the Town's Watershed Masterplan, a map of impervious cover will be created. This information may be used overlain to show which structures are in hazardous locations.	2	2	Flood, Dam Failure, Earthquake, Hurricane, Severe Weather, Tornado, Wildfire	High	Holly Springs Engineering	Staff time	Local	3-5 years	New	N/A
Structural Projects											
S-1	The Town is in the process of pursuing options to improve the existing spillway or create a secondary spillway. Per an agreement with NC Dam Safety, this will be completed within the next 5 years.	3	2	Flood, Dam Failure	High	Holly Springs Engineering, Parks & Recreation	Over \$100,000	Local	3-5 years	New	N/A
S-2	Reservoirs/Retention/Detention Basins - The Town does not currently maintain any retention or detention basins. The Town does maintain Bass Lake Dam. The Town regularly provides maintenance of vegetation and minor erosion while providing visual inspections of the dam. If larger repairs are required the Town will find appropriate means to resolve the problem. The Town also has a few small ponds located on existing parks. The Town maintains these ponds consistent with measures taken to maintain the Bass Lake Dam.	3	1	Flood	Moderate	Holly Springs Parks & Recreation	Staff time	Local	Ongoing - Next 5 Years	In-Progress – Carry Forward	Consistently and correctly maintains all ponds and dams
Emergency Services											
ES-1	Technical Rescue Capabilities - Provide and enhance technical rescue capabilities more equitably throughout the Town.	2	2	All	High	Holly Springs Public Safety	No cost	Local, Federal	3-5 Years	In-Progress – Carry Forward	All crews have basic training. Currently looking into specialty training.
ES-2	GIS Programming - Design GIS programming capable of providing real-time data to emergency managers and historic data for future emergency response planning.	2	2	All	Low	Holly Springs Public Safety	No cost	Local	3-5 Years	In-Progress – Carry Forward	Currently in the implementation phase. The new Wake County CAD will be issued on May 2019. This is a no cost to the Town.
ES-3	ECC Notifications by NOAA for possible severe weather (tornados, ice, etc.). ECC is notified by both agencies when weather alerts are issued. Information is then broadcast over police radios. This information is generated by the State and Wake County and is obtained through the use of DC message, radio, fax and Nextel.	2	1	Severe Weather, Severe Winter Storm, Tornado, Hurricane	High	Holly Springs Public Safety	No cost	Local	3-5 years	In-Progress – Carry Forward	Partially implemented. Currently use WEB EOC and the dispatch center.
ES-4	Purchase ACU 1000 Communications Unit – System should allow all agencies on ACU 1000 to communicate using own radios and frequencies.	2	1	All	High	Holly Springs Public Safety	To be determined	Local	3-5 years	In-Progress – Carry Forward	In process of purchasing, but not yet completed.
ES-5	Tabletop Exercise Program - Continue to conduct disaster tabletop exercise program with Wake County	2	2	All	High	Holly Springs Public Safety	Staff time	Local	Ongoing - Next 5 Years	In-Progress – Carry Forward	Tabletop exercises are held through public safety periodically and will continue to be done.

