



SOMERSET COUNTY

# HAZARD MITIGATION PLAN

## SOMERSET COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

FINAL PLAN UPDATE  
JULY 2019

[www.co.somerset.nj.us/hmp](http://www.co.somerset.nj.us/hmp)

### Section 9.12: Borough of Manville Annex

*Prepared by the Somerset County  
Mitigation Planning Committee*



## 9.12 Borough of Manville

This section presents the jurisdictional annex for the Borough of Manville (hereinafter referred to as Manville).

### 9.12.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Hazard Mitigation Plan Points of Contact					
Primary Point of Contact			Alternate Point of Contact		
Name: Honorable Richard Onderko, Mayor Address: 325 North Main Street Manville, New Jersey 08835 Phone Number: (908) 725-9478 x103 Fax Number: (908) 231-8620 E-mail Address: mayoronderko@manvillenj.org			Name: Vince LoMedico, Director of Public Works Address: 325 North Main Street Manville, New Jersey 08835 Phone Number: (908) 725-9478 x103 Fax Number: (908) 231-8620 E-mail Address: vlomedico@manvillenj.org		
Municipal HMP Committee Members					
Local Jurisdiction Role/Position	Name	Email	Phone	Date Notified About Mitigation Plan Development	Agreed to participate? (Yes/No)
Land Use/Community Planner	Stan Schrek	<a href="mailto:sschrek@vcea.org">sschrek@vcea.org</a>	908-625-0411	14-Aug-17	Y
Emergency Manager	Dave Kohler	<a href="mailto:dkohler@manvillenj.org">dkohler@manvillenj.org</a>	908-239-9086	14-Aug-17	Y
Floodplain Manager/ Floodplain Administrator	Andrea Bierwirth,CFM	<a href="mailto:abierwirth@manvillenj.org">abierwirth@manvillenj.org</a>	908-300-6402	14-Aug-17	Y
Public Works Director / City Engineer	Vince LoMedico	<a href="mailto:vlomedico@manvillenj.org">vlomedico@manvillenj.org</a>	732-803-5526	14-Aug-17	Y
Building Code Official	Jack Tamburini	na	908-347-3858	14-Aug-17	Y
Fiscal/Budget Officer				14-Aug-17	
Manager/Administrator	Andrea Bierwirth	<a href="mailto:abierwirth@manvillenj.org">abierwirth@manvillenj.org</a>	908-300-6402	14-Aug-17	Y
Elected Officials	Councilman Phil Petrone	<a href="mailto:ppetrone@manvillenj.org">ppetrone@manvillenj.org</a>	732-803-3322	14-Aug-17	Y
Other 1: fire marshal	Patrick Renaldi	<a href="mailto:prenaldi@manvillenj.org">prenaldi@manvillenj.org</a>	908-413-7511	14-Aug-17	Y
Other 2: deputy OEM	Officer William Yankoski	<a href="mailto:wyankoski@manvillepd.org">wyankoski@manvillepd.org</a>	732-522-0835	14-Aug-17	Y
Mitigation Consultant	Paul Miller TetraTech	<a href="mailto:paul.miller@tetratech.com">paul.miller@tetratech.com</a>	973-630-8344	14-Aug-17	Y

### 9.12.2 PROFILE

#### 9.12.2.1 POPULATION

The population of Manville is estimated to be 10,344, based on information gathered during the 2010 U.S. Census. Census population estimates as of July 2017 indicated a total population of 10,414.

#### 9.12.2.2 LOCATION

Manville is centrally located within the County of Somerset at the convergence of the Raritan and Millstone Rivers. Manville shares boundaries with Bridgewater Township to the north, Franklin Township to the east, and Hillsborough Township to the south and west. New York City is about 25 miles to the northeast.

#### 9.12.2.3 BRIEF History

Manville was incorporated in 1929. The Borough was named after the Johns Manville Corporation (JM) which established its manufacturing headquarters on over 300 acres of land along the Raritan River in the early 1900's.

#### 9.12.2.4 Governing Body Format

Manville is governed by the Borough form of government which consists of a mayor and six council members. Departments consist of Administration, Police, Public Works, Fire, Recreation and other State mandated departments. Numerous boards and commissions advise the mayor and council members on various public policy issues.

#### 9.12.2.5 GROWTH/Development Trends

The following table summarizes major residential/commercial development and major infrastructure development that are identified for the next five (5) years in the Borough (updated in 2018). Refer to the map in section 9.12.10) of this annex which illustrates the hazard areas along with the location of potential new development.

New Development/Potential Development in Municipality						
Property Name	Type (Residential or Commercial)	No. of Structures	Address	Block and Lot	Known Hazard Zone	Description /Status
Rustic Mall	Commercial	Unknown	South Main Street	Block 310.01 Lots 2.01 and 2.02	None	Redevelopment Project

The Borough's Floodplain Management Ordinance will work to protect new development from the effects of natural hazards.

### 9.12.3 NATURAL HAZARD EVENT HISTORY SINCE 2014

Somerset County has a history of natural hazard events as detailed in Section 5.0 of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities. The table below presents a summary of events that have occurred since the 2014 HMP to indicate the range and impact of natural hazard events affecting this community. Information regarding specific damages is included if available based on reference material or local sources. For details of events prior to 2014, refer to Section 5.0 of this plan.

