



9.1 BURLINGTON COUNTY

This section presents the jurisdictional annex for Burlington County.

9.1.1 HAZARD MITIGATION PLAN POINT OF CONTACT

The following individuals have been identified as the hazard mitigation plan’s primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Kevin Shoppas Title: Emergency Management Coordinator Phone: 609-726-7198 Address: Public Safety Building, 1 Academy Drive Westampton, NJ 08060 Email: kshoppas@co.burlington.nj.us	Justin Wright Title: Deputy Emergency Management Coordinator Phone: 609-265-7143 Address: Public Safety Building, 1 Academy Drive Westampton, NJ 08060 Email: jdwright@co.burlington.nj.us

9.1.2 COUNTY PROFILE

Please refer to Section 4, Volume I of this HMP for details on Burlington County’s population, location, climate, history, growth and development.

9.1.3 NATURAL HAZARD EVENT HISTORY SPECIFIC TO BURLINGTON COUNTY

Burlington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this HMP update of historical events is provided in each of the hazard profiles, and Appendix G includes a chronology of events that have affected the county and its municipalities.

9.1.4 NATURAL HAZARD RISK/VULNERABILITY RISK RANKING

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. The risk ranking methodology is presented in Section 5.3. However, the county had the opportunity to adjust the final ranking based on Steering Committee feedback. The following summarizes the hazard vulnerabilities and their ranking in Burlington County. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.



Table 9.1-1. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c}		Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
Coastal Erosion	RCV in CEHA: \$552,649,514		Occasional	12	Low
Drought	Damage estimate not available		Frequent	30	Medium
Earthquake	500-year MRP:	\$94,363,339	Occasional	28	Medium
	2,500-year MRP:	\$1,388,878,330			
Flood	1% Annual Chance:	\$7,801,914,854	Frequent	27	High
Landslide	RCV in Moderate Susceptibility/Low Incidence Landslide Hazard Area	\$31,854,049,475	Frequent	33	High
Severe Storm	100-Year MRP:	\$124,430,102	Frequent	48	High
	500-year MRP:	\$588,861,987			
	Annualized:	\$5,779,543			
Severe Winter Storm	1% GBS Damage Loss Estimate	\$1,011,506,656	Frequent	51	High
	5% GBS Damage Loss Estimate	\$5,057,533,282			
	10% GBS Damage Loss Estimate	\$10,115,066,564			
Wildfire	Extreme, Very High, and High	\$4,489,596,001	Frequent	24	Medium
	Moderate and Low	\$29,728,463,939			

Notes: GBS = General building stock; MRP = Mean return period.

- a. The general building stock valuation is based on the custom inventory generated for the County utilizing improved value.
- b. High = Total hazard priority risk ranking score of 31 and above
Medium = Total hazard priority risk ranking of 20-30+
Low = Total hazard risk ranking below 20
- c. Refer to Section 5.1 for further details on the loss methodology. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the estimated value of contents. Loss estimates for the flood and earthquake hazards represent both structure and contents. Potential flood loss estimates were generated using HAZUS-MH and the 2012 FEMA DFIRM for the 1-percent annual chance event. For the geologic and wildfire hazards, the improved value and estimated contents of buildings located within the identified hazard zones is provided.

9.1.5 CAPABILITY ASSESSMENT

This section summarizes the following capabilities of Burlington County. Refer to Section 6 (Mitigation Strategy – Capability Assessment) for additional details on county programs and capabilities.

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Education/Outreach and community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the planning and regulatory tools that are available to Burlington County.





Table 9.1-2. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master Plan	No	-	-	-
Capital Improvements Plan	Yes	County	Engineering	6 year Capital Program; 2010-2016
Floodplain Management / Basin Plan	No	County/Local	Municipal Planning	Floodplain Management Plan
Stormwater Management Plan	Yes	County	NJ DEP	NJ DEP Rule N.J.A.C. 7:8
Open Space Plan	Yes	County	Resource Conservation Department	Parks, Recreation, and Open Space Master Plan; 2002
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	Yes	County	-	Watershed Management Plan for Rancocas Creek – “Clean and Plentiful Water: A Management Plan for the Rancocas Creek”
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	Yes	County	OEM	Burlington County Emergency Operations Plan
Emergency Response Plan	Yes	County	OEM	Burlington County EMS and Fire Mutual Aid Plans
Post-Disaster Recovery Plan	Yes	County	OEM	ESF 14 – Infrastructure Restoration and Long Term Recovery
Transportation Plan	Yes	County	DOT	Burlington County Transportation Plan
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	-	-	-	-
Regulatory Capability				
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes	County	Planning	County Land Development Resolution; 2011
Stormwater Management Ordinance	Yes	County	NJ DEP	NJ DEP Rule N.J.A.C. 7:8
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	No	-	-	-



Administrative and Technical Capabilities

The table below summarizes potential staff and personnel resources available to Burlington County.

Table 9.1-3. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Board
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Maintenance Programs to Reduce Risk	Yes	Burlington County Public Works
Mutual Aid Agreements	Yes	Various departments
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	County Engineering Department
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Engineering/staff of inspectors and licensed engineers
Planners or engineers with an understanding of natural hazards	Yes	Engineering and Planning Board
NFIP Floodplain Administrator	N/A	The County does not have a requirement for a floodplain administrator
Surveyor(s)	Yes	Engineering division has a surveying section
Personnel skilled or trained in GIS and/or HAZUS-MH applications	Yes	BC DIT has a GIS Coordinator, Engineering Division have personnel skilled in GIS
Scientist familiar with natural hazards	Yes	Health Department and Soil Conservation Staff
Emergency Manager	Yes	OEM division has emergency managers
Grant Writer(s)	Yes	Administrator's office has a dedicated grant specialist
Staff with expertise or training in benefit/cost analysis	Yes	Engineering division has personnel trained in FEMA BCA
Professionals trained in conducting damage assessments	Yes	County Engineering Department

Fiscal Capability

Mitigation projects and initiatives are largely or entirely dependent on available funding. The table below summarizes financial resources available to Burlington County.

Table 9.1-4. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	No
Impact Fees for homebuyers or developers of new development/homes	No



Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Stormwater Utility Fee	Yes-State
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	Yes
Withhold public expenditures in hazard-prone areas	Yes
Other Federal or State Funding Programs	Yes
Open Space Acquisition Funding Programs	Yes
Corridor Enhancement Funds	Yes

Education/Outreach and Community Classifications

The table below summarizes education/outreach programs the community participates in and the classifications for community program available to Burlington County.

Table 9.1-5. Education/Outreach and Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	N/A	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	N/A	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	N/A	-	-
Storm Ready	N/A	-	-
Firewise	N/A	-	-
Disaster/Safety Programs in/for Schools	N/A	-	-
Organizations with Mitigation Focus (advocacy group, non-government)	N/A	-	-
Public Education Program/Outreach (through website, social media)	N/A	-	-
Public-Private Partnerships	N/A	-	-

Notes: NA = Not applicable; NP = Not participating.

The classifications listed above relate to a community’s ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community’s capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO’s Public Protection website at <http://www.isomitigation.com/ppc-program.html>
- The National Weather Service Storm Ready website at <http://www.weather.gov/stormready/howto.htm>





- The National Firewise Communities website at <http://firewise.org/>

Self-Assessment of Capability

The table below provides an approximate measure of Burlington County's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.1-6. Self-Assessment of Capability

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and Regulatory Capability		X	
Administrative and Technical Capability		X	
Fiscal Capability	X – funding is limited, based on a budget cycle and is a fixed amount, and has restraints based on state		
Political Capability		X	
Resiliency Capability		X	
Capability to Integrate Mitigation into County Processes and Activities		X	

Additional Capabilities

Please refer to following subsection (Integration of Hazard Mitigation into Existing and Future Planning Mechanisms) and Section 6 for details on county capabilities.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

It is the intention of Burlington County to incorporate hazard mitigation planning and natural hazard risk reduction as an integral component of the county’s administrative, regulatory and operational framework. A summary of how the county currently integrates hazard mitigation into daily operations is presented below. In addition, the county identified specific integration activities that will be incorporated into procedures and are included in their updated mitigation strategy.