SECTION 7: MITIGATION ACTION PLANS

Town of Holly Springs											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
ES-6	Counseling – Police psychologist and Critical Incident Stress Debriefing Team training to provide debriefing sessions for personnel.	2	1	All	High	Holly Springs Police Department	Staff time	Local	5 years	In-Progress – Carry Forward	Partially implemented, under construction. Currently, we have incorporated the services of a chaplaincy program and conduct critical incident debriefs with our personnel for both internal and external incidents. In addition, we are looking at a proposal to expand our program to include peer teams, peer counselors, and incorporation of the NC Law Enforcement Assistance Program (http://www.nc-leap.org/page6.aspx) in partnership with Teia Pullen of the Cary Police Department. Our goal is to network with southern Wake County law enforcement and public safety agencies, clinicians, and other mental health professionals to provide a broad base of support services to our public safety professionals.
Public Education and Awareness											
PEA-1	Environmental Education	1	1	Flood, Drought	High	Holly Springs Engineering	Staff time and O&M costs	Local	Ongoing - Next 5 Years	In-Progress – Carry Forward	The Town currently has a program which includes environmental education for the public through Town festivals (Holly Fest), public meetings, brochures and preconstruction meetings. The Town operates the Bass Lake Retreat Center which will allow for space to hold additional environmental education activities. The Town will also expand its current education activities to meet NPDES Phase II requirements. The Town's Environmental Education focuses on flooding, drainage, the National Flood Insurance Program, NPDES Phase II, Erosion & Sedimentation Control, Habitat Preservation, etc.
PEA-2	Website - The Town maintains its own website, which is able to provide up to date information for the public. The Town is continuously updating the site with additional resources.	1	1	All	High	Holly Springs Governing Body	Staff time	Local	2017	In-Progress – Carry Forward	The Communications Department provides the community with news and information via the Town's website, the Town's government access television channel HSTV-11, news releases, The Source newsletter, email and text message subscriptions, and social media on a daily basis.

SECTION 7: MITIGATION ACTION PLANS

Table 7.8 – Mitigation Action Plan, Town of Knightdale

Town of Knightdale											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Prevention											
P-1	Pursue Grants to Acquire, Elevate and or Relocate Flood Prone Structures and Property.	3	1	Flood, Dam Failure, Hurricane & Tropical Storm	High	Knightdale Planning	Over \$1m	Internal	Ongoing - Next 5 Years	Not Started – Carry Forward	This has not been necessary since there have been no affected structures and/or property. The Town will evaluate opportunities to purchase property for future events.
P-2	Establish post-disaster clean-up procedures.	2	1	All	High	Knightdale Public Works	\$250,000	Internal	Ongoing - Next 5 Years	In-Progress – Carry Forward	The Town will continuously evaluate post-disaster clean-up procedures.
P-3	Prepare debris removal and disposal plan.	2	1	Dam Failure, Earthquake, Hurricane & Tropical Storm, Landslide, Severe Weather, Severe Winter Storm, Tornado	Moderate	Knightdale Public Works	Over \$1m	Internal, FEMA, NCEM	Ongoing - Next 5 Years	In-Progress – Carry Forward	The Town will continuously evaluate debris removal and disposal plan
P-4	Protect and Obtain Land for the Little River Reservoir.	3	1	Drought	Moderate	City of Raleigh Public Utilities	Over \$1m	Internal, City of Raleigh	Ongoing - Next 5 Years	In-Progress – Carry Forward	City of Raleigh is responsible for implementation
Structural Projects											
SP-1	Dredging, new riser and plunge pool for pond restoration at Environmental Park	3	2	Flood, Hurricane	Moderate	Knightdale Administration, Knightdale Public Works	\$500,000	Grants, bonds, Knightdale Administration, Knightdale Fire	3-5 years	New	N/A
Public Education and Awareness											
PEA-1	Develop a policy for the installation of warning signs concerning lightning, hail and thunderstorms at outdoor public facilities and begin retro-fitting existing spaces.	1	2	Severe Weather, Tornado	Moderate	Knightdale Parks & Recreation	Over \$1m	Internal	2-3 years	Not Started – Carry Forward	Due to staff turnover and lack of funding this project has not been completed. This project is still a valuable tool that will be studied for future implementation
PEA-2	Expand the Town’s existing fire/smoke alarm program for retro-fitting older structures to include CO alarms.	1	2	Earthquake, Severe Weather, Tornado, Hazardous Materials Incident	Low	Knightdale Fire	about \$200,000	Internal, Grants	2-3 years	In-Progress – Carry Forward	The Knightdale Fire Department routinely visits residents to ensure smoke detectors are working property.
PEA-3	Have a Town staff member that is a Certified Floodplain Manager.	2	1	Flood, Dam Failure, Hurricane & Tropical Storm	Moderate	Knightdale Engineering/Public Works	\$40,000	Internal	2-3 years	In-Progress – Carry Forward	Due to recent turnover the Town lost its only Certified Floodplain Manager
PEA-4	Issue an annual local proclamation for Severe Weather Awareness Week and conduct associated promotional activities.	1	1	All	Moderate	Knightdale Fire	\$200,000	Internal	Ongoing - Next 5 years	Not Started – Carry Forward	Due to staff turnover this item has not been started.
PEA-5	Incentivize the use of cool roofing products through the Town’s Water Allocation Policy point system.	4	1	Extreme Heat	Low	Knightdale Planning	less than \$100,000	Internal	3-5 years	Not Started – Carry Forward	Due to changes in development patterns other updates to the Town’s Water Allocation Policy were deemed more timely. This will be evaluated for future inclusion.