Natural Hazard Event History (2014 to present)				
Type of Event	FEMA Disaster # (if applicable)	County Designated?	Date	Approximate Damage Assessment
Cold/Wind Chill	N/A	N/A	January 4, 2014	No local damage reported
Strong Wind	N/A	N/A	January 6, 2014	No local damage reported
Flood	N/A	N/A	January 6, 2014	No local damage reported
Cold/Wind Chill	N/A	N/A	January 7, 2014	No local damage reported
Cold/Wind Chill	N/A	N/A	January 22, 2014	No local damage reported
Winter Storm	N/A	N/A	February 12, 2014	No local damage reported
Flood	N/A	N/A	February 22, 2014	No local damage reported
Strong Wind	N/A	N/A	March 12, 2014	No local damage reported
Flood	N/A	N/A	March 30, 2014	No local damage reported
Flood	N/A	N/A	April 1, 2014	No local damage reported
Thunderstorm Wind	N/A	N/A	April 15, 2014	No local damage reported
Flood	N/A	N/A	April 15, 2014	No local damage reported
Flood	N/A	N/A	April 30, 2014 to May 1, 2014	No local damage reported
Thunderstorm Wind	N/A	N/A	May 10, 2014	No local damage reported
Earthquake, Magnitude 1.9, 6 km N of Boonton (Montville Twp.)	N/A	N/A	May 31, 2014	No local damage reported
Earthquake, Magnitude 1.0, 13 km SW of Ramblewood, NJ (Laurel Springs Boro.)	N/A	N/A	June 19, 2014	No local damage reported
Thunderstorm Wind	N/A	N/A	July 2, 2014	No local damage reported
Heat	N/A	N/A	July 2, 2014	No local damage reported
Thunderstorm Wind	N/A	N/A	July 3, 2014	No local damage reported
Flash Flood	N/A	N/A	July 3, 2014	No local damage reported
Thunderstorm Wind	N/A	N/A	July 8, 2014	No local damage reported
Earthquake, Magnitude 1.6, 3 km W of Jersey City, NJ (Kearny Town)	N/A	N/A	July 8, 2014	No local damage reported

Natural Hazard Event History (2014 to present)				
Type of Event	FEMA Disaster # (if applicable)	County Designated?	Date	Approximate Damage Assessment
Flood	N/A	N/A	July 16, 2014	No local damage reported
Earthquake, Magnitude 1.2, 4 km SW of Ringwood, NJ (Ringwood Boro.)	N/A	N/A	July 28, 2014	No local damage reported
Flash Flood	N/A	N/A	August 21, 2014	No local damage reported
Earthquake, Magnitude 1.3, 2 km S of Park Ridge, NJ (Woodcliff Lake Boro.)	N/A	N/A	September 3, 2014	No local damage reported
Flood	N/A	N/A	December 9, 2014	No local damage reported
Earthquake, Magnitude 1.9, 13 km SE of Twin Rivers, NJ (Millstone Twp.)	N/A	N/A	December 13, 2014	No local damage reported
Earthquake, Magnitude 1.5, 2 km SW of Clifton, NJ (Bloomfield Twp.)	N/A	N/A	December 28, 2014	No local damage reported
Cold/Wind Chill	N/A	N/A	January 7, 2015	No local damage reported
Flood	N/A	N/A	January 18, 2015	No local damage reported
Strong Wind	N/A	N/A	February 2, 2015	No local damage reported
Cold/Wind Chill	N/A	N/A	February 13, 2015	No local damage reported
Strong Wind	N/A	N/A	February 15, 2015	No local damage reported
Cold/Wind Chill	N/A	N/A	February 15, 2015	No local damage reported
Cold/Wind Chill	N/A	N/A	February 16, 2015	No local damage reported
Cold/Wind Chill	N/A	N/A	February 20, 2015	No local damage reported
Cold/Wind Chill	N/A	N/A	February 24, 2015	No local damage reported
Flood	N/A	N/A	March 11, 2015	No local damage reported
Flood	N/A	N/A	March 14, 2015	Runoff from additional rainfall combined with snowmelt caused minor flooding along the Millstone River from the afternoon of the 14th through the morning of the 16th. Event precipitation totals included 0.87 inches in Manville.
Earthquake, Magnitude 1.2, 2 km SW of Clifton, NJ (Bloomfield Twp.)	N/A	N/A	March 27, 2015	No local damage reported
Strong Wind	N/A	N/A	April 4, 2015	No local damage reported
Flash Flood	N/A	N/A	May 31, 2015	No local damage reported