Planning

The County has an Open Space Plan, Comprehensive Emergency Management Plan, and the Watershed Management Plan for Rancocas Creek entitled “Clean and Plentiful: A Management Plan for the Rancocas Creek”. These plans support hazard mitigation in the County.

Regulatory and Enforcement (Ordinances)

In 2011, the County Planning Department adopted the County Land Development Resolution which established site plan review requirements. The County’s Stormwater Management Ordinance abides by the NJ DEP Rule N.J.A.C. 7:8.

Operational and Administration

Planning Board: The Burlington County Planning Board is made up of seven board members and several alternates.



Funding

The County has a variety of financial resources including grant funding, bonds, and Capital Improvements project funding.

Education and Outreach

The County operates a website (<http://www.co.burlington.nj.us/>) which details the various County led initiatives, lists various County news, and describes the roles of the County departments. The County also operates a Twitter account and Facebook page.

9.1.6 MITIGATION STRATEGY AND PRIORITIZATION

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

For the 2019 HMP update, all previous county actions and their status are listed in the table below. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.



Table 9.1-7. Previous Mitigation Actions

Action Number	2014 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
County - 1	<p>Purchase, relocate, or elevate structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss property as priority.</p> <p>Phase 1: Identify appropriate candidates based on cost-effectiveness, for example:</p> <p>Phase 2: Where determined to be a viable option, work with property owners toward implementation of the determined action based on available funding from FEMA and local match availability</p>	County of Burlington Public Works and Public Safety	In Progress	<ol style="list-style-type: none"> 1. Ongoing 2. 3. 	<ol style="list-style-type: none"> 1. Include in 2019 HMP 2. 3.
County - 2	Obtain and install backup power at vital county critical facilities	BC Facilities and Services; BC Engineering; BC OEM	In Progress	<ol style="list-style-type: none"> 1. HMGP DR4086 provided funding for generators at 5 facilities; DR4239 provided \$300K additional funds for generators at critical facilities. The county is negotiating with potential contractors to install generators at the 5 facilities. The county is in the design phase of the \$300K award and determining which facilities will be provided the generators. 2. 3. 	<ol style="list-style-type: none"> 1. Include in 2019 HMP 2. County will determine what remaining critical facilities need generators and will research funding sources for those generators. 3.
County - 3	Join NOAA “Storm Ready”	BC Engineering, BC OEM	No Progress	<ol style="list-style-type: none"> 1. 0% 2. Storm Ready has not accepted new applicants recently 3. 	<ol style="list-style-type: none"> 1. Include in 2019 HMP 2. 3.
County - 4	Promote “Firewise” throughout the county	BC OEM, Participating Communities in BC	In Progress	<ol style="list-style-type: none"> 1. Ongoing 2. 3. 	<ol style="list-style-type: none"> 1. Include in 2019 HMP 2. 3.



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County -5	Support local efforts to incorporate hazard mitigation into Local Master Plans/Zoning	BC Planning	In Progress	1. Ongoing 2. 3.	1. Include in 2019 HMP 2. 3.
County - 6	Promote CRS program throughout the county	BC Engineering; NFIP Participating Communities in BC	In Progress	1. Ongoing 2. 3.	1. Include in 2019 HMP 2. 3.
County - 7	Obtain/record/maintain historical hazard data such as: flood high water marks, road closures, wild fires, requests for assistance, loss data etc.	BC Engineering; BC OEM	In Progress	1. Ongoing but working to supplement. 2. 3.	1. Include in 2019 HMP 2. 3.
County - 8	Develop public info. strategy for dissemination of hazard information before an event	BC PIO; BC Engineering; BC OEM; PIO	In Progress	1. In progress 2. 3.	1. Include in 2019 HMP 2. 3.
County - 9	Evaluate the adoption of “no Adverse Impact” land use policies through a planning framework.	BC Planning	In Progress	1. In progress 2. 3.	1. Include in 2019 HMP 2. 3.
County - 10	Provide technical information and guidance on hazards & risks to municipalities and the public	BC OEM; BC Engineering; BC PIO	In Progress	1. Ongoing 2. 3.	1. Include in 2019 HMP 2. 3.
County - 11	Retrofit critical river crossings including roads, bridges and culverts over floodplains on county roads	BC Engineering; Traffic Safety; Public Works	In Progress	1. Retrofits take place as staffing and funding allows 2. 3.	1. Include in 2019 HMP 2. 3.
County - 12	Create and enhance mutual aid agreements between law enforcement, municipal public works and county public works departments	BC Public Works; BC OEM	In Progress	1. Ongoing 2. 3.	1. Include in 2019 HMP 2. 3.
County - 13	Improve dissemination of public information on imminent hazard threats	BC OEM; BC Engineering; BC PIO	In Progress	1. In progress 2. 3.	1. Include in 2019 HMP 2. 3.



<u>Action Number</u>	<u>2014 Mitigation Action</u>	<u>Responsible Party</u>	<u>Status</u> (In progress, No progress, Complete)	<u>Describe Status</u> 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	<u>Next Steps</u> 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
County - 14	Keep a geo-referenced list and information on critical facilities and infrastructure components	BC GIS; BC Prosecutor; BC Engineering; BC OEM	In Progress	1. In progress 2. 3.	1. Include in 2019 HMP 2. 3.
County - 15	Develop post disaster action plan that includes debris removal components	BC Public Works; BC OEM	In Progress	1. In progress 2. 3.	1. Include in 2019 HMP 2. 3.
County - 16	Map urban/wild land interface areas	BC GIS; BC OEM	In Progress	1. Ongoing with Resource Conservation and NJ Forest Service 2. 3.	1. Include in 2019 HMP 2. Add Resource Conservation and NJ Forest Service to responsible parties 3.
County - 17	Identify, evaluate & improve evacuation routes for all hazards of concern.	BC Traffic; BC Engineering; BC OEM	In Progress	1. Major concern that there have been changes to contraflow. County and State level coordination necessary 2. 3.	1. Include in 2019 HMP 2. County and State level coordination necessary. Address evacuation routes that are prone to flooding. 3.
County - 18	Create data sets for reverse 911 for flooding, urban/wild land interface & vulnerable populations	BC OEM; BC GIS; BC PIO; BC Office of Aging	In Progress	1. SWIFT reach 911 utilized 2. 3.	1. Include in 2019 HMP 2. 3.
County - 20	Increase participation in multi-jurisdictional annual progress reports and updates of BC All Hazards Mitigation Plan, if necessary.	BC Engineering; BC OEM; BC Planning; BC Health; Red Cross; BC Prosecutor; BC Public Works	In Progress	1. County actively working to increase municipal participation 2. 3.	1. Include in 2019 HMP 2. 3.
County - 21	Enhance the building inventory to include structure values for future use of the HAZUS program	BC GIS	In Progress	1. Ongoing work by the GIS department 2. 3.	1. Include in 2019 HMP 2. 3.
County - 22	Provide higher resolution digital elevation model for future use of the HAZUS program	BC GIS	In Progress	1. Ongoing work by the GIS department 2. 3.	1. Include in 2019 HMP 2. 3.