SECTION 7: MITIGATION ACTION PLANS

Table 7.9 – Mitigation Action Plan, Town of Morrisville

Town of Morrisville											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Prevention											
P-1	Reduce vulnerability of cyber attack by transitioning Town staff to encrypted laptops.	3	1	Terrorism	Moderate	Town of Morrisville	\$9,000 annually	Town of Morrisville	Ongoing - Next 5 years	New	N/A
P-2	Establish a Municipal Service District (MSD) in order to convert private roads in Carpenter Park neighborhood to public roads with a higher design, safety, and maintenance standard.	3	2	All	Moderate	Town of Morrisville	\$460,000	Town of Morrisville	1 year	New	N/A
P-3	Coordinate with Duke Power to draft Electric Utility Master Plan, which seeks to identify areas feasible for utility line burial.	4	1	Tornado, Severe Winter Storm, Severe Weather, Hurricane	High	Town of Morrisville	\$20,000	Town of Morrisville	2-3 years	New	N/A
P-4	Update Land Use Plan to ensure protection of natural resources, strengthen existing development to resist hazards, and guide future development away from hazard prone areas.	4	2	Flood, Wildfire, Landslide, Dam Failure, Hurricane, Hazardous Materials Incident, Radiological Emergency	Moderate	Town of Morrisville	\$275,000	Town of Morrisville	2-3 years	New	N/A
P-5	Obtain frequently updated, high-resolution aerial photography to assist with land use decisions, emergency response planning, and code enforcement.	2	2	Flood, Landslide, Severe Winter Storm, Severe Weather, Dam Failure, Hurricane, Hazards Materials Incident, Radiological Emergency, Terrorism	Moderate	Town of Morrisville	\$7,000 annually	Town of Morrisville	Ongoing - Next 5 years	New	N/A
P-6	Working through the Triangle Water Supply Partnership, update the Water Resources Plan to ensure water supply is sufficient for Town's future needs.	4	2	Drought, Dam Failure, Extreme Heat	High	Triangle Water Supply Partnership	\$250,000	Triangle Water Supply Partnership, Town of Morrisville	3-5 years	New	N/A
P-7	Working through the Triangle Water Supply Partnership, draft a Drought Management Plan to ensure water resources are properly managed during drought conditions.	4	1	Drought, Extreme Heat	High	Triangle Water Supply Partnership	\$150,000	Triangle Water Supply Partnership, Town of Morrisville	3-5 years	New	N/A
P-8	Working through the Triangle Water Supply Partnership, draft an Emergency Spill Response and Mitigation Plan to protect watersheds and other water resources from hazardous spills.	3	2	Flood, Drought, Dam Failure, Extreme Heat, Hazardous Materials Incident, Radiological Emergency	High	Triangle Water Supply Partnership	\$150,000	Triangle Water Supply Partnership, Town of Morrisville	3-5 years	New	N/A
P-9	Transition Wake County's sedimentation and erosion control permitting and monitoring to Town of Morrisville for better increased processing efficiency and faster incident response.	2	2	Flood, Landslide, Dam Failure, Hurricane, Hazardous Materials Incident	Moderate	Town of Morrisville	Unknown	Town of Morrisville	2-3 years	New	N/A
P-10	Conduct a complete review and update to the Town's stormwater management program, which helps mitigate effects of stormwater runoff and flooding.	4	1	Flood, Landslide, Dam Failure, Hurricane, Hazardous Materials Incident	High	Town of Morrisville	\$100,000	Town of Morrisville	2-3 years	New	N/A
Property Protection											
PP-1	Reduce vulnerability of important data by transitioning IT Department's routine data backup to cloud storage.	3	1	Tornado, Earthquake, Severe Winter Storm, Severe Weather, Hurricane, Terrorism	High	Town of Morrisville	\$42,000 annually	Town of Morrisville	Ongoing - Next 5 years	New	N/A
PP-2	Seek Federal, State, and County funding opportunities to purchase property located completely or partially in FEMA designated floodplains in order to mitigate potential property damage and protect natural resources.	3	2	Flood, Hurricane, Dam Failure	Low	Morrisville Director of Community Services, Director of Development Services	\$5,000,000	Flood Mitigation Assistance Grant Program	More than 5 years	Not Started – Carry Forward	Town has purchased flood-prone properties using Town funds. Town has not sought any outside funding for floodplain property purchase.
Structural Projects											
SP-1	Construct Green Drive and Fairview Road Flood Reduction Drainage Project to mitigate potential flood hazards.	3	2	Flood, Dam Failure, Hurricane	High	Town of Morrisville	\$450,000	Town of Morrisville	2-3 years	New	N/A
SP-2	Construct new public works facility, which will increase Town's capacity to respond to hazards and other safety concerns.	2	1	All	Moderate	Town of Morrisville	\$8,500,000	Town of Morrisville	3-5 years	New	N/A