Natural Hazard Event History (2014 to present)				
Type of Event	FEMA Disaster # (if applicable)	County Designated?	Date	Approximate Damage Assessment
Earthquake, Magnitude 1.2, 2 km N of Wanaque, NJ (Ringwood Boro.)	N/A	N/A	July 12, 2015	No local damage reported
Heat	N/A	N/A	July 19, 2015	No local damage reported
Earthquake, Magnitude 2.7, 3.5 km N of Bernardsville, NJ (Bernardsville Boro.)	N/A	N/A	August 14, 2015	No local damage reported
Flash Flood	N/A	N/A	August 19, 2015	No local damage reported
Flood	N/A	N/A	August 19, 2015	No local damage reported
Earthquake, Magnitude 1.4, 5 km WNW of Fairfield, NJ (Fairfield Twp.)	N/A	N/A	August 22, 2015	No local damage reported
Drought and Excessive Heat	N/A	N/A	April 2015 – September 2015	No local damage reported
Combined effects of freeze, excessive heat, and drought	N/A	N/A	April 2016 – September 2016	No local damage reported
Earthquake, Magnitude 2.1, 2.4 km NW of Ringwood, NJ (Ringwood Boro.)	N/A	N/A	January 2, 2016	No local damage reported
Severe Winter Storm and Snowstorm (Blizzard)	DR-4264	Yes	January 22-24, 2016	No local damage reported
Earthquake, Magnitude 1.1, 1.1 km NW of Butler, NJ (Bloomingdale Boro.)	N/A	N/A	February 19, 2016	No local damage reported
Flash Flood	N/A	N/A	February 24, 2016	No local damage reported
Thunderstorm Wind	N/A	N/A	April 2, 2016	A microburst produced wind gusts up to 65 MPH, causing sporadic damage along a line from Raritan southeast through southern Manville.
Earthquake, Magnitude 0.8, 4.4 km N of Butler, NJ (Bloomingdale Boro.)	N/A	N/A	May 27, 2016	No local damage reported
Lightning	N/A	N/A	June 8, 2016	No local damage reported
Thunderstorm Wind	N/A	N/A	June 8, 2016	No local damage reported
Lightning	N/A	N/A	June 28, 2016	No local damage reported
Thunderstorm Wind	N/A	N/A	June 28, 2016	No local damage reported



Natural Hazard Event History (2014 to present)				
Type of Event	FEMA Disaster # (if applicable)	County Designated?	Date	Approximate Damage Assessment
Earthquake, Magnitude 1.1, 1 km NW of Butler, NJ (Butler Boro.)	N/A	N/A	July 4, 2016	No local damage reported
Heavy Rain	N/A	N/A	July 8, 2016	No local damage reported
Flood	N/A	N/A	July 8, 2016	No local damage reported
Thunderstorm Wind	N/A	N/A	July 18, 2016	No local damage reported
Thunderstorm Wind	N/A	N/A	July 25, 2016	No local damage reported
Thunderstorm Wind	N/A	N/A	July 25, 2016	No local damage reported
Thunderstorm Wind	N/A	N/A	July 25, 2016	No local damage reported
Flood	N/A	N/A	July 25, 2016	No local damage reported
Heavy Rain	N/A	N/A	July 30, 2016	No local damage reported
Heavy Rain	N/A	N/A	July 31, 2016	No local damage reported
Heavy Rain	N/A	N/A	July 31, 2016	No local damage reported
Heavy Rain	N/A	N/A	July 31, 2016	No local damage reported
Heavy Rain	N/A	N/A	July 31, 2016	No local damage reported
Heavy Rain	N/A	N/A	July 31, 2016	No local damage reported
Heavy Rain	N/A	N/A	July 31, 2016	No local damage reported
Flash Flood	N/A	N/A	July 31, 2016	No local damage reported
Earthquake, Magnitude 0.8, 2.2 km SW of Clifton, NJ (Bloomfield Twp.)	N/A	N/A	July 31, 2016	No local damage reported
Earthquake, Magnitude 1.0, 2 km N of Wanaque, NJ (Wanaque Boro.)	N/A	N/A	August 9, 2016	No local damage reported
Earthquake, Magnitude 0.5, 1 km N of Butler, NJ (Bloomingdale Boro.)	N/A	N/A	August 9, 2016	No local damage reported
Earthquake, Magnitude 0.6, 5 km NE of Wanaque, NJ (Ringwood Boro.)	N/A	N/A	September 20, 2016	No local damage reported
Earthquake, Magnitude 1.5, 2.6 km W of Belmar, NJ (Westville Boro.)	N/A	N/A	November 6, 2016	No local damage reported
Earthquake, Magnitude 2.0, 16.3 km E of Highlands, NJ (Middletown Twp.)	N/A	N/A	November 6, 2016	No local damage reported