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County - 23	Retrofit structures located in flood-prone areas to protect structures from future damage, especially those known to be identified as ‘repetitive loss’	BC Planning; BC Engineering; BC Community Development	In Progress	1. Ongoing 2. 3.	1. Include in 2019 HMP 2. 3.
County - 24	Aid municipalities in obtaining backup power at vital critical facilities	BC Facilities and Services; BC Engineering; BC OEM; Municipalities	In Progress	1. Ongoing. Focusing on retrofitting. 2. 3.	1. Include in 2019 HMP 2. 3.
County - 25	Encourage the use of higher regulatory standards in codes such as: The Local Floodplain Management Ordinance and, Zoning code	BC OEM, Planning, Engineering, GIS	In Progress	1. LEPC meetings 2. 3.	1. Include in 2019 HMP 2. 3.
County - 26	Replace inadequate portions of drainage systems on County roads	BC Engineering	In Progress	1. Engineering addresses drainage problems as they arise. 2. 3.	1. Include in 2019 HMP 2. 3.
County - 27	Develop environmental monitoring component for Burlington County Emergency Operations Plan	BC OEM; BC Health Department; BC DPW	In Progress	1. BCHD is currently reviewing plans 2. 3.	1. Include in 2019 HMP 2. 3.
County - 28	Retrofit vulnerable critical facilities and infrastructure	BC OEM; BC Engineering	In Progress	1. Ongoing, funding limited. Some generators have come in. 2. 3.	1. Include in 2019 HMP 2. 3.
County - 29	Document the impacts of all hazards on land use decisions, especially in terms of the placement of critical facilities/infrastructure and high-density development.	BC Planning	In Progress	1. Planning department keeps records 2. 3.	1. Include in 2019 HMP 2. 3.
County – 30	Conduct and facilitate community and public education and outreach for residents and businesses to include, but not be limited to, the	OEM with support from Planning Partners,	In Progress	1. Ongoing 2. 3.	1. Include in 2019 HMP



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	following to promote and effect natural hazard risk reduction: <ul style="list-style-type: none"> • Provide and maintain links to the HMP website, and regularly post notices on the County/municipal homepage(s) referencing the HMP webpages. • Prepare and distribute informational letters to flood vulnerable property owners and neighborhood associations, explaining the availability of mitigation grant funding to mitigate their properties, and instructing them on how they can learn more and implement mitigation. • Use email notification systems and newsletters to better educate the public on flood insurance, the availability of mitigation grant funding, and personal natural hazard risk reduction measures. • Work with neighborhood associations, civic and business groups to disseminate information on flood insurance and the availability of mitigation grant funding 	County Planning, NJOEM, FEMA			2. 3.
County – 31	Support municipalities with incorporation of ordinances and/or zoning restrictions to control and mitigate future development in hazard areas, specifically as identified in Section 5.	Municipality with support from BC OEM, NJOEM and FEMA	In Progress	1. Ongoing 2. 3.	1. Include in 2019 HMP 2. 3.
County – 32	Develop programs/procedures to capture and archive loss data from events. Examples include:	Municipality with support from BC OEM,	In Progress	1. Ongoing 2. 3.	1. Include in 2019 HMP 2. 3.



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	<ul style="list-style-type: none"> Record location and length of roadway closures; Develop a database of residential and commercial property damage, including permit history for such repairs; High water marks, perhaps painting phone poles with high water marks and or regulatory Base Flood Elevations (BFEs).	NJOEM and FEMA			
County – 33	Participate in local, county and/or state level projects and programs to develop improved structure and facility inventories and hazard datasets to support enhanced risk assessment efforts. Such programs may include developing a detailed inventory of critical facilities based upon FEMA’s Comprehensive Data Management System (CDMS) which could be used for various planning and emergency management purposes including: <ul style="list-style-type: none"> Support the performance of enhanced risk and vulnerability assessments for hazards of concern. Support state, county and local planning efforts including mitigation (including updates to the State HMP), comprehensive emergency management, debris management, and land use. Improved structural and facility inventories could incorporate flood, wind and seismic-specific	BC OEM; Hazard Mitigation Plan Coordinator, BC GIS	In Progress	<ol style="list-style-type: none"> Ongoing 	<ol style="list-style-type: none"> Include in 2019 HMP



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	parameters (e.g. first floor elevations, roof types, structure types based on FEMA-154 “Rapid Visual Screening of Buildings for Potential Seismic Hazards” methodologies). It is recognized that these programs will need to be initiated and supported at the County and/or State level, and will require training, tools and funding provided at the county, state and/or federal level.				
County – 34	Support ongoing updates of Comprehensive Emergency Management Plans	Municipality with support from BC OEM and NJ OEM	In Progress	<ol style="list-style-type: none"> 1. Ongoing 2. 3. 	<ol style="list-style-type: none"> 1. Include in 2019 HMP 2. 3.
County – 35	Foster the creation, enhancement and maintenance of Mutual Aid Agreements between neighboring communities for continuity of operations	Municipality with support from BC OEM, NJOEM, FEMA and surrounding communities and counties	In Progress	<ol style="list-style-type: none"> 1. Ongoing. Due for review every five years. County to County and municipal to municipal assistance. 2. 3. 	<ol style="list-style-type: none"> 1. Include in 2019 HMP 2. 3.
County – 36	Identify and develop agreements with entities that can provide support with FEMA/NJOEM paperwork after disasters; qualified damage assessment personnel – Improve post-disaster capabilities – damage assessment; FEMA/NJOEM paperwork compilation, submissions, record-keeping	Municipality with support from BC OEM, NJOEM and FEMA	In Progress	<ol style="list-style-type: none"> 1. Ongoing 2. 3. 	<ol style="list-style-type: none"> 1. Include in 2019 HMP 2. 3.
County – 37	Work with regional agencies (i.e. County and NJOEM) to help develop damage assessment capabilities at the local level through such things as training programs, certification of	Municipality with support from BC OEM,	In Progress	<ol style="list-style-type: none"> 1. Ongoing 2. 3. 	<ol style="list-style-type: none"> 1. Include in 2019 HMP 2.



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	qualified individuals (e.g. code officials, floodplain managers, engineers).	NJOEM and FEMA			3.
County - 38	Continue to support the implementation, monitoring, maintenance, and updating of this Plan (through participation in the 5-year Plan Update)	Municipality with support from Planning Partners, BC OEM, NJOEM, FEMA	In Progress	1. Ongoing 2. 3.	1. Include in 2019 HMP 2. 3.
County - 39	Promote the participation of Floodplain Administrators within the planning process and other activities.	Municipality with support from BC OEM, County Engineers, NJOEM and FEMA	In Progress	1. Ongoing 2. 3.	1. Include in 2019 HMP 2. 3.
County - 40	Incorporate floodplain and RiskMAP products into the County GIS system and make available for municipalities.	County GIS and BC OEM	In Progress	1. Ongoing 2. 3.	1. Include in 2019 HMP 2. 3.
County - 41	Provide public education and outreach on proper installation and/or use of backup power	BC OEM with support from Municipal Clerk and municipal OEM	In Progress	1. Ongoing 2. 3.	1. Include in 2019 HMP 2. 3.



Proposed Hazard Mitigation Initiatives for the Plan Update

On March 1, 2018, Burlington County hosted and participated in a FEMA and NJOEM-led mitigation action workshop to provide plan participants additional information on the mitigation strategy update and plan maintenance. The County was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013).