SECTION 7: MITIGATION ACTION PLANS

Town of Morrisville											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Emergency Services											
ES-1	Monitor the status of backup generators, communications and vehicles for all Morrisville owned critical public facilities.	2	1	All	Low	Town of Morrisville	\$5,500 annually	Town of Morrisville	Ongoing - Next 5 years	In-Progress – Carry Forward	The Town has a contract with a private vendor to monitor the status and condition of critical emergency response equipment such as backup generators, communications, and vehicles.
ES-2	Install new generators for Town Hall and Police Station to ensure continuity of critical operations during a power outage.	3	1	All	High	Town of Morrisville	\$150,000	Town of Morrisville	1 year	New	N/A
ES-3	Construct new fire station in Morrisville in order to improve fire protection coverage and emergency response times.	2	1	All	Moderate	Town of Morrisville	\$4,500,000	Town of Morrisville	3-5 years	New	N/A
ES-4	Update Town's Emergency Operations Plan to ensure best processes and procedures for the most likely and applicable emergency scenarios.	2	2	All	Moderate	Town of Morrisville	\$150,000	Town of Morrisville	3-5 years	New	N/A
Public Education and Awareness											
PEA-1	Implement Wake County's Everbridge text alert system to notify citizens and Town staff of potential safety hazards or concerns.	1	1	All	High	Wake County	\$0	Wake County	1 year	New	N/A
PEA-2	Purchase and implement new online civic engagement platform to be used in part to inform citizens on disaster preparation, emergency response training opportunities, and evacuation information.	1	1	All	Moderate	Town of Morrisville	\$10,000	Town of Morrisville	1 year	New	N/A
PEA-3	Utilize volunteer citizen committees, such as CERT or Public Safety Committee, to educate residents in preparing for natural hazards.	1	1	All	Low	Town of Morrisville	\$2,000/year	Town of Morrisville	Ongoing - Next 5 Years	In-Progress – Carry Forward	The Community Emergency Response Team is a group of dedicated volunteers that meet monthly for emergency response training.