Natural Hazard Event History (2014 to present)				
Type of Event	FEMA Disaster # (if applicable)	County Designated?	Date	Approximate Damage Assessment
Earthquake, Magnitude 1.31, 1.4 km S Morris Plains, NJ (Morris Plains Boro.)	N/A	N/A	March 25, 2017	No local damage reported
Flood	N/A	N/A	March 31, 2017	No local damage reported
Hail	N/A	N/A	May 14, 2017	No local damage reported
Hail	N/A	N/A	May 31, 2017	No local damage reported
Flood	N/A	N/A	June 24, 2017	No local damage reported
Flood	N/A	N/A	July 22, 2017	No local damage reported
Flood	N/A	N/A	August 22, 2017	No local damage reported
Flood	N/A	N/A	August 22, 2017	No local damage reported
Heavy Rain	N/A	N/A	August 23, 2017	No local damage reported
Earthquake, Magnitude 1.71, 3.7 km SW of Morris Plains, NJ (Morris Twp.)	N/A	N/A	September 25, 2017	No local damage reported
Earthquake, Magnitude 0.98, 2.7 km SW of Morris Plains, NJ (Morris Twp.)	N/A	N/A	September 30, 2017	No local damage reported
Flood	N/A	N/A	October 29, 2017	No local damage reported
Earthquake, Magnitude 1.38, 3.5 km NW of Keansburg, NJ (Keansburg Boro.)	N/A	N/A	November 8, 2017	No local damage reported
Severe Winter Storm and Snowstorm (Blizzard)	DR-4368	Yes	March 6, 2018	Although all portions of the county experienced significant snowfall from this event, the higher amounts (around one and one half feet) occurred in the eastern sections of the county closer to the off shore low pressure system. Thundersnow also occurred in a few locations.

Note:

DR = Major Disaster Declaration

EM = Emergency Declaration

N/A = Not applicable



**9.12.4 NATURAL HAZARD RISK/VULNERABILITY RISK RANKING**

The table below summarizes the vulnerability risk rankings of potential hazards of the Borough of Manville (updated in 2018).

Natural Hazard Risk/Vulnerability Risk Ranking				
Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard <sup>a, c</sup>	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking <sup>b</sup>
Flood	1% Annual Chance: \$76,300,000 0.2% Annual Chance: \$135,800,000	Frequent	33	High
Severe Storm	100-Year MRP: \$740,922 500-Year MRP: \$4,229,884 Annualized Loss: \$37,206	Frequent	39	High
Severe Winter Storm	1% of GBS: \$13,090,650 5% of GBS: \$65,453,250	Frequent	27	Medium
Earthquake	500-Year MRP: \$1,793,640 2,500-Year MRP: \$26,759,802 Annualized Loss: \$27,404	Occasional	16	Low <sup>g</sup>
Drought	Not available	Occasional	12	Low
Extreme Temperature	Not available	Frequent	27	Medium
Wildfire	Not available	Occasional	12	Low

## Note

- Building damage ratio estimates based on FEMA 386-2 (August 2001)
- The valuation of general building stock and loss estimates was based on custom inventory for Somerset County.
- High = Total hazard priority risk ranking score of 31 and above  
Medium = Total hazard priority risk ranking of 15-30  
Low = Total hazard risk ranking below 15
- Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.
- Loss estimates for the flood and earthquake hazards represent both structure and contents.
- The HAZUS-MH earthquake model results are reported by Census Tract.
- This rank was adjusted based on qualitative input from county/jurisdictional representatives due to hazard event history and other municipality-specific considerations.

### 9.12.5 CAPABILITY ASSESSMENT

This section describes the following capabilities of the local jurisdiction:

- Legal and regulatory capability;
- Administrative and technical capability;
- Fiscal capability;
- Community resiliency;
- Community political capability; and
- Community classification.

### 9.12.5.1 Legal and Regulatory Capability

The table below summarizes the regulatory tools that are available to Manville. The Borough reviewed its responses from the 2014 HMP and has updated any information that has changed since that time.

Legal and Regulatory Capability			
Regulatory Tools (Codes, Ordinances, Plans)	Do you have this? (Y or N)	Enforcement Authority	Code Citation (Section, Paragraph, Page Number, Date of Adoption)
1) Building Code	Y	Code	International Building Code – New Jersey Edition,; 2/20/07
2) Zoning Ordinance	Y	Code	Ordinance #643; 10/1987; 3/14/2011 Latest Revision
3) Subdivision Ordinance	Y	Code	Ordinance #642; 10/1987; 2/25/2008 Latest Revision
4) NFIP Flood Damage Prevention Ordinance	Y	Code	Flood Damage Prevention Ordinance #2016-1175
4a) Cumulative Substantial Damages	Y	Code	-
4b) Freeboard	Y	Code	-
5) Growth Management	Y	Planning Board	See Zoning Ordinance
6) Floodplain Management / Basin Plan	Y	Code	Flood Damage Prevention Ordinance #2016-1175
7) Stormwater Management Plan/Ordinance	Y	Engineer DPW	Ordinance 1031; 4/24/06
8) Comprehensive Plan / Master Plan/ General Plan	Y	Planning Board	Master Plan; 2006
9) Capital Improvements Plan	Y	Mayor & Council	-
10) Site Plan Review Requirements	Y	Engineer	Ordinance #642; 10/1987; 2/25/2008 Latest Revision
11) Open Space Plan	N	-	-
12) Stream Corridor Management Plan	N	-	-
13) Watershed Management or Protection Plan	N	-	-
14) Economic Development Plan	N	-	-
15) Comprehensive Emergency Management Plan	Y	OEM	-

Legal and Regulatory Capability			
Regulatory Tools (Codes, Ordinances, Plans)	Do you have this? (Y or N)	Enforcement Authority	Code Citation (Section, Paragraph, Page Number, Date of Adoption)
16) Emergency Response Plan	Y	OEM	Emergency Operations Plan; June 2017
17) Post-Disaster Recovery Plan	N	-	-
18) Post-Disaster Recovery Ordinance	N	-	-
19) Real Estate Disclosure Requirement	Y	-	State Law
20) Other (Special Purpose Ordinances such as critical or sensitive areas)	Y	-	Abandoned Homes Ordinance

**9.12.5.2 Administrative and Technical Capability**

The table below summarizes potential staff and personnel resources available to Manville. The Borough reviewed its responses from the 2014 HMP and has updated any information that has changed since that time.