Table 9.1-8 summarizes the comprehensive-range of specific mitigation initiatives the county would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing your actions as ‘High’, ‘Medium’, or ‘Low.’ Table 9.1-9 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
BC-1 (former County - 1)	<p>Purchase, relocate, or elevate structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss property as priority.</p> <p>Phase 1: Identify appropriate candidates based on cost-effectiveness, for example:</p> <p>Phase 2: Where determined to be a viable option, work with property owners toward implementation of the determined action based on available funding from FEMA and local match availability</p>	Existing	Flood	2-1 2-2 3-1 4-1 4-2	County of Burlington Public Works and Public Safety	High	High (~\$2.3M)	FEMA FMA, HMGP or PDM Grant and BC Existing Operating Budget for local share	DOF	Medium	SIP	PP
BC-2 (former County - 2)	Obtain and install backup power at vital county critical facilities	Existing	All Hazards	1-1 1-2 3-1 3-2	BC Facilities and Services; BC Engineering; BC OEM	High	Medium (~\$80K)	HMGP or PDM grant or county operating budget	Short	High	SIP	PP
BC-3 (former County - 3)	Join NOAA “Storm Ready”	N/A	Severe Storm	1-1 5-1	BC Engineering, BC OEM	Medium	Low	County Operating Budget	Short	Medium	EAP	PI
BC-4 (former County - 4)	Promote “Firewise” throughout the county	N/A	Wild land Fires	1-1 5-1	BC OEM, Participating Communities in BC	Medium	Low	County Operating Budget	Short	High	EAP	PI



Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
BC-5 (former County -5)	Support local efforts to incorporate hazard mitigation into Local Master Plans/Zoning	N/A	All	1-1 3-1	County Department of Resource Conservation, Burlington County Bridge Commission	Medium	Low	County Operating Budget	Short	Low	LPR	PR
BC-6 (former County -6)	Promote CRS program throughout the county	Both	Flooding	1-1 1-5 2-1 2-2 3-1 4-1 5-1	BC Engineering; NFIP Participating Communities in BC	Medium	Low	County Operating Budget	Short	High	LPR	PR
BC-7 (former County -7)	Obtain/record/maintain historical hazard data such as: flood high water marks, road closures, wild fires, requests for assistance, loss data etc.	Existing	Flooding, Wildfire	1-1 1-3 2-1 3-1	BC Engineering; BC OEM	Low	Medium	HMGP or PDA grant or county operating budget	Long	High	LPR	PR
BC-8 (former County -8)	Develop public info. strategy for dissemination of hazard information before an event	Both	All	1-1 5-1 5-2 5-3	BC PIO; BC Engineering, BC OEM; PIO	High	Medium	County operating budget	Short	Medium	EAP	PI
BC-9 (former County -9)	Evaluate the adoption of “no Adverse Impact” land use policies through a planning framework.	Both	Flooding	1-1 1-4	County Department of Resource Conservation, Burlington County Bridge Commission	Medium	Low	County operating budget	Short	High	LPR	PR
BC-10 (former County -10)	Provide technical information and guidance on hazards & risks to municipalities and the public	Existing	All	1-1 5-1 5-2 5-3	BC OEM; BC Engineering; BC PIO	High	Medium	County Operating Budget	Long	High	EAP	PI
BC-11 (former	Retrofit critical river crossings including	Existing	Flooding	1-1 2-1	BC Engineering;	High	High	FEMA FMA,	Long,	Medium	SIP	PP, SP





Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
County – 11)	roads, bridges and culverts over floodplains on county roads			2-2 3-1	Traffic Safety; Public Works			HMGP or PDM Grant and BC Existing Operating Budget for local share				
BC-12 (former County – 12)	Create and enhance mutual aid agreements between law enforcement, municipal public works and county public works departments	Existing	All	1-1 3-1 3-2	BC Public Works; BC OEM	Medium	Medium	County Operating Budget	Short	Medium	LPR	PR
BC-13 (former County – 13)	Improve dissemination of public information on imminent hazard threats	Existing	All	1-1 5-1 5-2 5-3	BC OEM; BC Engineering; BC PIO	High	Medium	County Operating Budget	Short	Low	EAP	PI
BC-14 (former County – 14)	Keep a geo-referenced list and information on critical facilities and infrastructure components	Existing	All	1-1 1-2 3-2	BC GIS; BC Prosecutor; BC Engineering; BC OEM	Medium	Medium	County Operating Budget	Short	Low	LPR	PR
BC-15 (former County – 15)	Develop post disaster action plan that includes debris removal components	Existing	Flooding, Severe Storms	1-1 2-1 3-1	BC Public Works; BC OEM	Low	Medium	HMGP, FMA or PDM grant	Short	Medium	LPR	PR
BC-16 (former County – 16)	Map urban/wild land interface areas	Both	Wildfire	1-1 1-4 1-5	BC GIS; BC OEM	Medium	Medium	DHS Grant	Short	Low	LPR	PR
BC-17 (former County – 17)	Identify, evaluate & improve evacuation routes for all hazards of concern.	Existing	All	1-1 1-5	BC Traffic; BC Engineering; BC OEM	High	Medium	DHS Grant	Short	Low	LPR, EAP	PR, PI, ES
BC -18 (former County – 18)	Create data sets for reverse 911 for flooding, urban/wild	Existing	Flooding, Wildfire, Extreme Temperatures	1-1 1-5	BC OEM; BC GIS; BC PIO;	Medium	Low	DHS Grant	Short	Low	LPR, EAP	PR, PP, ES





Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	land interface & vulnerable populations				BC Office of Aging							
BC-19 (former County – 20)	Increase participation in multi-jurisdictional annual progress reports and updates of BC All Hazards Mitigation Plan, if necessary.	Both	All	1-1 1-4 2-1	BC Engineering; BC OEM; BC Resource Conservation; BC Health; Red Cross; BC Prosecutor; BC Public Works	Low	Low	County Operating Budget	Long	High	LPR	PR
BC-20 (former County – 21)	Enhance the building inventory to include structure values for future use of the HAZUS program	Both	Floods, Severe Storms, Severe Winter Storms and Earthquake	1-1 1-4 2-1	BC GIS	Medium	Medium	DHS Grant	Long	Low	LPR	PR
BC-21 (former County – 22)	Provide higher resolution digital elevation model for future use of the HAZUS program	Both	Floods, Severe Storms, Severe Winter Storms and Earthquake	1-1 1-3 1-4	BC GIS	Medium	Medium	DHS Grant	Long	Low	LPR	PR
BC-22 (former County – 23)	Retrofit structures located in flood-prone areas to protect structures from future damage, especially those known to be identified as ‘repetitive loss’	Existing	Floods	2-1 2-2 3-1 4-1 4-2	BC Resource Conservation; BC Engineering; Burlington County Bridge Commission	Medium	Low	FEMA, FMA, SRL, RFC, HMGP, or PDM Grant and County Operating Budget for cost share	Long	Medium	SIP	PP
BC-23 (former County – 24)	Aid municipalities in obtaining backup power at vital critical facilities	Both	All	1-2 1-5 3-2	BC Facilities and Services; BC Engineering;	High	Medium	FEMA, FMA, SRL, RFC,	Long	Low	SIP	PP





Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
					BC OEM; Municipalities			HMGP or PDM Grant and County Operating Budget for cost share				
BC-24 (former County – 25)	Encourage the use of higher regulatory standards in codes such as: The Local Floodplain Management Ordinance and, Zoning code	New	All	1-1 1-4	BC OEM, Engineering, GIS	Medium	Low	County Operating Budget	Long	Low	LPR	PR
BC-25 (former County – 26)	Replace inadequate portions of drainage systems on County roads	Existing	Flood, Severe Winter Storm	1-1 1-3 2-1 2-2 3-1	BC Engineering	High	High	County Capital Budget	Long	Low	SIP	PP
BC-26 (former County – 27)	Develop environmental monitoring component for Burlington County Emergency Operations Plan	Both	Flood, Earthquake, Wildfire, Drought	1-1 1-4 3-1 4-1	BC OEM; BC Health Department; BC DPW	Medium	Medium	DHS grant	Short	Low	NSP	NR
BC-27 (former County - 28)	Retrofit vulnerable critical facilities and infrastructure	Existing	All	1-1 1-2 3-1	BC OEM; BC Engineering	Medium	High	FEMA Grant Funding County Operating Budget,	Long term, DOF	Low	SIP	PP, SP
BC-28 (former County – 29)	Document the impacts of all hazards on land use decisions, especially in terms of the placement of critical	Both	All	1-1 1-4	County Department of Resource Conservation, Burlington	Low	Low	County Operating Budget	Short term	High	LPR	PR



Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	facilities/infrastructure and high-density development.				County Bridge Commission							
BC-29 (former County - 30)	<p>Conduct and facilitate community and public education and outreach for residents and businesses to include, but not be limited to, the following to promote and effect natural hazard risk reduction:</p> <ul style="list-style-type: none"> • Provide and maintain links to the HMP website, and regularly post notices on the County/municipal homepage(s) referencing the HMP webpages. • Prepare and distribute informational letters to flood vulnerable property owners and neighborhood associations, explaining the availability of mitigation grant funding to mitigate their properties, and instructing them on how they can learn more and implement mitigation. 	N/A	All Hazards	1-1 1-4	BC OEM, BC Resource Conservation, BC Engineering	Low	Low	County Operating Budget	On-going	High	EAP	PI



Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	<ul style="list-style-type: none"> Use email notification systems and newsletters to better educate the public on flood insurance, the availability of mitigation grant funding, and personal natural hazard risk reduction measures. Work with neighborhood associations, civic and business groups to disseminate information on flood insurance and the availability of mitigation grant funding 											
BC-30 (former County – 31)	Support municipalities with incorporation of ordinances and/or zoning restrictions to control and mitigate future development in hazard areas, specifically as identified in Section 5.	N/A	All Hazards	5-1 5-2 5-3	Municipality with support from Planning Partners, BC Bridge Commission, NJOEM, FEMA	Medium	Medium	HMA programs with local or county match	On-going	High	LPR	PR
BC-31 (former County – 32)	Develop programs/procedures to capture and archive loss data from events. Examples include:	N/A	All Hazards	1-1 1-4	Municipality with support from BC OEM, NJOEM and FEMA	Medium	Medium	County Operating Budget	On-going	Medium	LPR	PR



Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	<ul style="list-style-type: none"> Record location and length of roadway closures; Develop a database of residential and commercial property damage, including permit history for such repairs; High water marks, perhaps painting phone poles with high water marks and or regulatory Base Flood Elevations (BFEs). 											
BC-32 (former County – 33)	Participate in local, county and/or state level projects and programs to develop improved structure and facility inventories and hazard datasets to support enhanced risk assessment efforts. Such programs may	N/A	All Hazards	1-1 1-3 3-1 4-1	Municipality with support from BC OEM, NJOEM and FEMA	Medium	Medium	County Operating Budget	On-going	Medium	LPR	PR



Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	<p>include developing a detailed inventory of critical facilities based upon FEMA's Comprehensive Data Management System (CDMS) which could be used for various planning and emergency management purposes including:</p> <ul style="list-style-type: none"> • Support the performance of enhanced risk and vulnerability assessments for hazards of concern. • Support state, county and local planning efforts including mitigation (including updates to the State HMP), comprehensive emergency management, debris management, and land use. • Improved structural and facility inventories could incorporate flood, wind and seismic-specific parameters (e.g. 											



Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	first floor elevations, roof types, structure types based on FEMA-154 “Rapid Visual Screening of Buildings for Potential Seismic Hazards” methodologies). It is recognized that these programs will need to be initiated and supported at the County and/or State level, and will require training, tools and funding provided at the county, state and/or federal level.											
BC-33 (former County - 34)	Support ongoing updates of Comprehensive Emergency Management Plans	N/A	All Hazards	1-1 1-2 3-2	BC OEM; Hazard Mitigation Plan Coordinator, BC GIS	Medium-High	Medium-High	FEMA Mitigation Grant Programs with county match	On-going	Medium	LPR	PR, ES
BC-34 (former County - 35)	Foster the creation, enhancement and maintenance of Mutual Aid Agreements between neighboring communities for continuity of operations	New and Existing	All Hazards	1-1 2-1	Municipality with support from BC OEM and NJ OEM	Low	Low	County Operating Budget	On-going	High	LPR	PR, ES
BC-35 (former	Identify and develop agreements with entities that can	N/A	All Hazards	3-2	Municipality with support from BC OEM,	Medium	Low	County Operating Budget	On-going	High	LPR	PR, ES



Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
County – 36)	provide support with FEMA/NJOEM paperwork after disasters; qualified damage assessment personnel – Improve post-disaster capabilities – damage assessment; FEMA/NJOEM paperwork compilation, submissions, record-keeping				NJOEM, FEMA and surrounding communities and counties							
BC-36 (former County – 37)	Work with regional agencies (i.e. County and NJOEM) to help develop damage assessment capabilities at the local level through such things as training programs, certification of qualified individuals (e.g. code officials, floodplain managers, engineers).	N/A	All Hazards	1-1 3-1	Municipality with support from BC OEM, NJOEM and FEMA	Medium	Medium	County Operating Budget	Short Term	Medium	LPR	PR, ES
BC-37 (former County - 38)	Continue to support the implementation, monitoring, maintenance, and updating of this Plan (through participation in the 5-year Plan Update)	N/A	All Hazards	1-1	Municipality with support from BC OEM, NJOEM and FEMA	Medium	Medium	County Operating Budget, FEMA HMA and HLS grant programs	Short-Long Term DOF	Medium	LPR	PR
BC-38 (former County – 39)	Promote the participation of Floodplain Administrators within the planning process and other activities.	New and Existing	All Hazards	1-4	Municipality with support from Planning Partners, BC OEM, NJOEM, FEMA	High	Low – High (for 5-year update)	County Operating Budget, FEMA planning grants	On-going	High	LPR	PR





Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
BC-39 (former County – 40)	Incorporate floodplain and RiskMAP products into the County GIS system and make available for municipalities.	N/A	Flood	1-1 1-3 3-1	Municipality with support from BC OEM, County Engineers, NJOEM and FEMA	Medium	Medium	County Operating Budget	Short	Medium	LPR	PR
BC-40 (former County – 41)	Provide public education and outreach on proper installation and/or use of backup power	Both	Flood	1-1 1-3 3-1	County GIS and BC OEM	High	Medium	County Budget	Short	Medium	EAP	PI
BC-41	Increase boat slips for emergency rescue on Delaware River (south of Burlington City) and Rancocas	New	Flood, Severe Storm	1-1 1-2 3-1 3-2	BC OEM	Medium	Medium	County Operating Budget	Long term	Medium	SIP	PR, ES
BC-42	Address flooding issues on Route 63 in Maple Shade	Existing	Flood	1-1 1-3 2-1 2-2 3-1	BC Engineering	Medium	Medium	County Operating Budget	Long term	Medium	SIP	PP
BC-43	Radio tower wildfire vulnerability Phase 1: Determine vulnerability of the 20 radio towers in the County to wildfire. Phase 2: Increase buffer to forest edge in vulnerable radio tower locations.	Existing	Wildfire	1-1 1-2 3-1	BC Engineering, BC Resource Conservation	Medium	Medium	County Operating Budget	Long Term	Medium	LPR	PR, PP
BC-44	Strengthen and harden communications with eastern portion of County to prevent loss of communication during hazard events.	Existing	All	1-1 1-2 3-1	BC OEM	Medium	Medium	County Operating Budget	Short Term	High	LPR	ES



Table 9.1-8. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
BC-45	Hold meetings to discuss hazard mitigation progress and emerging hazards of concern. Annual meetings with LEPC. Quarterly meetings with Steering Committee.	New and Existing	All	All Goals	BC OEM	High	Low	County Operating Budget	Short Term	High	LPR	ES
BC-46	Develop Countywide map book to have hard copy records of all mutual aid agreements and emergency procedures in the event of utility and communications failure during hazard events.	Existing	All	6	BC OEM	High	Low	County Operating Budget	Short Term	High	LPR	ES

Notes:

Not all acronyms and abbreviations defined below are included in the table.