SECTION 7: MITIGATION ACTION PLANS

Table 7.10 – Mitigation Action Plan, Town of Rolesville

Town of Rolesville											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Prevention											
P-1	Provide backup power for all critical public facilities (wastewater treatment plant, sewer pump stations, Public Works and Utilities building, etc.) to ensure continued utility service during power loss.	3	1	All	Moderate	City of Raleigh	Cost varies by facility	Local	1 year	In-Progress – Carry Forward	City of Raleigh has updated sewer pump stations with backup power, no upgrade of Town buildings but intended for future budgets.
P-2	Transportation Plan – Continue to address disaster preparedness (evacuation) through road interconnectivity, paved roads, and widening of roads.	3	2	All	Moderate	Rolesville Planning	Staff Time	Local	1 year	In-Progress – Carry Forward	Town has policy for new development connectivity and is implemented with each new development. New Transportation Plan targeted in mid-year 2019.
P-3	Update Rolesville Stormwater Management Plan for operation/implementation and program effectiveness and study the possible changes	4	1	Flood	Moderate	Rolesville Administration	Staff Time	Local	2-3 years	New	N/A
Structural Projects											
SP-1	Install emergency power backup generator for Town Hall and Police Station to ensure continued operation of government during power loss.	3	2	All	High	Rolesville Administration	Over \$100,000	Local	2 years	New	N/A
Emergency Services											
ES-1	Implement Wake County Everbridge text alert system to notify citizens in real time of an event of local interest with instructions.	1	2	All	High	Rolesville Administration	Staff Time	Local	1 year	New	N/A
Public Education and Awareness											
PEA-1	Town website - develop hazard mitigation section covering such items as public access, evacuation routes, emergency contact numbers, and detailed weather reports in case of emergency,	1	1	All	Moderate	Rolesville Administration	Staff Time	Local	1 year	In-Progress – Carry Forward	Town is in the process of new Town's Website development and development of a hazard mitigation section will be included by Spring of 2019.

SECTION 7: MITIGATION ACTION PLANS

Table 7.11 – Mitigation Action Plan, Town of Wake Forest

Town of Wake Forest											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Prevention											
P-1	Prepare a Storm Drainage Master Plan to include all storm drainage, infrastructure, and capacity analysis.	2	2	Flood	High	Wake Forest Engineering	\$400,000	General Fund	2019	In-Progress – Carry Forward	75% complete, completion scheduled June 2019
P-2	Put electric distribution lines underground.	3	1	Hurricane, Severe Weather, Severe Winter Storm, Tornado, Wildfire	Low	Wake Forest Power	\$10,000,000	Electric Fund, General Fund, and Bonds	2024	In-Progress – Carry Forward	Where feasible, electric lines have been put underground. However, there are still some lines that could be buried and the town will look into carrying that out going forward.
P-3	Become a CRS community	2	2	Flood	Low	Wake Forest Public Works	\$100,000	General Fund	2022	New	Work towards becoming a CRS community
P-4	Explore the use of Stormwater Utility Fees	3	1	Flood	Moderate	Wake Forest Administration	\$100,000	General Fund that would become a User Fee if implemented	2020	New	As subdivisions age, their covenants could expire after 20 years leaving the town with maintaining additional stormwater control measures. These fees could help offset necessary maintenance.
P-5	Maintain a GIS database of building footprints and use it to regularly update a map of critical facilities and vulnerable buildings.	2	2	All	Moderate	Wake Forest GIS	Staff time	General Fund	Ongoing Annually	New	Updated data will be used to identify properties that should be prioritized for mitigation.
Property Protection											
PP-1	Document each historic structure in Wake Forest town limits and ETJ	3	1	Hurricane, Severe Weather, Severe Winter Storm, Tornado, Wildfire, Flood	Moderate	Wake Forest Planning	\$75,000	General Fund	2020	New	Photographs and taken every other year in the local historic district. A baseline photographic inventory of all historic structures in the town limits and ETJ will be taken and repeated every 5 years. If damage occurred due to a natural disaster, it would be easier to secure funding to replace/repair back to its historical integrity.
PP-2	Provide for primary or mobile generators to shelter sites.	3	1	All	Moderate	Wake County Emergency Management	\$500,000	General Fund	2024	In-Progress – Carry Forward	Heritage High School has generators. Town is constructing Joyner Park with intention to be used as a shelter site. Generator is being included with the building.
PP-3	Assess facilities for the need for emergency generation, giving consideration to alternate facility sites.	3	1	All	High	Wake Forest Power	\$250,000	General Fund	2023	In-Progress – Carry Forward	The town has assessed facilities for the need for emergency generation and many facilities have been fitted with generators. However, additional facilities with emergency generation would be useful.
Natural Resource Protection											
NRP-1	Manage the Wake Forest Reservoir for hazard mitigation	2	1	Drought, Flood, Dam Failure	Moderate	Wake Forest Public Works	\$300,000	General Fund	2021	New	The City of Raleigh is in the process of transferring the Wake Forest Reservoir to the town. Staff is investigating all details associated with the reservoir ownership from a hazard mitigation standpoint, such as flooding/breaching potential.
NRP-2	Expansion of our greenway trail network	3	2	Flood, Hurricane, Extreme Heat	Moderate	Wake Forest Planning	\$16,100,000	General Fund and Bonds	2024	New	The Town has multiple greenway extensions and new routes planned. By installing greenways along our waterways, it gives the Town a better opportunity to remove fallen debris and trash that helps alleviate possible flooding.
Structural Projects											
SP-1	Conduct stream mitigation projects on Old Mill Stream, Richland Creek, and others subject to flooding or erosion.	3	2	Flood	Moderate	Wake Forest Engineering	\$2,350,000	General Fund, Clean Water Management Trust Fund, Ecosystem Enhancement Program	2024	In-Progress – Carry Forward	Some mitigation projects have been conducted on these water bodies, but there is significant effort that is still needed to reduce potential erosion. Current projects include: Old Mill Stream and Richland Creek - construction plans @ 90%. Ailey Young Dam - completion June 2019; Smith Creek - quote has been requested for work to be done. Stream erosion throughout town continues to be an ongoing process as needed

