

9.15: City of Linwood – Jurisdictional Annex

Summary of Hazards and Actions

Summary of Hazard Ranking and Actions, City of Linwood			
Hazard	Hazard Ranking	# of Related Actions	Action #s
Atmospheric Hazards			
Extreme Temperatures	M		
Extreme Wind	M		
Hail	L		
Hurricane & Tropical Storm	H	1	6
Lightning	L		
Nor'easter	M	1	6
Tornado	L		
Winter Storm	M		
Hydrologic Hazards			
Coastal Erosion	M		
Sea Level Rise	H		
Dam Failure	L		
Levee Failure	N/A		
Drought	L		
Flood	H	7	1, 2, 3, 4, 5, 6, 7
Tsunami	L		
Storm Surge	H	1	6
Wave Action	M		
Geologic Hazards			
Earthquake	L		
Other Natural Hazards			
Wildfire	L		

Mitigation Strategy for Risk Reduction

Overview of Municipal Mitigation Strategy, City of Linwood				
Project Number	Project Description	Hazard(s) Addressed	Priority	Goals
1	Edgewood Avenue Drainage Improvements. Replace portions of storm drainage system with large capacity pipe and new storm drain inlets, and new head wall at the outfall at the end of Edgewood Ave.	Flood	H	3
2	Lincoln Avenue Drainage Improvements. Replace portions of storm drainage system with large capacity pipe on the downstream portion of the system. Replace storm drain inlets and new headwall at the outfall.	Flood	H	3
3	Several locations; Sea Garden Drive, Bloom Site, Fallingwater & Van Sant Ave, require construction of new head walls and installation of back flow prevention valves to prevent tidal waters from infiltrating the stormwater management system and retrofitting of the upstream stormwater inlets.	Flood	H	3
4	West Ave Culvert replacement. West Ave bisects a section of coastal marshlands along Patcong Creek. The marsh is tidally influenced and tidal water passes beneath West Ave through two 24-inch pipes comprising the "culvert." The project would replace the culvert including pipes and headwalls with larger diameter pipes to allow tidal and primarily flood waters to recede a quicker rate.	Flood	M	3
5	River Drive Reconstruction. Project involves elevating River Drive as well as a portion of Poplar Ave. Reconstruct four stormwater outfalls as well as their up-stream stormwater inlets. The outfall structures will be fitted with a backflow prevention valve to prevent tidal waters from infiltration.	Flood	M	3
6	Raise sanitary sewer pump stations, or vulnerable components thereof, and install permanent back-up generators.	Flood, Storm surge, Hurricane/Tropical Storm, Nor'easter	M	3
7	Investigate mitigation option for repetitive loss property (new)	Flood	M	3

More detailed information on these individual actions is presented at the end of this annex.

Contact Information

City of Linwood's Statement of Authority to Participate identified a Primary Point of Contact and an Alternate for this hazard mitigation plan update. These individuals represented the jurisdiction on the county-wide Core Planning Group and led a local team of Jurisdictional Assessment Team Members who undertook various local activities related to the plan update.

HAZARD MITIGATION PLAN POINTS OF CONTACT						
Primary Point of Contact			Alternate Point of Contact			
Name: Darren Matik Title: Mayor/Supervisor Department: Address: Phone Number: 609-927-4108 E-mail Address: dmatik@linwoodcity.org			Name: Jim Galantino Title: Building Code Official Department: Address: Phone Number: 609-926-7992 E-mail Address: jgalantino@linwoodcity.org			
Jurisdictional Assessment Team Members						
Name: Leigh Ann Napoli Title: City Clerk/Administrator Community Name: Linwood County: Atlantic Email: lnapoli@linwoodcity.org Phone: 609-926-7970		Atlantic County, NJ				
*Note: If your community does not have someone filling the role of a position title in Column A, please insert the word "none" in Column B. Thank you.						
Local Jurisdiction Role/Position	Name	Email	Phone	Date of Invitation	Method of Invitation	Agreed to participate?
Mayor/Supervisor	Darren Matik	dmatik@linwoodcity.org	609-927-4108	04/28/21	Email	Yes
Administrator	Leigh Ann Napoli	lnapoli@linwoodcity.org	609-926-7970	04/28/21	Email	Yes
Clerk	Leigh Ann Napoli	lnapoli@linwoodcity.org	609-926-7970	04/28/21	Email	Yes
Engineer	Vince Polistina	vpolistina@comcast.net	609-646-2950	04/28/21	Email	Yes
Attorney	Joseph L. Youngblood, Jr.	jyoungblood@youngbloodlegal.com	609-601-6602	04/28/21	Email	Yes
Building Code Official	Jim Galantino	jgalantino@linwoodcity.org	609-926-7992	04/28/21	Email	Yes
Emergency Manager	Darren Matik	dmatik@linwoodcity.org	609-927-4108	04/28/21	Email	Yes
Fiscal/Budget Officer	Anthony Strazzeri	astrazzeri@linwoodcity.org	609-926-7974	04/28/21	Email	Yes
Floodplain Manager	Jim Galantino	jgalantino@linwoodcity.org	609-926-7992	04/28/21	Email	Yes
Planner	Vince Polistina	vpolistina@comcast.net	609-646-2950	04/28/21	Email	Yes
Public Works Director	Chip Jones	cjones@linwoodcity.org	609-926-7994	04/28/21	Email	Yes
Other	Tim Longnecker	tim@provideengineering.com	609-226-8455	04/28/21	Email	Yes

City of Linwood has reported undertaking the following internal activities in preparation of its mitigation plan:

Subject of JAT Activity (Meeting Notice, Emails, Etc.)	Date	INVOLVED PARTIES - Place an 'x' for any position title that participated										
		Mayor/Supervisor	Administrator	Clerk	Engineer	Attorney	Building Code Official	Emergency Manager	Fiscal/Budget Officer	Floodplain Manager	Planner	Public Works Director
Kick-Off Meeting Invitation Sent	04/28/21	x	x	x				x				
Agenda for Meeting Sent	07/12/21	x	x	x								
Attendance at Meeting Kick-Off	07/15/21	x	x	x	x		x	x	x	x	x	x
Attendance at planning meeting	08/03/21	x	x	x	x		x	x	x	x	x	x

Governing Body Format

The governing body is comprised of a Mayor and a seven-member City Council who are chosen in partisan balloting held as part of the November general election. The mayor is elected at-large for a four-year term of office. On the city council, six council members are elected from the city's two wards for three-year terms on a staggered basis with two ward seats coming up for election each year, and one at-large council member is elected for a three-year term. The council exercises the legislative power of the city by adopting ordinances and resolutions. In addition, the council is responsible for the approval of the city budget, the establishment of financial controls and setting of all salaries of elected and appointed officers and employees. An administrator is charged with directing the day-to-day activities of city government.

Land Use and Development Trends

An evaluation of growth and development trends was undertaken by each participating jurisdiction as part of the development of the initial plan in 2010, and the last update in 2016. As part of this second plan update, City of Linwood reviewed and updated its prior feedback to reflect current conditions as of mid-2021.



Atlantic County Multi-Jurisdictional Hazard Mitigation Plan Update *Worksheet #3 – Growth and Development Trends Update*

Performing an assessment of Growth and Development Trends is one step of a FEMA-approved hazard mitigation plan update. This look into the future is important because development in hazard areas could put more assets at risk and, in turn, could work to increase potential disaster-related damages at a time when the mitigation plan's purpose is to reduce the potential for damages emanating from natural disasters. Growth/development trends are based on the construction of new buildings, demolition of old buildings, or the planning, zoning or subdivision of new areas for development. A stagnant or decreasing population alone is not reason for stating that no development has occurred, unless backed up by a lack of development.

An evaluation of growth/development trends was undertaken by each participating jurisdiction as part of the development of the 2016 plan. Your municipality's prior response from 2016 is included on the next page in Part 1. Please review your community's prior feedback and identify any changes that have occurred since that time so the most current information can be reflected in this 2021 plan update. In addition, please provide responses for Part 2.

Information for the 2016 plan was provided to us by: Jim Galantino, Floodplain Manager

Your Name:

Title:

Community:

Email and Phone:

Part 1 – Please update your response from 2016 to reflect current conditions in the community.

Community	<p>1. Land Uses and Development Trends in Hazard Areas as Reported in the 2016 Plan. <i>Please describe development trends occurring within your jurisdiction, such as the predominant types of development occurring, location, expected intensity, and pace by land use. While details are preferred, it is ok if your feedback is qualitative and quite general, such as "high-occupancy, high-density residential development is occurring near the waterfront".</i></p>	<p>1a. Please update your response to reflect conditions in 2021</p>	<p>Regulations/Codes/Ordinances To Protect New Development From Natural Hazards as Reported in the 2016 Plan. <i>Does your jurisdiction enforce regulations/ordinances/codes to protect new development from the effects of natural hazards? (Some examples might be floodplain management ordinances enforcing FEMA's NFIP for new development or substantial improvements in the floodplain; steep slope ordinances for community's which may have landslide hazards; earthquake resistant design criteria and/or high wind design criteria; or buffer zones in wildfire hazard areas.) If so, please describe.</i></p>	<p>2a. Please update your response to reflect conditions in 2021</p>
<p>Linwood, City of</p>	<p>Town approaching fully developed, largely residential. Some commercial development along Rt. 9 (New Road).</p> <p>Two lots along Route 9 designated as areas in need of redevelopment. One lot developed in 2003. Now beginning discussion on phase 2 of development. Second undeveloped "redevelopment area" lot in negotiations with office/retail development approved. New residential properties only result of subdivisions or tear downs.</p>	<p>City is almost fully developed, largely residential. Most commercial along Route 9 (New Road). Only several lots left to develop.</p>	<p>Currently NJDEP/CAFRA rules obtain.</p> <p>City continues to acquire open space. Adopted preliminary working map. Review of regulations, codes, and ordinances are ongoing.</p>	<p>City continues to acquire open space. Recently acquired more than 30 acres of open space, mostly bordering the Patcong Creek and the bay. Continued to review regulations, codes, and ordinances and update them accordingly.</p>

National Flood Insurance Program Summary

City of Linwood has participated in FEMA's National Flood Insurance program (NFIP) since 1983.

National Flood Insurance Program Data City of Linwood	
Total number of policies ¹	259
Insurance in force ²	\$77,160,100
Total number of losses during NFIP participation	83
Total claims paid during NFIP participation	\$1,509,680
Non-Mitigated Repetitive Loss Properties	1
Non-Mitigated Severe Repetitive Loss Properties	0

Linwood also participates in the NFIP's Community Rating System (CRS). Linwood entered the CRS in 2014, and is presently a Class 5 community receiving a 25% premium discount for policyholders in the Special Flood Hazard Area and a 10% premium discount for policyholders outside of the Special Flood Hazard Area.

Linwood provided the following NFIP Administrator Input in 2021, for inclusion in the 2022 Plan.

¹ Policies in Force from www.fema.gov NFIP Insurance Report, data current as of 06/03/21.

² Insurance in Force from www.fema.gov NFIP Insurance Report, data current as of 06/03/21

Name: Jim Galantino Title: Floodplain Manager/Floodplain Administrator/NFIP Coordinator

Community: City of Linwood Email and Phone: jgalantino@linwoodcity.org 609-926-7992



Atlantic County Multi-Jurisdictional Hazard Mitigation Plan Update - *Worksheet #2 - NFIP*

Note: Data showing in the form at this time was provided for the 2016 plan by: Jim Galantino. This form should be updated by your floodplain administrator.