*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program
- RFC Repetitive Flood Claims Grant Program (discontinued)
- SRL Severe Repetitive Loss Grant Program (discontinued)

Timeline:

- Short 1 to 5 years
- Long Term 5 years or greater
- OG On-going program
- DOF Depending on funding

Costs:

Where actual project costs have been reasonably estimated:

- Low < \$10,000
- Medium \$10,000 to \$100,000
- High > \$100,000

Where actual project costs cannot reasonably be established at this time:

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

- Low= < \$10,000
- Medium \$10,000 to \$100,000
- High > \$100,000





Costs:

- Low** Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.
- Medium** Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
- High** Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

- Where numerical project benefits cannot reasonably be established at this time:
- Low** Long-term benefits of the project are difficult to quantify in the short term.
- Medium** Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
- High** Project will have an immediate impact on the reduction of risk exposure to life and property.

Mitigation Category:

- **Local Plans and Regulations (LPR)** – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- **Structure and Infrastructure Project (SIP)**- These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- **Natural Systems Protection (NSP)** – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- **Education and Awareness Programs (EAP)** – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities

CRS Category:

- **Preventative Measures (PR)** - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- **Property Protection (PP)** - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- **Public Information (PI)** - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- **Natural Resource Protection (NR)** - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Structural Flood Control Projects (SP)** - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- **Emergency Services (ES)** - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.



Table 9.1-9. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Time line	Agency Champion	Other Community Objectives	Total	High / Medium / Low
BC-1 (former County – 1)	<p>Purchase, relocate, or elevate structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss property as priority.</p> <p>Phase 1: Identify appropriate candidates based on cost-effectiveness, for example:</p> <p>Phase 2: Where determined to be a viable option, work with property owners toward implementation of the determined action based on available funding from FEMA and local match availability</p>	1	1	0	1	0	1	0	0	1	1	0	0	1	0	7	Medium
BC-2 (former County – 2)	Obtain and install backup power at vital county critical facilities	1	1	0	1	1	1	0	0	1	1	1	0	1	1	10	High
BC-3 (former County – 3)	Join NOAA “Storm Ready”	1	1	1	1	0	1	0	0	1	1	1	0	1	0	9	Medium
BC-4 (former county – 4)	Promote “Firewise” throughout the county	1	1	0	1	1	1	1	1	1	1	0	1	1	1	12	High
BC-5 (former County -5)	Support local efforts to incorporate hazard mitigation into Local Master Plans/Zoning	1	1	0	0	1	1	1	1	1	-1	1	-1	-1	0	4	Low
BC-6 (former County – 6)	Promote CRS program throughout the county	1	1	0	1	1	1	1	1	1	1	0	1	1	1	12	High
BC-7 (former County – 7)	Obtain/record/maintain historical hazard data such as: flood high water marks, road closures, wild fires, requests for assistance, loss data etc.	1	1	0	0	1	1	1	1	1	1	1	1	1	1	12	High
BC-8 (former County – 8)	Develop public info. strategy for dissemination of hazard information before an event	1	1	1	1	0	1	0	0	1	1	1	0	1	0	9	Medium





Table 9.1-9. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Time line	Agency Champion	Other Community Objectives	Total	High / Medium / Low
BC-9 (former County – 9)	Evaluate the adoption of “no Adverse Impact” land use policies through a planning framework.	1	1	1	0	1	1	1	1	1	1	1	1	1	0	12	High
BC-10 (former County – 10)	Provide technical information and guidance on hazards & risks to municipalities and the public	1	1	1	0	1	1	1	0	1	1	1	1	1	1	12	High
BC-11 (former County – 11)	Retrofit critical river crossings including roads, bridges and culverts over floodplains on county roads	1	1	0	1	1	1	0	0	0	0	1	0	1	1	8	Medium
BC-12 (former County – 12)	Create and enhance mutual aid agreements between law enforcement, municipal public works and county public works departments	1	1	1	1	0	1	1	0	0	0	1	0	0	0	7	Medium
BC-13 (former County – 13)	Improve dissemination of public information on imminent hazard threats	1	0	0	0	1	1	0	0	0	0	1	0	1	1	6	Low
BC-14 (former County – 14)	Keep a geo-referenced list and information on critical facilities and infrastructure components	1	1	0	1	1	1	0	0	0	0	1	0	1	0	6	Low
BC-15 (former County – 15)	Develop post disaster action plan that includes debris removal components	0	0	0	1	1	1	0	1	1	0	1	0	1	0	7	Medium
BC-16 (former County – 16)	Map urban/wild land interface areas	0	0	0	1	1	1	0	0	0	0	0	0	1	1	5	Low
BC-17 (former County – 17)	Identify, evaluate & improve evacuation routes for all hazards of concern.	1	0	0	0	1	1	0	0	0	0	1	0	1	1	6	Low
BC -18 (former County – 18)	Create data sets for reverse 911 for flooding, urban/wild land interface & vulnerable populations	1	0	0	0	1	1	0	0	0	0	1	0	1	1	6	Low



Table 9.1-9. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
BC-19 (former County – 20)	Increase participation in multi-jurisdictional annual progress reports and updates of BC All Hazards Mitigation Plan, if necessary.	1	1	1	0	1	1	1	1	1	1	1	1	1	1	13	High
BC-20 (former County – 21)	Enhance the building inventory to include structure values for future use of the HAZUS program	0	0	0	1	1	1	0	0	0	0	1	0	1	1	6	Low
BC-21 (former County – 22)	Provide higher resolution digital elevation model for future use of the HAZUS program	0	0	0	1	1	1	0	0	0	0	1	0	1	1	6	Low
BC-22 (former County – 23)	Retrofit structures located in flood-prone areas to protect structures from future damage, especially those known to be identified as ‘repetitive loss’	1	1	0	1	0	0	0	0	1	0	1	0	1	1	7	Medium
BC-23 (former County – 24)	Aid municipalities in obtaining backup power at vital critical facilities	1	1	0	0	0	1	-1	0	0	0	1	0	0	1	4	Low
BC-24 (former County – 25)	Encourage the use of higher regulatory standards in codes such as: The Local Floodplain Management Ordinance and, Zoning code	0	1	0	0	1	1	0	0	0	0	1	0	0	1	5	Low
BC-25 (former County – 26)	Replace inadequate portions of drainage systems on County roads	1	0	0	1	1	1	0	0	0	0	1	0	0	1	6	Low
BC-26 (former County – 27)	Develop environmental monitoring component for Burlington County Emergency Operations Plan	0	0	0	0	1	1	0	1	0	0	1	0	0	1	5	Low
BC-27 (former County - 28)	Retrofit vulnerable critical facilities and infrastructure	1	1	0	1	1	1	0	0	0	0	1	0	0	0	6	Low
BC-28 (former	Document the impacts of all hazards on land use decisions,	1	1	1	0	1	1	1	1	1	1	1	1	1	1	13	High





Table 9.1-9. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
County – 29)	especially in terms of the placement of critical facilities/infrastructure and high-density development.																
BC-29 (former County - 30)	<p>Conduct and facilitate community and public education and outreach for residents and businesses to include, but not be limited to, the following to promote and effect natural hazard risk reduction:</p> <ul style="list-style-type: none"> • Provide and maintain links to the HMP website, and regularly post notices on the County/municipal homepage(s) referencing the HMP webpages. • Prepare and distribute informational letters to flood vulnerable property owners and neighborhood associations, explaining the availability of mitigation grant funding to mitigate their properties, and instructing them on how they can learn more and implement mitigation. • Use email notification systems and newsletters to better educate the public on flood insurance, the availability of mitigation grant funding, and personal natural hazard risk reduction measures. • Work with neighborhood associations, civic and business groups to disseminate information on flood insurance and the availability of mitigation grant funding 	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
BC-30 (former	Support municipalities with incorporation of ordinances and/or	0	1	1	1	1	1	0	1	1	1	1	1	1	1	12	High