SECTION 7: MITIGATION ACTION PLANS

Town of Wake Forest											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Emergency Services											
ES-1	Investigate methods of encouraging gas stations to acquire backup generators.	1	1	All	High	Wake Forest Public Works and Inspections	\$50,000	General Fund	2022	In-Progress – Carry Forward	Grocery stores and gas stations are encouraged to have back up generators. Wal-Mart added a generator with the help of the town. Wegmans which will be constructed in the next two years will have a generator on site. These sites will help provide necessary food and supplies to residents.
ES-2	See that all nursing homes and assisted living facilities have backup generators.	1	1	All	High	Property owners	\$150,000	Property owners	2023	In-Progress – Carry Forward	New facilities are being encouraged to include generators. Existing facilities without generators are financially constrained and have little ability to add generators.
ES-3	Require, in the contract, that fuel suppliers have backup generators.	3	1	All	High	Wake Forest Administration, Finance, and Public Works	\$25,000	General Fund	2024	In-Progress – Carry Forward	This is the Town's current policy and we continue to monitor new contracts for compliance.
ES-4	Adopt and Implement an Emergency Operations Plan	3	2	All	High	Wake Forest Administration	\$100,000	General Fund	2021	New	A draft EOP has been created; adoption expected in 2019
ES-5	Adopt a SARA Title III Plan	4	2	All	Moderate	Wake Forest Fire Department	\$150,000	General Fund	2023	New	Investigate the ability to create a SARA Title III Plan to have clearer knowledge and how to better handle chemical releases from facilities that could impact the town.
Public Education and Awareness											
PEA-1	Develop a policy and advise the public that all outside above ground LP or propane gas tanks be cut off during a major event.	1	1	All	Moderate	Wake Forest Communications	\$10,000	General Fund	2020	In-Progress – Carry Forward	Past communications have included information advising the public of turning off propane tanks during a storm, but better outreach is needed to ensure this occurs. A policy should be put in place to ensure it is regularly communicated. Perhaps it can be included as part of the EOP.