Adoption Date of your Current Floodplain Management Ordinance	Date of Entry into NFIP ¹	Position or Title of Your Jurisdiction's Designated Floodplain Manager/Administrator (may also be called NFIP Coordinator)		Is this person is a Certified Floodplain Manager?	Is floodplain management an auxiliary function?	Is your community in good standing with the NFIP?	
<u>2012</u>	<u>1983</u>	<u>Floodplain Manager</u>		<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	
Provide an explanation of NFIP administration services (i.e., permit review, GIS, education or outreach, inspections, engineering capability, etc.):							
<u>All permit reviews and inspections</u>							
Describe barriers to running an effective NFIP program in the community (if applicable):							
<u>None</u>							
When was most recent FEMA Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?*	Is a CAV or CAC scheduled or needed?	Does the current floodplain management ordinance exceed FEMA or State minimum requirements? If so, describe how.	Is training of staff regarding NFIP issues planned?	Does your community intend to continue to enforce the floodplain management requirements including regulating new construction in Special Flood Hazard Areas (SFHAs)?	Does your community participate in the CRS? If so, state your Class.	Does your community intend to continue its participation in the CRS program?	If your community is not currently participating in the CRS program, are you intending to initiate the process during the next planning cycle?
<u>May 2013</u>	<u>No</u>	<u>Yes - 1 foot freeboard</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes, Class 7</u>	<u>Yes</u>	<u>N/A</u>
*Describe any outstanding compliance issues (i.e., current violations):							
<u>N/A</u>							

Name: [Jim Galantino] Title: Floodplain Manager/Floodplain Administrator/NFIP Coordinator

Representing: [City of Linwood] Email and Phone igalantino@linwoodcity.org 609-926-7992



Provide an explanation of your local floodplain permitting process:

[All new construction or substantial improvements must provide their current elevation certification prior to construction and after completion.]

Does your community intend to continue floodplain identification and mapping services including any local requests for map updates?	Does your community intend to initiate/continue the buyouts of repetitive loss properties?	Does your community intend to commit staff or resources to improve local mapping or code administration in the future?	Does your community intend to provide local outreach to promote the sale of flood insurance?	Does your community intend to participate in RiskMAP meetings and planning initiatives?	Does your community intend to continue to implement structural improvements to mitigate against flooding - culverts, drainage basins, etc.?	Does your community intend to continue to implement home improvement programs designed to minimize basement flooding?	Does your community intend to continue to implement roadway improvements to reduce damage from future flooding events?	Does your community intend to implement plans and programs in coordination with a local or regional drainage/sewer authority?
<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> Yes
Does your community intend to adopt the new FEMA Advisory Base Flood Elevations?		As Floodplain Manager, did you (or your predecessor at the time) actively participate in the development of the initial Hazard Mitigation Plan?		As Floodplain Manager, are you actively participating in the development of this Hazard Mitigation Plan Update?		Have there been any changes to your community's local floodplain management program since the last version of the plan?		
<input checked="" type="checkbox"/> Yes		<input checked="" type="checkbox"/> Yes		<input checked="" type="checkbox"/> Yes		<input checked="" type="checkbox"/> Yes		
* If you answered "yes", that there have been changes to your local program since the last version of the plan, please describe:								
[Adopted Advisory Base Flood Map in 2012]								
Provide a description of your community assistance and monitoring activities:								
Provide assistance to flood victims								
NFIP participating communities are required to update/revise their floodplain management ordinance to ensure that it complies with the latest FEMA regulations. Will your community continue to commit to this program requirement?				NFIP participating communities are also required to update/revise their floodplain management ordinance to be consistent with the latest FIRMs. Will your community continue to commit to this program requirement?				
<input checked="" type="checkbox"/> Yes				<input checked="" type="checkbox"/> Yes				

Critical Facilities in Delineated Hazard Areas

Note that all assets and facilities in the City of Linwood are considered to be at risk from County-wide hazards: Hurricane/Tropical Storm, Nor' easter, Extreme Wind, Tornado, Winter Weather, Lightning, Extreme Temperatures and Earthquake.

Facility Name	Location	Facility Type	Flood, A Zone	Flood, V Zone (Wave)	Category 1-4 Storm Surge	Coastal Erosion	Sea Level Rise, 1 Ft	Sea Level Rise, 3 Ft	Dam Failure	Low to Moderate Wildfire	High to Extreme Wildfire
City of Linwood											
Linwood Rescue Squad	515 W Patcong Ave	Ambulance/Rescue Squad	1	0	1	0	0	0	0	1	0
Linwood Civil Defense HQ	715 Lincoln Ave	Emergency Operations Center	0	0	1	0	0	0	0	0	0
Linwood Fire Dept.	750 Lincoln Avenue	Fire Station	0	0	1	0	0	0	0	0	0
Linwood PD	400 Poplar Ave	Police Station	0	0	1	0	0	0	0	0	0
City Hall	Poplar Ave & New Road	Public Works	0	0	1	0	0	0	0	0	0
Belhaven Avenue School	Belhaven Avenue	School	0	0	1	0	0	0	0	0	0
Seaview School	Wabash Avenue	School	0	0	1	0	0	0	0	0	0
Mainland Regional High School	Oak Avenue	School	0	0	1	0	0	0	0	0	0
Poplar Avenue School	Poplar Avenue	School	0	0	1	0	0	0	0	1	0
Mainland Assembly of God School	2115 New Road	School	0	0	1	0	0	0	0	0	0
Brandall Estates	432 Central Avenue	Senior Care Facility	0	0	0	0	0	0	0	0	0
Linwood Care Center	201 New Road And Central Ave	Senior Care Facility	0	0	0	0	0	0	0	0	0
Complete Care At Linwood, LLC	201 New Road And Central Ave	Senior Care Facility	0	0	0	0	0	0	0	0	0
Total			1	0	10	0	0	0	0	2	0

Summary of Estimated Potential Losses from Hazards

Estimated annual losses provided in this section are based on best available data, and the methodologies applied result in an approximation of risk. Loss estimates should be used to understand relative risk from hazards.

Uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning natural hazards and their effects on the built environment. Uncertainties also result from approximations and simplifications that are necessary for a comprehensive analysis (i.e., incomplete inventories, demographics or economic parameters).

It is important to note that this table reflects estimates of average annual damages. For any hazard, individual event damages could be substantially (orders of magnitude) higher.

Only hazards for which annual losses were quantified and presented in Section 3C are included in this table.

Summary of Estimated Potential Losses From Hazards		
City of Linwood		
Quantified Hazard	Annualized Loss	Annual Loss Ratio
Extreme Wind	\$205,000	0.033%
Hurricane and Tropical Storm	\$576,000	0.050%
Lightning	\$1,800	0.000%
Tornado	\$500	0.000%
Drought*	\$3,000	5.000%
Winter Storm	\$5,600	0.001%
Coastal Erosion	\$0	0.000%
Flooding (Riverine)	\$1,000	0.000%
Storm Surge (Coastal Flooding)	\$3,476,000	0.280%
Earthquake	\$8,000	0.001%

*Derived from crop values

Outreach to the Public and Other Stakeholders

As part of this 2022 Plan Update, City of Linwood undertook various activities to: (a) alert the public and other stakeholders to the fact that the HMP Planning Committee was working to develop the update; and (b) provide the public and other stakeholders with a forum to ask questions and submit comments and suggestions on the process. Outreach activities undertaken by City of Linwood included those listed below. No comments were recorded as a result of the outreach activities.

Outreach Activities			
Date of Activity	Type of Activity	Activity Details	Lead Department and/or Staff Title who Undertook Activity
April 28, 2021	Community Outreach Open Public Council Meeting	OEM update to City Council and the public on the second plan update and City Council passed Resolution No. 95, 2021 authorizing the City to participate. (meeting open to the public)	OEM, Floodplain Manager, City Clerk
July 14, 2021	Community Outreach Open Public Council Meeting	OEM update to City Council and the public on the steps the City is taking to complete the plan update. (meeting open to the public)	OEM, City Clerk
July 19, 2021	Community Outreach Open Public Planning Board Meeting	OEM update to the Planning Board and the public regarding the second plan update to the Atlantic County Multi-jurisdictional Hazard Mitigation Plan. (meeting open to the public)	OEM
August 9, 2021	Community Outreach	Updated City website on Flood Damage Prevention and new updates from FEMA	City Clerk
August 24, 2021	Community Outreach	Created and posted fact sheet on the Atlantic County Multi-jurisdictional Hazard Mitigation Plan update	City Clerk
April 28, 2021	Community Outreach Open Public Council Meeting	OEM update to City Council and the public on the second plan update and City Council passed Resolution No. 95, 2021 authorizing the City to participate. (meeting open to the public)	OEM, Floodplain Manager, City Clerk

Capability Assessment

This section describes the following capabilities of City of Linwood :

- Legal and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community resiliency
- Community political capability

As part of the 2022 Plan update, each participating jurisdiction reevaluated the capabilities they had provided for the 2016 Plan, and sent updates to the consultant for incorporation into this plan section. City of Linwood has reviewed its responses from the 2016 Plan and has updated its prior feedback to reflect present-day conditions.

Legal and Regulatory Capability	
Regulatory Tools (Codes, Ordinances, Plans)	Do you have this?
Building Code	Y
Zoning Ordinance	Y
Subdivision Ordinance	Y
Special Purposes Ordinance	Y
Growth Management Ordinance	N
Site Plan Review Requirements	Y
Comprehensive Plan	Y
Capital Improvements Plan	Y
Economic Development Plan	N
Emergency Response Plan	Y
Post-Disaster Recovery Plan	N
Post-Disaster Recovery Ordinance	Y
Real Estate Disclosure Ordinance	N
Evacuation Plan	Y

Administrative and Technical Capability	
Regulatory Tools (Codes, Ordinances, Plans)	Do you have this?
Planner(s) with knowledge of land development and management practices	N
Engineer(s) with knowledge of land development and management practices	Y
Planner(s) or engineer(s) with knowledge of land development and management practices	Y
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Y
Planner(s) or engineer(s) with an understanding of natural and/or human caused hazards	Y
Floodplain manager	Y
Surveyors	Y
Staff with education or expertise to assess the community's vulnerability to hazards	Y
Personnel skilled in GIS and/or HAZUS	Y
Scientists familiar with the hazards of the community	Y
Emergency Manager	Y
Code Enforcement Official	Y
Public Works or Highway Superintendent	Y
Emergency Management Coordinator	Y

Fiscal Capability	
Financial Resources	Accessible or Eligible to use
Community Development Block Grants (CDBG)	Y
Capital Improvements Project Funding	Y
Authority to Levy Taxes for Specific Purposes	Y
Fees for Water, Sewer, Gas, or Electric Service	Y
Impact Fees for Homebuyers or Developers for New Developments/Homes	Y
Incur Debt through General Obligation Funds	Y
Incur Debt through Special Tax and Revenue Bonds	Y
Incur Debt through Private Activity Bonds	N
Withhold Spending in Hazard-Prone Areas	N
Other (i.e., coastal, sustainability, or climate change initiatives; or Brownfield funds)	N