Administrative and Technical Capability		
Staff / Personnel Resources	Available (Y or N)	Department / Agency / Position
1) Planner(s) or Engineer(s) with knowledge of land development and land management practices	Y	Stan Schrek PE, Borough Engineer
2) Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Stan Schrek PE, Borough Engineer
3) Planners or engineers with an understanding of natural hazards	Y	Stan Schrek PE, Borough Engineer
4) NFIP Floodplain Administrator	Y	Andrea Bierwirth, CFM, Boro. Administrator
5) Surveyor(s)	Y	Contract
6) Personnel skilled or trained in GIS applications	Y	Contract
7) Scientist familiar with natural hazards	Y	Contract
8) Emergency Manager	Y	Dave Kohler, Director OEM
9) Grant Writer(s)	Y	Paul Miller, TetraTech
10) Staff with expertise or training in benefit/cost analysis	Y	Paul Miller, TetraTech

### 9.12.5.3 Fiscal Capability

The table below summarizes financial resources available to Manville. The Borough reviewed its responses from the 2014 HMP and has updated any information that has changed since that time.

Fiscal Capability	
Financial Resources	Accessible or Eligible to use (Yes/No/Don't know)
1) Community Development Block Grants (CDBG)	Y, Administration
2) Capital Improvements Project Funding	Y, Administration
3) Authority to levy taxes for specific purposes	N
4) User fees for water, sewer, gas or electric service	Y, Administration
5) Impact fees for homebuyers or developers of new development/homes	Y, Administration
6) Incur debt through general obligation bonds	Y, Administration
7) Incur debt through special tax bonds	Y, Administration
8) Incur debt through private activity bonds	N
9) Withhold public expenditures in hazard-prone areas	N
10) State mitigation grant programs	Y, Administration
11) Other	-



#### 9.12.5.4 Overall Capabilities

The Borough of Manville’s 2018 assessment of its overall capabilities to implement hazard mitigation strategies in each of the above categories, in addition to its assessment of how these capabilities could be expanded and/or improved to reduce risk is presented in the table below.

Overall legal and regulatory capability to implement hazard mitigation strategies	Overall technical capability to implement hazard mitigation strategies	Overall fiscal capability to implement hazard mitigation strategies	Overall administrative capability to implement hazard mitigation strategies	Community’s willingness to enact policies and programs that reduce hazard vulnerabilities
Low	Low	Low	Moderate	High
<b>How these capabilities can be expand and/or improved to reduce risk</b>				
The Borough of Manville has become an economically distressed community due to repeated flood events and participation in NJ Blue Acres buyout program. Experiencing a significant loss of tax ratables. We need more aid in terms of FEMA grants, state Blue Acre buyouts and county funding for mitigation purposes.				

#### 9.12.5.5 Community Classifications

The table below summarizes classifications for community programs available to the Borough of Manville. The Borough reviewed its responses from the 2014 HMP and has updated any information that has changed since that time.

Community Classifications		
Program	Classification	Date Classified
Community Rating System (CRS)	7	2014
Building Code Effectiveness Grading Schedule (BCEGS)	-	-
Public Protection	-	-
Storm Ready	Yes	2007
Firewise	-	-

Notes:

- = Unavailable

N/A = Not applicable

NP = Not participating

\* CRS Ranking as of October 2017

The classifications listed above relate to Manville’s ability to provide effective services to lessen its vulnerability to the natural 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 1,000 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/0000/ppc0001.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/>

### **9.12.6 MITIGATION STRATEGY**

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

#### **9.12.6.1 Past Mitigation Actions/Status**

The status of all 2014 HMP initiatives was evaluated by the Borough of Manville in 2018 and is presented in the following table. The community has indicated that local priorities have not changed since the last version of the plan.

2014 HMP Initiative #	Mitigation Initiative Description	2014 HMP 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	
MV1	Continue to support the construction of major flood control structures including levees, dykes, and flood walls along the Millstone and Raritan Rivers, included as part of the USACE Feasibility Study.	High	Flood	USACE	X				Army Corps of Engineers has determined "cost to benefit" ratios to be unfavorable for construction. Study completed.		X	Army Corps of Engineers has finished study.
MV2	Continue to support acquisition of final 15 homes within the three blocks removed since Hurricane Floyd	High	Flood	Borough Administration; Consultant; NJOEM; Borough Attorney	X				Homes removed from flood plain.		X	15 homes removed from flood plain. Project closed out with FEMA.
MV3 (MV2)	Elevate Structures in flood prone areas along Millstone River and Raritan Rivers, especially repetitive loss properties including, but not limited to, those referred to in MV2 above.	High	Flood	Borough Administration				X	4 elevations have been completed to date.	X		Borough to develop public outreach information for homeowners about grant availability for elevations
MV4 (MV3)	Buy out of structures in Valley section closest to Millstone River particularly Blocks 288, 289 & 298 As well as structures along the Raritan River.	High	Flood	Borough Administration				X	Actively participating in Blue Acres and FMA buyout grants.	X		No changes