Table 9.1-9. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
County – 31)	zoning restrictions to control and mitigate future development in hazard areas, specifically as identified in Section 5.																
BC-31 (former County – 32)	<p>Develop programs/procedures to capture and archive loss data from events. Examples include:</p> <ul style="list-style-type: none"> Record location and length of roadway closures; Develop a database of residential and commercial property damage, including permit history for such repairs; High water marks, perhaps painting phone poles with high water marks and or regulatory Base Flood Elevations (BFEs). 	1	1	0	1	1	1	0	0	1	1	0	1	0	0	8	Medium
BC-32 (former County – 33)	Participate in local, county and/or state level projects and programs to develop improved structure and facility inventories and hazard datasets to support enhanced risk assessment efforts. Such programs may include developing a detailed inventory of critical facilities based upon FEMA’s Comprehensive Data Management System (CDMS) which could be used for various planning and emergency management purposes including:	1	1	0	1	1	1	0	0	1	1	0	1	0	0	8	Medium



Table 9.1-9. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
	<ul style="list-style-type: none"> Support the performance of enhanced risk and vulnerability assessments for hazards of concern. Support state, county and local planning efforts including mitigation (including updates to the State HMP), comprehensive emergency management, debris management, and land use. Improved structural and facility inventories could incorporate flood, wind and seismic-specific parameters (e.g. first floor elevations, roof types, structure types based on FEMA-154 “Rapid Visual Screening of Buildings for Potential Seismic Hazards” methodologies). It is recognized that these programs will need to be initiated and supported at the County and/or State level, and will require training, tools and funding provided at the county, state and/or federal level. 																
BC-33 (former County - 34)	Support ongoing updates of Comprehensive Emergency Management Plans	1	1	1	0	1	1	1	1	1	1	1	1	1	1	13	High
BC-34 (former County - 35)	Foster the creation, enhancement and maintenance of Mutual Aid Agreements between neighboring communities for continuity of operations	1	1	1	0	1	1	1	1	1	1	1	1	1	1	13	High
BC-35 (former County - 36)	Identify and develop agreements with entities that can provide support with FEMA/NJOEM paperwork after disasters; qualified	1	1	1	0	1	1	1	1	1	1	1	1	1	1	13	High



Table 9.1-9. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Time line	Agency Champion	Other Community Objectives	Total	High / Medium / Low
	damage assessment personnel – Improve post-disaster capabilities – damage assessment; FEMA/NJOEM paperwork compilation, submissions, record-keeping																
BC-36 (former County – 37)	Work with regional agencies (i.e. County and NJOEM) to help develop damage assessment capabilities at the local level through such things as training programs, certification of qualified individuals (e.g. code officials, floodplain managers, engineers).	0	1	1	0	1	1	1	0	0	1	1	1	1	0	9	Medium
BC-37 (former County - 38)	Continue to support the implementation, monitoring, maintenance, and updating of this Plan (through participation in the 5-year Plan Update)	1	1	1	0	1	1	1	1	1	1	1	1	1	1	13	High
BC-38 (former County – 39)	Promote the participation of Floodplain Administrators within the planning process and other activities.	1	1	1	1	1	1	1	1	1	1	0	0	1	1	12	High
BC-39 (former County – 40)	Incorporate floodplain and RiskMAP products into the County GIS system and make available for municipalities.	1	1	0	1	1	1	0	0	1	1	0	1	1	0	9	Medium
BC-40 (former County – 41)	Provide public education and outreach on proper installation and/or use of backup power	1	1	1	0	1	1	0	0	1	1	0	1	1	0	9	Medium
BC-41	Increase boat slips for emergency rescue on Delaware River (south of Burlington City) and Rancocas	1	0	1	0	1	1	1	0	1	1	1	0	1	0	9	Medium
BC-42	Address flooding issues on Route 63 in Maple Shade	1	0	0	1	1	1	0	0	0	0	1	0	1	1	7	Medium
BC-43	Radio tower wildfire vulnerability Phase 1: Determine vulnerability of the 20 radio towers in the County to wildfire.	1	1	1	0	1	1	0	0	1	0	0	0	1	0	7	Medium



Table 9.1-9. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
	Phase 2: Increase buffer to forest edge in vulnerable radio tower locations.																
BC-44	Strengthen and harden communications with eastern portion of County to prevent loss of communication during hazard events.	1	0	1	0	1	1	0	0	1	1	1	0	1	0	8	Medium
BC-45	Hold meetings to discuss hazard mitigation progress and emerging hazards of concern. Annual meetings with LEPC. Quarterly meetings with Steering Committee.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
BC-46	Develop Countywide map book to have hard copy records of all mutual aid agreements and emergency procedures in the event of utility and communications failure during hazard events.	1	0	1	1	1	1	1	1	1	1	1	1	1	1	13	High

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.



9.1.7 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

None at this time.

9.1.8 HAZARD AREA EXTENT AND LOCATION

Hazard area extent and location maps have been generated for Burlington County that illustrate the probable areas that may be impacted. These maps are based on the best available data at the time of the preparation of this HMP and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which Burlington County has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this HMP.

9.1.9 ADDITIONAL COMMENTS

None at this time.



Action Number:
Mitigation Action/Initiative:

BC-1
 Purchase, relocate, or elevate structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss property as priority.

Phase 1: Identify appropriate candidates based on cost-effectiveness, for example:

Phase 2: Where determined to be a viable option, work with property owners toward implementation of the determined action based on available funding from FEMA and local match availability

Assessing the Risk	
Hazard(s) addressed:	Flood
Specific problem being mitigated:	There are Repetitive Loss (RL) and Severe Repetitive Loss (SRL) properties located within a FEMA delineated floodplain.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	<ol style="list-style-type: none"> 1. No action – Flooding will continue to damage these structures. 2. Construct levees around flood-prone structures 3. Flood-proof existing structures
Action/Project Intended for Implementation	
Description of Selected Action/Project	Identify appropriate candidates for elevation, acquisition, or relocation based on cost-effectiveness. Where determined to be a viable option, work with property owners toward implementation of the determined action based on available funding from FEMA and local match availability
Action/Project Category	SIP
Goals Met	2-1, 2-2, 3-1, 4-1, 4-2
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	<i>High (~\$2.3M)</i>
Priority*	<i>Medium</i>
Plan for Implementation	
Responsible Organization	County of Burlington Public Works and Public Safety
Local Planning Mechanism	Hazard Mitigation, Greenspace Planning, Design and Construction
Potential Funding Sources	FEMA FMA, HMGP or PDM Grant and BC Existing Operating Budget for local share
Timeline for Completion	Dependent on Funding (DOF)
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



SECTION 9.1: BURLINGTON COUNTY

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Identifies floodprone residents who would benefit from acquisitions or elevations
Property Protection	1	Protect future flood damage to structures
Cost-Effectiveness	0	
Technical	1	
Political	0	
Legal	1	
Fiscal	0	Need funding to elevate or acquire structures
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	0	
Agency Champion	1	
Other Community Objectives	0	
Total	7	
Priority (High/Med/Low)	Medium	



Action Number: BC-2
Mitigation Action/Initiative: Obtain and install backup power at vital county critical facilities