<p>Would you classify your community's legal and regulatory capability to implement hazard mitigation strategies as high, moderate, or low?</p>	<p>Would you classify your community's overall technical capability to implement hazard mitigation strategies as high, moderate, or low?</p>	<p>Would you classify your community's overall fiscal capability to implement hazard mitigation strategies as high, moderate, or low?</p>	<p>Would you classify your community's overall administrative capability to implement hazard mitigation strategies as high, moderate, or low?</p>	<p>Would you classify your political leadership's willingness to enact policies and programs that reduce hazard vulnerabilities in your community as high, moderate, or low - even if met with opposition? (i.e., guiding development away from identified hazard areas)?</p>
H	H	H	H	H
<p>Discuss ways of bridging identified gaps in your local capabilities to ensure that they are in-line with your mitigation actions and goals.</p>				
<p>Linwood is committed to complying with all FEMA flood requirements.</p>				

Plan Integration

It is the intention of City of Linwood to incorporate mitigation planning as an integral component of daily municipal operations. The balance of this subsection describes local accomplishments over the last planning cycle (2016-2021), and targeted activities for the next planning cycle (2022-2027), as reported by the City's CPG member and shared with the consultant for incorporation here.

Demonstration of Progress over the Last Planning Cycle (2016-2021) – City of Linwood undertook the following plan integration mechanisms over the last planning cycle:

The City of Linwood has been participating in the National Flood Insurance Program Community Rating System since 2013. The City now has a Class 5 rating with a 25% discount in flood insurance to residents. Participation in the CRS program and Atlantic County Hazard Mitigation Program, have helped the City to identify hazard areas, assess vulnerabilities, educate the public, and plan for future mitigation and resiliency. The City has applied for and was successful in obtaining a Hazard Mitigation Grant to purchase one portable generator to use for the City's ten sanitary sewer pump stations. The City is using Capital Funds to rehabilitate one of the pump stations and add a permanent generator. The project also includes raising the generator as it is located next to the Patcong Creek. The City was also successful in acquiring open space along the Patcong Creek to protect the properties from future development that could create additional flooding.

Linwood enforced the new adopted FEMA flood maps dated August 28, 2018 with additional freeboard requirements. The City continues to enforce the Stormwater Management Ordinance and just completed and adopted a revised Ordinance in accordance with FEMA Guidelines. The City also continues to enforce the Flood Damage Prevention Ordinance and also just completed and adopted revisions to the Ordinance in accordance with FEMA Guidelines.

Targeted Plan Integration Activities for the Next Planning Cycle (2022-2027) – City of Linwood plans to implement the following plan integration mechanisms into local government operations from this point forward through the next planning cycle:

Linwood has plans to complete more infrastructure work on storm sewers and problematic flooding streets. The City will also continue to assess and identify other risks and vulnerabilities. The City will continue to seek funding opportunities for projects carried forward from the 2016-2021 plan as well as any new projects. By continuing to participate in the Atlantic County Hazard Mitigation Program, Atlantic-Cape Multi-Jurisdictional Program, and the Coastal Coalition of New Jersey, the City will qualify for future grant funds.

The City will also continue to look for open space purchase opportunities to continue its preservation efforts.

Mitigation Strategy

This subsection sets forth the mitigation strategy for City of Linwood. It describes, in the following order:

- Progress on 2016 Plan Actions
- Hazard Mitigation Accomplishments
- Proposed 2022 Plan Mitigation Actions
- Action Worksheets

Progress on 2016 Plan Actions

The following table was completed by the City of Linwood JAT Committee Members. It summarizes the progress that was made on the local hazard mitigation initiatives that were set forth in the last version of the plan in 2016.

City of Linwood has identified improving drainage to reduce flooding remains a high priority as well as reducing any flood risks to the City's sanitary pump stations.

PROGRESS ON 2016 HAZARD MITIGATION PLAN INITIATIVES												
2016 Plan Initiative Number	Mitigation Initiative Description	2016 Plan Priority	Hazard(s) Mitigated	Lead and Support Agencies	Status				Status Details	Relevance		Relevance Details
					Completed	Initiated but Not Completed	Ongoing Type of Activity	Not Initiated		Still Relevant - Carry Forward to Updated Mitigation Strategy	No Longer Relevant - Omit from Updated Mitigation Strategy	
1	Edgewood Avenue Drainage Improvements. Replace portions of storm drainage system with large capacity pipe and new storm drain inlets, and new head wall at the outfall at the end of Edgewood Ave.	High	Flooding	Engineering				X	Lack of funding	X		Project has not changed. Funding needed.
2	Lincoln Avenue Drainage Improvements. Replace portions of storm drainage system with large capacity pipe on the downstream portion of the system. Replace storm drain inlets and new headwall at the outfall.	High	Flooding	Engineering				X	Lack of funding	X		Project has not changed. Funding needed.
3	Several locations; Sea Garden Drive, Bloom Site, Fallingwater & Van Sant Ave, require construction of new head walls and installation of back flow prevention valves to prevent tidal waters from infiltrating the stormwater management system and retrofitting of the upstream stormwater inlets.	High	Flooding	Engineering				X	Lack of funding	X		Project has not changed. Funding needed.
4	West Ave Culvert replacement. West Ave bisects a section of coastal marshlands along Patcong Creek. The marsh is tidally influenced and tidal water passes beneath West Ave through two 24-inch pipes comprising the "culvert." The project would replace the culvert including pipes and headwalls with larger diameter pipes to allow tidal and primarily flood waters to recede a quicker rate.	Medium	Flooding	Engineering				X	Lack of funding	X		Project has not changed. Funding needed.
5	River Drive Reconstruction. Project involves elevating River Drive as well as a portion of Poplar Ave. Reconstruct four stormwater outfalls as well as their up-stream stormwater inlets. The outfall structures will be fitted with a backflow prevention valve to prevent tidal waters from infiltration.	Medium	Flooding	Engineering				X	Lack of funding	X		Project has not changed. Funding needed.
6	Raise sanitary sewer pump stations, or vulnerable components thereof, and install permanent back-up generators.	Medium	Storm surge, flooding, hurricanes, tropical storms, nor'easters	Engineering			X		Currently rehabilitating one of the 10 City pump stations. This one is the most vulnerable being located next to the Patcong Creek. Pump station being raised and permanent generated being added.	X		Desire to upgrade additional pump stations in the future.