SECTION 7: MITIGATION ACTION PLANS

Table 7.12 – Mitigation Action Plan, Town of Wendell

Town of Wendell											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Prevention											
P-1	Install generators as needed at lift stations.	3	2	All	High	City of Raleigh Public Utilities	To be determined	Internal	3-5 years	Not Started – Carry Forward	No funds were budgeted by CORPUD for this since 2014, but a new pump station is planned south of Hollybrook Rd, which would require a generator.
P-2	Amend the Town's Water Allocation Policy to add a new point category for voluntarily increasing undisturbed riparian buffer protections from 50 to 100 feet around Neuse perennial streams	4	1	Flood, Dam Failure, Hurricane	High	Wendell Planning	\$0	N/A	1 year	New	N/A
P-3	Add environmentally sensitive and hazard areas to the Future Land Use Map and adopt updated Comprehensive Plan, which will allow environmental conditions and hazard areas to guide zoning and density decisions.	4	2	Flood, Dam Failure, Hazardous Materials Incident, Radiological Incident, Terrorism	High	Wendell Planning	\$120,000	Town of Wendell	2-3 years	New	N/A
P-4	Consider amendments to the UDO to establish minimum ingress/egress standards for new residential development based on density/# of lots	4	1	Earthquake, Flood, Dam Failure, Hurricane, Wildfire, Tornado, Severe Winter Storm, Hazardous Materials Incident, Radiological Incident, Terrorism	High	Wendell Planning	\$0	N/A	1 year	New	N/A
P-5	Encourage the use of low-impact development techniques through amendments to the Town's Water Allocation Policy	4	1	Flood, Dam Failure, Hurricane	High	Wendell Planning	\$0	N/A	1 year	New	N/A
P-6	Consider regulations to regulate clear-cutting to help control erosion from construction sites	4	1	Flood, Drought	Moderate	Wendell Planning	\$0	Town of Wendell	2-3 years	New	N/A
P-7	Evaluate potential changes to the Town's Arterial and Collector Street Plan to minimize adverse impacts to environmentally sensitive areas due to new roadway construction or widening	4	2	Flood	Moderate	Wendell Planning	\$500	Town of Wendell	2-3 years	New	N/A
Natural Resource Protection											
NRP-1	Perform environmental asset mapping in order to identify areas most key for preservation and potential acquisition due to an array of environmental factors	2	2	Flood, Drought	Moderate	Wendell Planning	\$10,000	Town of Wendell	2-3 years	New	N/A
NRP-2	Evaluate policy regarding greenway dedication requirements in order to expand greenway network and further protect riparian corridors	4	2	Flood	High	Wendell Planning	\$0	Town of Wendell	2-3 years	New	N/A
Structural Projects											
SP-1	Perform improvements to existing open drainage device near intersection of 1st St & Pine St. to increase total water volume & flow	3	1	Flood	Moderate	Wendell Public Works	\$5,000	Town of Wendell	3-5 years	New	N/A
Emergency Services											
ES-1	Make electrical improvements in the downtown in order to help ensure continuity of service during extreme weather	3	1	Severe Weather, Severe Winter Storm, Hurricane	High	Wendell Public Works	\$5,000	Town of Wendell	2-3 years	New	N/A
ES-2	Develop Adverse Weather Plan Map for Public Works crew	2	1	Severe Weather, Severe Winter Storm, Hurricane	High	Wendell Planning	\$0	N/A	1 year	New	N/A
ES-3	Evaluate potential locations for a future Public Works debris site, to accommodate debris associated with natural hazards	2	2	All	Moderate	Wendell Public Works	\$0	Town of Wendell	3-5 years	New	N/A
ES-4	Provide written after-action report of response to severe weather and hazard events to include recommendations for process improvements and improve planning for future disasters	2	2	All	Moderate	Wendell Police Dept.	\$0	Town of Wendell	2-3 years	New	N/A
ES-5	Secure and utilize visual warning barricades for vehicular and pedestrian traffic to block properties, roadways, etc. for public safety during or following hazard events	2	1	All	Moderate	Wendell Public Works	\$2,000	Town of Wendell	3-5 years	New	N/A