2014 HMP Initiative #	Mitigation Initiative Description	2014 HMP 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	
MV5 (MV4)	Relocate DPW out Flood Hazard Zone	High	Flooding	Borough Administration;				X	Relocation or flood protection required	X		No changes
MV6 (MV5)	Construct Pump Station at Railroad Underpass on North Main Street	H	Flooding	Somerset County; Borough Administration				X	County owned roadway, need engineering study		X	Underpass floods and hinders emergency response. It is a county roadway and should be a county project.
MV7 (MV7)	Provide backup power at vital critical facilities including Borough Hall and the OEM building	H	All	Borough Administration				X	Need to apply for FEMA grant (library also)	X		No changes
MV8 (MV8)	Retrofit VFW building which is our shelter facility with backup power, renovated bathrooms with shower facilities, parking lot improvements, supply of cots and blankets.,	H	All	Borough Administration	X				Trailer based power generator acquired, transfer switch installed, cots and blankets acquired. Private facility, no grants available.	X		No changes

2014 HMP Initiative #	Mitigation Initiative Description	2014 HMP 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	
MV9 (MV9)	Continue to develop, enhance and implement existing emergency response	L	All	OEM; Police; Fire; Rescue			X		Manville OEM emergency operations plan (EOP) submitted and approved by Somerset County OEM.		X	Plans updated and approved in 2017.
MV10 (MV11)	Test and Evaluate a COOP/COG	L	All	Borough Administration				X	funding and personnel issues	X		No changes
MV11 (MV12)	Participate in CRS	H	Flooding	Borough Administration			X		Active in CRS, rating 7, trying for a 5. Recertification on-going.	X		No changes
MV12 (MV14)	Evaluate, improve, and develop new evacuation routes	M	All	OEM; Police; Fire; Rescue				X	funding budget issues	X		No changes





2014 HMP Initiative #	Mitigation Initiative Description	2014 HMP 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	
MV13	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: 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.	High	All Hazards	Municipality with support from Planning Partners, County Planning, NJOEM, FEMA			X		Residents notified via Borough website, community newspaper, DPW community calendar and letters sent directly to homes within our flood plains. Borough administrator is now a Certified Floodplain Manager (CFM)	X		No changes

2014 HMP Initiative #	Mitigation Initiative Description	2014 HMP 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	
MV14	Incorporate ordinances and/or zoning restrictions to control and mitigate future development in hazard areas, specifically as identified in Section 9.12.11.	Medium	All Hazards	Municipality with support from County, NJOEM and FEMA	X				Flood damage prevention ordinance was updated in 2016 and is in effect. Land use ordinances under review for codification.		X	Ordinances adopted; existing capability
MV15	Improve communication systems: transfer town municipal police dispatch system to County control,	Medium	All Hazards	Municipality with support from County, NJOEM and FEMA	X				Conversion to county dispatch completed.		X	Transfer completed.
MV16	Develop programs/procedures to capture and archive loss data from events. Examples include: 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).	Medium	All Hazards	Municipality with support from County, NJOEM and FEMA				X	Funding and personnel issues	X		No changes

2014 HMP Initiative #	Mitigation Initiative Description	2014 HMP 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	
MV17	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: 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.	Medium	All Hazards	Hazard Mitigation Plan Coordinator			X		This is an administrative function of the Borough.	X	The Borough will continue to support the County and State with mitigation actions and projects.	

2014 HMP Initiative #	Mitigation Initiative Description	2014 HMP 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	
MV18	<ul style="list-style-type: none"> <li>Support the performance of enhanced risk and vulnerability assessments for hazards of concern.</li> </ul>	High	All Hazards	Municipality with support from County Emergency Management	X				Borough had completed updates of annexes and EOP was accepted by County in 2017.		X	Discontinue as this is an administrative function and requirement for the Borough, existing capability.
MV19	<ul style="list-style-type: none"> <li>Support state, county and local planning efforts including mitigation (including updates to the State HMP), comprehensive emergency management, debris management, and land use.</li> </ul>	Medium	All Hazards	Municipality with support from County, NJOEM and FEMA	X				Borough had relationships with contractors and NJOEM and County for support post disaster.		X	Borough has relationships with contractors and NJOEM and County for support post disaster; existing capability
MV20	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.	Medium	All Hazards	Municipality with support from County, NJOEM and FEMA				X	No progress. Borough to initiate contact with County regarding training.	X		No changes