Hazard Mitigation Accomplishments (2016-2021)

The State of New Jersey 2019 HMP (Section 3, Page 3-30) requires identification of mitigation activities as an essential element of a local plan review. Information on the status of long-range mitigation strategies shall be contained in the original plan. Self-funded mitigation initiatives as well as past FEMA funded projects should be documented. The following table summarizes past mitigation accomplishments in City of Linwood since the last version of the plan was adopted in 2016.

Past Mitigation Accomplishments				
Project	Status		Funding Source	Relationship to Plan
	Approved/Active Year	Completed Year		
Sanitary Sewer Pump Station Rehabilitation	2020	2021	City Capital Funds	In the plan

Proposed 2022 Plan Mitigation Actions

The process for selection and prioritization of mitigation actions is described in greater detail in Section 6 of the main text. The outcomes of that overall process are summarized here.

This plan proposes the actions determined to be the most appropriate for the resources and capabilities of City of Linwood based on the experience of local officials, with input from the public and other stakeholders. Potential actions were reviewed relative to potential financial as well as administrative and legal costs and the degree to which they would be endorsed by the public. Potential actions were reviewed during the meetings relative to their potential benefit of effectiveness in saving lives, protecting the natural environment, and reducing disruption and damage. Actions selected by each jurisdiction include activities to protect existing and future structures and infrastructure and enhance community resilience.

Part of enhancing community resilience involves adapting to a changing climate. This plan's risk assessment includes information on climate change as part of the hazard vulnerability analysis and contain strategies/projects to address increased vulnerability that may result from climate change. By developing mitigating strategies and/or projects for hazards that are exacerbated by climate change, jurisdictions will better protect residents, avoid, or reduce damage to property and public infrastructure, and reduce personal hardship. Previous sections of this plan have presented information on how climate change may affect jurisdictional vulnerability or increased frequency of occurrence and/or severity in exposure to the identified hazards. Climate change is addressed by mitigating the various hazards that it exacerbates. City of Linwood has proposed a range of hazard mitigation initiatives to address their highest hazards including those hazards that are exacerbated by a changing climate.

Action priorities were determined by a qualitative prioritization process. A higher priority was assigned to projects where: the life/safety risk of taking no action was deemed to be unacceptably high; the project addresses one of the community's highest hazards and/or key risks; benefits were projected to equal or exceed project costs; critical facilities or key local assets were being protected; funding and staff resources were deemed to be sufficient and/or accessible for project implementation; the project is technically feasible and the community determined their legal authority to implement the action; negative environmental and/or social impacts were not identified during the assessment, or were very minimal; and/or where there was overall support for the project from the local community (government officials, public, and stakeholders).

Detailed Action Worksheets for each action item in the strategy are presented in the following pages.

Action Worksheet	
Your plan name	<i>Atlantic County Multi-jurisdictional Hazard Mitigation Plan</i>
Your community name	<i>Linwood</i>
Community action number	<i>1</i>
Assessing the Risk	
Hazard(s) addressed	<i>Flooding</i>
Risk finding	<i>Correct flooding to prevent hazards and future property and roadway damage</i>
Describing the Action	
Action category	<i>Structure and infrastructure</i>
Action type	<i>Drainage Improvement</i>
Action description	<i>Edgewood Avenue Drainage Improvements. Replace portions of storm drainage system with large capacity pipe and new storm drain inlets, and new head wall at the outfall at the end of Edgewood Ave.</i>
Existing, future &/or NA	<i>Action protects existing development and future development.</i>
Evaluating the Action	
Losses avoided (i.e., benefits)	<i>Benefits both the health of residents as well as preserve confidence in the current systems capabilities. A successful project will prevent future water damage to homes and roadways.</i>
Cost estimate	<i>\$900,000.00</i>
Cost effectiveness (i.e., benefit/cost)	<i>This project will alleviate flooding problems along portions of four municipal streets. Thereby eliminating future damage to properties and deterioration of roadways. Losses avoided outweigh the cost of action.</i>
Technical	<i>The mitigation action is technically feasible.</i>
Political	<i>There is support for this project by residents as well as political support.</i>
Legal	<i>City of Linwood</i>
Environmental	<i>The project will comply to environmental regulations.</i>
Social	<i>No disruption</i>
Administrative capability	<i>This project would be outsourced and managed by the City Engineer.</i>
Local champion	<i>City Council</i>
Other community objectives	<i>Supports environmental quality.</i>
Implementing the Action	
Priority	<i>High</i>
Local planning mechanism	<i>Capital improvement plan</i>
Responsible party	<i>Engineering</i>
Potential funding sources	<i>Grants, Capital Budget</i>
Time line	<i>2 years</i>
Reporting on Progress	
Action progress status	<i>Carried forward from the last version of the plan.</i>