SECTION 7: MITIGATION ACTION PLANS

Town of Wendell											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
ES-6	Conduct periodic training exercises, related to higher-risk hazard threats identified by the Hazard Mitigation Plan	2	2	All	Moderate	Wendell Police Dept.	\$500	Town of Wendell	2-3 years	New	N/A
ES-7	Work with Wake County and the City of Raleigh to operate and update the County's Master Address Repository program, which will support emergency response following hazards.	2	2	All	High	Wendell Planning	\$0	Town of Wendell	2-3 years	New	N/A
Public Education and Awareness											
PEA-1	Modify the Town's "Tell Wendell" webpage application to allow citizens to report flood issues and create a tracking mechanism for the Town	1	2	Flood	High	Wendell Planning	\$0	Town of Wendell	2-3 years	New	N/A
PEA-2	Incorporate Hazard Awareness class into the Track-Out Camp run by the Wendell Parks & Recreation Dept.	1	1	Flood, Earthquake, Extreme Heat, Drought, Hurricane, Severe Weather, Severe Winter Storm, Tornado	Moderate	Wendell Parks and Recreation	\$0	Town of Wendell	2-3 years	New	N/A
PEA-3	Post warning signage at local parks for lightning	1	2	Severe Weather	High	Wendell Parks and Recreation	\$500	Town of Wendell	2-3 years	New	N/A
PEA-4	Facilitate community outreach and distribution of educational materials regarding hazard awareness to the community, to include participation at community events such as Public Safety Day.	1	1	All	Moderate	Wendell Public Works	\$500	Town of Wendell	2-3 years	New	N/A
PEA-5	Perform Continuing Education Training for select Public Works personnel as it relates to state storm water regulations	2	2	Flood	High	Wendell Public Works	\$1,200	Town of Wendell	2-3 years	New	N/A

SECTION 7: MITIGATION ACTION PLANS

Table 7.13 – Mitigation Action Plan, Town of Zebulon

Town of Zebulon											
Action #	Description	Goal	Objective	Hazard(s) Addressed	Relative Priority	Lead Agency/ Department	Estimated Cost	Potential Funding Sources	Implementation Schedule	2019 Status	Status Comments/Explanation
Prevention											
P-1	Prepare Plan maintenance report.	2	2	All	High	Zebulon Planning Department	Staff time	Town of Zebulon	2019, Annually	Not Started – Carry Forward	Plan maintenance meetings have been held annually and will continue to be held going forward.
P-2	Enforce subdivision standards for development in flood hazard areas.	3	2	Flood	High	Zebulon Planning & Inspections	Staff time	Town of Zebulon, Wake County	2019	In-Progress – Carry Forward	UDO Revision is in final stages.
P-3	Further restrict development in floodplain by prohibiting development or requiring 2 feet of freeboard.	3	2	Flood	High	Zebulon Planning	Staff time	Town of Zebulon	2019	In-Progress – Carry Forward	UDO Revision is in final stages.
P-4	Revise floodplain ordinance.	4	1	Flood	High	Zebulon Planning	Staff time	Town of Zebulon	2019	In-Progress – Carry Forward	UDO Revision is in final stages.
P-5	Require burial of power lines for new developments.	3	1	Hurricane, Tornadoes, Winter Storms/ Freezes	Moderate	Zebulon Planning	Unknown	Town of Zebulon	2019	In-Progress – Carry Forward	UDO Revision is in final stages.
Structural Projects											
SP-1	Resolve localized flooding issue that occurs in/around West Sycamore Streets, Gannon Avenue, and North Arendell Avenue during heavy rainfall events.	3	2	Flood	Moderate	Zebulon Administration, Zebulon Public Works	\$900,000	Town of Zebulon	2020	New	The town has completed design and permitting of project improvements and is currently acquiring easements.
Emergency Services											
ES-1	Develop an Emergency Operations Plan	2	2	All	Moderate	Zebulon Fire Department	TBD	Town of Zebulon	2019	New	The Town has been in the process of developing an Emergency Operations Plan and hopes to adopt the plan within the year.
Public Education and Awareness											
PEA-1	Require disclosure of flood hazard in real estate transactions.	1	1	Flood	Moderate	Zebulon Planning Department	Little to no cost	Town of Zebulon	2019	In-Progress – Carry Forward	N/A
PEA-2	Develop a public education program to provide hazard risk and preparedness education via social media	1	1	All	High	Zebulon Fire Department	Staff time	Town of Zebulon	2019	New	The Town is currently using social media for some public education but will formalize a program for hazards awareness.