2014 HMP Initiative #	Mitigation Initiative Description	2014 HMP 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	
MV21 (MV15)	Continue to support the implementation, monitoring, maintenance, and updating of this Plan (through participating in the 5 year Plan Update), as defined in Section 7.0	High	All Hazards	Municipality with support from Planning Partners,					Active participant in plan updating.			No changes
MV22	Purchase, relocate, or elevate structures located in hazard-prone areas to protect structures from future damage, with initiatives MV 2, MV3, and MV4, as well as any repetitive loss and severe repetitive loss properties, as priority. Phase 1: Identify appropriate candidates based on cost-effectiveness. 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.	Medium	Flood,	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from County Planning, NJOEM, FEMA			X		FMA Flood Planning Grant near completion. Need to move critical facilities out of flood plains via FEMA grants. DPW, fire company #1 and Manville Rescue Squad buildings top priority.	X		No changes



2014 HMP Initiative #	Mitigation Initiative Description	2014 HMP 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	
MV23 (MV16)	Maintain compliance with and good-standing in the NFIP including adoption and enforcement of floodplain management requirements (e.g. regulating all new and substantially improved construction in Special Hazard Flood Areas), floodplain identification and mapping, and flood insurance outreach to the community. Further, continue to meet and/or exceed the minimum NFIP standards and criteria through the following NFIP-related continued compliance actions identified as Initiatives below.	High	Flood, Severe	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from NJOEM, FEMA			X		Active participant in Community Rating System (CRS). Administrative function of the Borough of Manville.		X	Active CRS community; existing capability.
MV24	Obtain and archive elevation certificates	High	Flood, Severe Storm	NFIP Floodplain Administrator			X		Required action under CRS.		X	CRS requirement; existing capability
MV25	Promote the participation of Floodplain Administrator (Borough construction official) within the planning process and other activities.	Medium	Flood	Municipality with support from County, NJOEM and FEMA	X				FPA is now part of the planning process. A CFM is now on staff and is also part of the planning process.		X	FPA is part of the planning process. A CFM is now on staff and is also part of the planning process.



2014 HMP Initiative #	Mitigation Initiative Description	2014 HMP 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	
MV26	Enhance the County/community resilience to severe storms (incl. severe winter storms) by joining the NOAA "Storm Ready" program and supporting communities in joining the program.	Medium	Severe Storm	Municipality with support from County, NJOEM and FEMA		X			Borough Administration is researching Storm Ready requirements and will bring before the Council a recommendation.	X		Borough Administration is researching Storm Ready requirements and will bring before the Council a recommendation.
MV27	Adopt regulations for undergrounding utilities in new developments.	H	Severe Storm	Municipal Council				X	No major development has been undertaken. As new development is approved, underground utilities will be considered and researched.	X		No changes
MV28	Implement permit fee waivers for installation of backup power for private property.	H	Severe Storm	Municipal Council				X	Need fee ordinance modification for permit waivers due to flood/storm resiliency issues.	X		No changes

2014 HMP Initiative #	Mitigation Initiative Description	2014 HMP 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	
MV29	Provide public education and outreach on proper installation and/or use of backup power	H	Severe Storm	Municipal Clerk				X	Develop literature to be placed on Borough website.	X		No changes
MV30	Implement, review, and enforce municipal policies and programs to prevent trees from threatening lives and impacting power availability/interruption.	H	Severe Storm	Municipal Code Enforcement			X		Borough had procedures to address hazardous trees via Shade Tree Commission and Dept. of Public Works.		X	DPW and shade tree commission on-going responsibility. Borough has procedures to address hazardous trees; existing capability

### 9.12.6.2 Hazard Vulnerabilities Identified

The Borough has identified severe flooding within the 100 year flood zones of both the Raritan River and Millstone River. Extensive damage has been recorded to residential buildings, commercial structures, parklands, roadways, and other public infrastructure.

It is estimated that in Manville, 1,268 residents live within the 1% annual chance flood area (NFIP Special Flood Hazard Area). \$497,401,000 (29.0%) of the municipality's general building stock replacement cost value (structure and contents) is located within the 1% annual chance flood area.

There are 436 NFIP policies in the community and there are 241 policies located within the 1% annual chance flood area. FEMA has identified 323 Repetitive Loss (RL) properties including 23 Severe Repetitive Loss (SRL) properties in the municipality.

HAZUS-MH estimates that for a 1% annual chance flood, \$76,300,000 (4.44%) of the municipality's general building stock replacement cost value (structure and contents) will be damaged; 1,709 households may be displaced; 1,189 people may seek short-term sheltering; and an estimated 5,054 tons of debris could be generated.

Further information regarding the summary of the community's participation in the NFIP is provided in the table below.

NFIP Summary								
Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 1% Boundary (3)	# Policies in 0.2% - Boundary (3)	# Policies Outside the 0.2% Flood Hazard (3)
Manville (B)	436	1,504	\$48,971,590	323	23	241	52	143

Source:

- (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA Region 2 via NJDEP in August 2017 and are current as of March 31, 2017. Please note the total number of repetitive loss properties includes the severe repetitive loss properties.
- (2) Information regarding total building and content losses was gathered from the claims file provided by FEMA Region 2 (current as of Borough of Manville).
- (3) The policy locations used are based on the latitude and longitude provided by FEMA Region 2.

HAZUS-MH critical facility damage estimates for Manville are provided below.