Action Worksheet	
Your plan name	<i>Atlantic County Multi-jurisdictional Hazard Mitigation Plan</i>
Your community name	<i>Linwood</i>
Community action number	<i>2</i>
Assessing the Risk	
Hazard(s) addressed	<i>Flooding</i>
Risk finding	<i>Correct flooding to prevent hazardous conditions and future property and roadway damage</i>
Describing the Action	
Action category	<i>Structure and infrastructure</i>
Action type	<i>Drainage Improvement</i>
Action description	<i>Lincoln Avenue Drainage Improvements. Replace portions of storm drainage system with large capacity pipe on the down stream portion of the system. Replace storm drain inlets and new headwall at the outfall.</i>
Existing, future &/or NA	<i>Action protects existing development and future development.</i>
Evaluating the Action	
Losses avoided (i.e., benefits)	<i>Benefits both the health of residents as well as preserve confidence in the current systems capabilities. A successful project will prevent future water damage to homes and roadways as well as to the sanitary sewer pump located in the flood area.</i>
Cost estimate	<i>\$840,000.00</i>
Cost effectiveness (i.e., benefit/cost)	<i>This project will alleviate flooding problems along portions of four municipal streets. Thereby eliminating future damage to properties and deterioration of roadways and sanitary sewer pump station. Losses avoided outweigh the cost of action.</i>
Technical	<i>The mitigation action is technically feasible.</i>
Political	<i>There is support for this project by residents as well as political support of City Council.</i>
Legal	<i>City of Linwood</i>
Environmental	<i>The project will comply to environmental regulations. No adverse environmental impacts. Will help to improve flood control.</i>
Social	<i>No disruption</i>
Administrative capability	<i>This project would be outsourced and managed by the City Engineer.</i>
Local champion	<i>City Council</i>
Other community objectives	<i>Supports environmental quality.</i>
Implementing the Action	
Priority	<i>High</i>
Local planning mechanism	<i>Capital improvement plan</i>
Responsible party	<i>Engineering</i>
Potential funding sources	<i>Grants, Capital Budget</i>
Time line	<i>2 years</i>
Reporting on Progress	
Action progress status	<i>Carried forward from the last version of the plan.</i>

Action Worksheet	
Your plan name	<i>Atlantic County Multi-jurisdictional Hazard Mitigation Plan</i>
Your community name	<i>Linwood</i>
Community action number	3
Assessing the Risk	
Hazard(s) addressed	<i>Flooding</i>
Risk finding	<i>Correct flooding to prevent hazardous conditions and future property and roadway damage</i>
Describing the Action	
Action category	<i>Structure and infrastructure</i>
Action type	<i>Outfall drainage Improvement</i>
Action description	<i>Several locations; Sea Garden Drive, Bloom Site, Fallingwater & VanSant Ave, require construction of new head walls and installation of back flow prevention valves to prevent tidal waters from infiltrating the stormwater management system and retrofitting of the upstream stormwater inlets.</i>
Existing, future &/or NA	<i>Action protects existing development and future development.</i>
Evaluating the Action	
Losses avoided (i.e., benefits)	<i>Benefits both the health of residents as well as preserve confidence in the current systems capabilities.</i>
Cost estimate	<i>\$598,000.00</i>
Cost effectiveness (i.e., benefit/cost)	<i>Losses avoided outweigh the cost of action.</i>
Technical	<i>The mitigation action is technically feasible.</i>
Political	<i>There is support for this project by residents as well as political support of City Council.</i>
Legal	<i>City of Linwood</i>
Environmental	<i>The project will comply to environmental regulations. No adverse environmental impacts. Will help to improve flood control.</i>
Social	<i>No disruption</i>
Administrative capability	<i>This project would be outsourced and managed by the City Engineer.</i>
Local champion	<i>City Council</i>
Other community objectives	<i>Supports environmental quality.</i>
Implementing the Action	
Priority	<i>High</i>
Local planning mechanism	<i>Capital improvement plan</i>
Responsible party	<i>Engineering</i>
Potential funding sources	<i>Grants, Capital Budget</i>
Time line	<i>5 years</i>
Reporting on Progress	
Action progress status	<i>Carried forward from the last version of the plan.</i>

Action Worksheet	
Your plan name	<i>Atlantic County Multi-jurisdictional Hazard Mitigation Plan</i>
Your community name	<i>Linwood</i>
Community action number	<i>4</i>
Assessing the Risk	
Hazard(s) addressed	<i>Flooding</i>
Risk finding	<i>Correct flooding to prevent hazardous conditions and future property and roadway damage</i>
Describing the Action	
Action category	<i>Structure and infrastructure</i>
Action type	<i>Culvert replacement project</i>
Action description	<i>West Ave Culvert replacement. West Ave bisects a section of coastal marshlands along Patcong Creek. The marsh is tidally influenced and tidal water passes beneath West Ave through two 24-inch pipes comprising the "culvert." The project would replace the culvert including pipes and headwalls with larger diameter pipes to allow tidal and primarily flood waters to recede a quicker rate.</i>
Existing, future &/or NA	<i>Action protects existing development and future development.</i>
Evaluating the Action	
Losses avoided (i.e., benefits)	<i>Benefits both the health of residents as well as preserve confidence in the current systems capabilities.</i>
Cost estimate	<i>\$105,000.00</i>
Cost effectiveness (i.e., benefit/cost)	<i>Losses avoided outweigh the cost of action.</i>
Technical	<i>The mitigation action is technically feasible.</i>
Political	<i>There is support for this project by residents as well as political support of City Council.</i>
Legal	<i>City of Linwood</i>
Environmental	<i>The project will comply to environmental regulations. No adverse environmental impacts. Will help to improve flood control.</i>
Social	<i>No disruption</i>
Administrative capability	<i>This project would be outsourced and managed by the City Engineer.</i>
Local champion	<i>City Council</i>
Other community objectives	<i>Supports environmental quality.</i>
Implementing the Action	
Priority	<i>Medium</i>
Local planning mechanism	<i>Capital improvement plan</i>
Responsible party	<i>Engineering</i>
Potential funding sources	<i>Grants, Capital Budget</i>
Time line	<i>As funds available</i>
Reporting on Progress	
Action progress status	<i>Carried forward from the last version of the plan.</i>