Assessing the Risk	
Hazard(s) addressed:	All Hazards
Specific problem being mitigated:	There are critical facilities which do not have emergency backup power which cannot operate during the course of a hazard or adverse weather.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	<ol style="list-style-type: none"> 1. No action – Structures will continue to lose power during hazard events 2. Purchase and install mobile generators at each location. – May not be suitable for long term operation. 3. Purchase and install solar power equipment for each structure. – May not provide adequate power to the facility.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Obtain and install backup power at vital county critical facilities
Action/Project Category	SIP
Goals Met	1-1, 1-2, 3-1, 3-2
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	Medium (~\$80K)
Priority*	High
Plan for Implementation	
Responsible Organization	BC Facilities and Services; BC Engineering; BC OEM
Local Planning Mechanism	Hazard Mitigation, Emergency Management, Homeland Security, Design and Construction
Potential Funding Sources	FEMA HMGP or PDM Grant and BC Existing Operating Budget for local share
Timeline for Completion	Short
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Provide continuity of operations to essential facilities during a time of need
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Need funding to purchase and install generator
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	0	
Agency Champion	1	
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	



Action Number:	BC-11
Mitigation Action/Initiative:	Retrofit critical river crossings including roads, bridges and culverts over floodplains on county roads

Assessing the Risk	
Hazard(s) addressed:	Flooding
Specific problem being mitigated:	Current roads, bridges, and culverts do not have the adequate capacity to deal with the frequency and intensity
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. No action – Existing infrastructure will likely cause backups and flood other areas adjacent to the floodplain or will be damaged by inadequate capacity.
	2. Build entirely new roads, bridges, and culverts throughout the county with adequate capacity. – Project will most likely be too expensive.
	3. Install pumps at Floodprone locations to pump water away from infrastructure and reduce the impact. – Could have substantial upfront costs and would increase operations and maintenance cost.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Retrofit critical river crossings including roads, bridges and culverts over floodplains on county roads
Action/Project Category	SIP
Goals Met	1-1, 2-1,2-2, 3-1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	Medium
Plan for Implementation	
Responsible Organization	BC Facilities and Services; BC Engineering; BC OEM
Local Planning Mechanism	Hazard Mitigation, Public Works, Design and Construction
Potential Funding Sources	FEMA HMGP or PDM Grant and BC Existing Operating Budget for local share
Timeline for Completion	Long
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



SECTION 9.1: BURLINGTON COUNTY

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Reduce or eliminate flood damage and flooding of roads; increasing continuity of operations of emergency personnel
Property Protection	1	Increase capacity of culverts and reduce/eliminate damage to structures as a result of flooding
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Need funds to complete this project
Environmental	0	
Social	0	
Administrative	0	
Multi-Hazard	1	
Timeline	0	
Agency Champion	1	
Other Community Objectives	1	
Total	8	
Priority (High/Med/Low)	Medium	



Action Number:	BC-22
Mitigation Action/Initiative:	Retrofit structures located in flood-prone areas to protect structures from future damage, especially those known to be identified as ‘repetitive loss’

Assessing the Risk	
Hazard(s) addressed:	Flooding
Specific problem being mitigated:	Retrofit structures located in flood-prone areas to protect structures from future damage, especially those known to be identified as ‘repetitive loss’
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. No action – Existing infrastructure will likely cause backups and flood other areas adjacent to the floodplain or will be damaged by inadequate capacity.
	2. Construct levees and floodwalls adjacent to all floodprone structures – May interrupt natural floodplain function and be extremely costly.
	3. Convert land to greenspace to store floodwater and increase storage capacity. – May not have adequate space to construct green infrastructure large enough to absorb adequate water.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Retrofit structures located in flood-prone areas to protect structures from future damage, especially those known to be identified as ‘repetitive loss’
Action/Project Category	SIP
Goals Met	2-1,2-2, 3-1, 4-1, 4-2
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	Medium
Estimated Cost	<i>Low</i>
Priority*	<i>Medium</i>
Plan for Implementation	
Responsible Organization	BC Facilities and Services; BC Engineering; BC OEM
Local Planning Mechanism	Hazard Mitigation, Public Works, Design and Construction
Potential Funding Sources	FEMA, FMA, SRL, RFC, HMGP, or PDM; Grant and County Operating Budget for cost share
Timeline for Completion	Long
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



SECTION 9.1: BURLINGTON COUNTY

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	0	Protect future flood damage to structures
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Need funding to elevate or acquire structures
Environmental	0	
Social	0	
Administrative	0	
Multi-Hazard	0	Flood
Timeline	0	
Agency Champion	1	
Other Community Objectives	1	
Total	5	
Priority (High/Med/Low)	Low	



Action Number:

BC-25

Mitigation Action/Initiative:

Replace inadequate portions of drainage systems on County roads

Assessing the Risk	
Hazard(s) addressed:	Flood, Severe Winter Storm
Specific problem being mitigated:	Replace inadequate portions of drainage systems on county roads potentially causing damage on county roads and increasing the risk for transportation accidents.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	<ol style="list-style-type: none"> 1. No action – Existing infrastructure will likely cause backups and flood other areas adjacent to the floodplain or will be damaged by inadequate capacity. 2. Construct levees and floodwalls adjacent to all floodprone roads to keep water off roadway – May interrupt natural floodplain function and be extremely costly. 3. Attempt to retrofit inadequate drainage systems. – This may be a temporary fix and not a long term solution.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Replace inadequate portions of drainage systems on County roads
Action/Project Category	SIP
Goals Met	1-1, 1-3, 2-1, 2-2, 3-1
Applies to existing and or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	<i>High</i>
Priority*	<i>Low</i>
Plan for Implementation	
Responsible Organization	BC Engineering
Local Planning Mechanism	Hazard Mitigation, Public Works, Design and Construction
Potential Funding Sources	County Capital Budget
Timeline for Completion	Long
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



SECTION 9.1: BURLINGTON COUNTY

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Increase capacity of drainage systems and allow roadways to remain open during flood events, allowing for emergency personnel to access areas of the county
Property Protection	0	
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	1	The county has legal authority to complete this project
Fiscal	0	Need funding to complete project
Environmental	0	
Social	0	
Administrative	0	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	
Agency Champion	0	
Other Community Objectives	1	
Total	6	
Priority (High/Med/Low)	Low	



Action Number:
Mitigation Action/Initiative:

BC-27
Retrofit vulnerable critical facilities and infrastructure

Assessing the Risk	
Hazard(s) addressed:	All hazards
Specific problem being mitigated:	Critical facilities and infrastructure are exposed to natural hazards and need to be retrofitted to sustain operations.
Evaluation of Potential Actions/Projects	
Actions/Projects Considered (name of project and reason for not selecting):	1. No action – Existing infrastructure will likely deteriorate over time if not maintained or retrofitted to withstand greater hazard impacts.
	2. Construct levees and floodwalls adjacent to all flood-prone roads to keep water off roadway – May interrupt natural floodplain function and be extremely costly.
	3. Rebuild all critical facilities and infrastructure. – This option will most likely be too expensive and not cost-beneficial.
Action/Project Intended for Implementation	
Description of Selected Action/Project	Retrofit vulnerable critical facilities and infrastructure
Action/Project Category	SIP
Goals Met	1-1, 1-2, 3-1
Applies to existing and/or new development, or not applicable	Existing
Benefits (losses avoided)	High
Estimated Cost	High
Priority*	Low
Plan for Implementation	
Responsible Organization	BC OEM; BC Engineering
Local Planning Mechanism	Hazard Mitigation, Public Works, Design and Construction
Potential Funding Sources	FEMA Grant Funding County Operating Budget
Timeline for Completion	Long, DOF
Reporting on Progress	
Date of Status Report/ Report of Progress	Date: Progress on Action/Project:



SECTION 9.1: BURLINGTON COUNTY

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Increase the resiliency of structures and protect them from future damage related to natural hazard events
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	Need funding to complete project
Environmental	0	
Social	0	
Administrative	0	
Multi-Hazard	1	All hazards
Timeline	0	
Agency Champion	0	
Other Community Objectives	0	
Total	6	
Priority (High/Med/Low)	Low	