Action Worksheet	
Your plan name	<i>Atlantic County Multi-jurisdictional Hazard Mitigation Plan</i>
Your community name	<i>Linwood</i>
Community action number	5
Assessing the Risk	
Hazard(s) addressed	<i>Flooding</i>
Risk finding	<i>Correct flooding to prevent hazardous conditions and future property and roadway damage</i>
Describing the Action	
Action category	<i>Structure and infrastructure</i>
Action type	<i>Flood prevention</i>
Action description	<i>River Drive Reconstruction. Project involves elevating River Drive as well as a portion of Poplar Ave. Reconstruct four stormwater outfalls as well as their up-stream stormwater inlets. The outfall structures will be fitted with a backflow prevention valve to prevent tidal waters from infiltration.</i>
Existing, future &/or NA	<i>Action protects existing development and future development.</i>
Evaluating the Action	
Losses avoided (i.e., benefits)	<i>Benefits both the health of residents as well as preserve confidence in the current systems capabilities.</i>
Cost estimate	<i>\$900,000.00</i>
Cost effectiveness (i.e., benefit/cost)	<i>Losses avoided outweigh the cost of action.</i>
Technical	<i>The mitigation action is technically feasible.</i>
Political	<i>There is support for this project by residents as well as political support of City Council.</i>
Legal	<i>City of Linwood</i>
Environmental	<i>The project will comply to environmental regulations. No adverse environmental impacts. Will help to improve flood control.</i>
Social	<i>No disruption</i>
Administrative capability	<i>This project would be outsourced and managed by the City Engineer.</i>
Local champion	<i>City Council</i>
Other community objectives	<i>Supports environmental quality.</i>
Implementing the Action	
Priority	<i>Medium</i>
Local planning mechanism	<i>Capital improvement plan</i>
Responsible party	<i>Engineering</i>
Potential funding sources	<i>Grants, Capital Budget</i>
Time line	<i>As funds available</i>
Reporting on Progress	
Action progress status	<i>Carried forward from the last version of the plan.</i>

Action Worksheet	
Your plan name	<i>Atlantic County Multi-jurisdictional Hazard Mitigation Plan</i>
Your community name	<i>Linwood</i>
Community action number	<i>6</i>
Assessing the Risk	
Hazard(s) addressed	<i>Storm surge, flooding, hurricanes, tropical storms, nor'easters</i>
Risk finding	<i>None of the City's ten sanitary sewer pump stations have auxiliary power and several are located in in the "A" flood zone. Flood waters make them inaccessible and power outage is major concern.</i>
Describing the Action	
Action category	<i>Structure and infrastructure</i>
Action type	<i>Protect Structures</i>
Action description	<i>Raise sanitary sewer pump stations, or vulnerable components thereof, and install permanent back-up generators.</i>
Existing, future &/or NA	<i>Existing and Future</i>
Evaluating the Action	
Losses avoided (i.e., benefits)	<i>Protects against pump station failures in the event of power loss and/or flooding. Benefits both the health of residents as well as preserves the confidence in the current system capabilities.</i>
Cost estimate	<i>\$498,000.00</i>
Cost effectiveness (i.e., benefit/cost)	<i>Losses avoided outweigh the cost of action.</i>
Technical	<i>The mitigation action is technically feasible.</i>
Political	<i>There is support for this project by residents as well as political support of City Council.</i>
Legal	<i>City of Linwood</i>
Environmental	<i>Elevating, waterproofing, and providing power source will help to eliminate adverse environmental impacts from failed operations of sewer pumps.</i>
Social	<i>No disruption</i>
Administrative capability	<i>This project would be outsourced and managed by the City Engineer.</i>
Local champion	<i>City Council</i>
Other community objectives	<i>Increased resiliency and minimize environmental impacts.</i>
Implementing the Action	
Priority	<i>Medium</i>
Local planning mechanism	<i>Capital improvement plan</i>
Responsible party	<i>Engineering</i>
Potential funding sources	<i>Grants, Capital Budget</i>
Time line	<i>As funds available</i>
Reporting on Progress	
Action progress status	<i>Carried forward from the last version of the plan.</i>

Action Worksheet	
Your plan name	<i>Atlantic County Multi-jurisdictional Hazard Mitigation Plan</i>
Your community name	<i>Linwood</i>
Community action number	<i>7</i>
Assessing the Risk	
Hazard(s) addressed	<i>Flooding</i>
Risk finding	<i>There is 1 property in Linwood identified by the NFIP as Repetitive Loss/Severe Repetitive Loss Properties</i>
Describing the Action	
Action category	<i>Structure</i>
Action type	<i>Investigate mitigation option for repetitive loss property</i>
Action description	<i>Identify location of RL property and communicate with owners for participation</i>
Existing, future &/or NA	<i>Existing</i>
Evaluating the Action	
Losses avoided (i.e., benefits)	<i>Future residential flood losses</i>
Cost estimate	<i>\$1,000,000</i>
Cost effectiveness (i.e., benefit/cost)	<i>Yes is cost effective</i>
Technical	<i>Yes project is feasible</i>
Political	<i>No apparent political issues</i>
Legal	<i>No apparent legal issues</i>
Environmental	<i>No environmental issues possible benefit with more open saves</i>
Social	<i>No social issues</i>
Administrative capability	<i>Linwood OEM, Building/Code Official</i>
Local champion	<i>Linwood OEM, Building/Code Official</i>
Other community objectives	<i>No</i>
Implementing the Action	
Priority	<i>Medium</i>
Local planning mechanism	<i>Linwood OEM, Building/Code Official</i>
Responsible party	<i>Linwood OEM, Building/Code Official, Mayor & Council</i>
Potential funding sources	<i>FEMA grants, City funding</i>
Time line	<i>5-10 years</i>
Reporting on Progress	
Action progress status	<i>New action</i>