Critical Facility Damage Estimate										
Name	Municipality	Type	Exposure		Potential Loss from 1% Flood Event			Potential Loss from 0.2% Flood Event		
			1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage	Days to 100-Percent <sup>(1)</sup>	Percent Structure Damage	Percent Content Damage	Days to 100-Percent <sup>(1)</sup>
Manville Rescue Squad	Manville (B)	Fire		x	-	-	-	11.7	49.0	480
Fire Company No. 1	Manville (B)	Fire		x	-	-	-	11.5	46.3	480
Emmanuel Baptist Church	Manville (B)	Shelter		x	-	-	-	11.0	76.9	NP
Manville Senior Center	Manville (B)	Shelter		x	-	-	-	12.0	66.4	NP
Manville American Legion	Manville (B)	Shelter	x	x	6.5	27.1	NP	14.1	44.1	NP
Manville Borough Hall	Manville (B)	Town Hall		x	-	-	-	-	-	-
Manville Pump House	Manville (B)	County	x	x	15.0	100.0	NP	23.1	100	NP
DPW	Manville (B)	DPW	x	x	23.6	22.6	NP	46.0	58.2	NP

Source: HAZUS-MH 4.0

Notes:

- = No loss (calculated by HAZUS-MH 4.0)
- X = Facility located within the DFIRM boundary.
- DFIRM = Digital Flood Insurance Rate Map
- NA = Not available
- B = Borough
- DPW = Department of Public Works

- (1) HAZUS-MH 4.0 provides a general indication of the maximum restoration time for 100% operations. Clearly, a great deal of effort is needed to quickly restore essential facilities to full functionality; therefore, this will be an indication of the maximum downtime (HAZUS-MH 4.0 User Manual).
- (2) Please note in some cases, a facility may be located in the DFIRM flood hazard boundary; however HAZUS did not calculate potential loss. This may be because the depth of flooding does not amount to any damages to the structure according to the depth damage function used in HAZUS for that facility type.
- (3) Municipal officials noted that the Manville American Legion is not a primary shelter, and is not used as a shelter for flood events. In addition, the Manville Pump House has already been elevated, and the DPW is partially elevated.

Please refer to the Hazard Profiles in Section 5 of this plan for additional vulnerability information relevant to this jurisdiction.

## 9.12.7 PROPOSED HAZARD MITIGATION INITIATIVES

The list below represents a summary of community mitigation initiatives developed in 2018 as part of the most recent plan update. The Borough of Manville has identified no changes in local priorities since the last version of the plan in 2014. Detailed Action Worksheets are included only for NEW Mitigation Actions/Projects. Some of the identified mitigation initiatives in the table below 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. Please note that the Borough has opted to carry forward legacy initiative numbers from the 2014 and 2009 plans, respectively, for internal municipal tracking purposes, formatted as: “2019# [2014# (2009#)]”.

Proposed Hazard Mitigation Initiatives														
2019 Initiative Number	Initiative Name	Initiative Description	New Initiative Or Carried Forward	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	2018 Action Status
MV1 [MV3 (MV2)]	Elevation of Flood Prone Structures	Elevate structures in flood prone areas along Millstone and Raritan Rivers especially repetitive loss properties.	Carried Forward	Existing	Flood	4	Borough Administration	High	High	HMGP, FMA, PDM, owner share	Short	High	Action/Project, PP	Ongoing; 4 elevations have been completed to date.
MV2 [MV4 (MV3)]	Acquisition Action Plan – Buyouts	Additional buyouts of homes within our flood plains. 5 year plan to acquire 40 homes per year.	Carried Forward	Existing	Flood	4	Borough Administration	High	High	HMGP, FMA, PDM, owner share	Short	High	Action/Project, PP	Ongoing; Actively participating in Blue Acres and FMA buyout grants.
MV3 [MV5 (MV4)]	Relocate DPW Garages Out Of Floodplain	To make our DPW and town more storm resilient, DPW garages and equipment need to be relocated out of the AE flood zone.	Carried Forward	Existing	Flooding	4,6,7	Borough Administration;	High	High	HMGP	Short	High	Action/Project, PP	Not initiated; relocation or flood protection required.
MV4 [MV7 (MV7)]	Backup power via generators at critical facilities	Provide backup power at vital critical facilities including Borough Hall, the OEM building and our designated warming/cooling shelters (our library).	Carried Forward	Existing	All	6,7	Borough Administration	Medium	Medium	HMGP, FMA, PDM Borough share	Short	H	Action/Project, PR	Not initiated; need to apply for FEMA grant (library also).
MV5 [MV8 (MV8)]	Mass Care Shelter Needs	Renovate VFW building with updated bathrooms with shower facilities and parking lot improvements.	Carried Forward	Existing	All	6,7	Borough Administration	High	Medium	HMGP, FMA, PDM Borough share	Short	H	Action/Project, PR ES	Ongoing. Trailer based power generator acquired, transfer switch installed, cots and blankets acquired. Private facility, no grants available.
MV6 [MV10 (MV11)]	Develop a COOP COG for the Borough	Provide 24X7 Operations during times of declared emergencies.	Carried Forward	Existing	All	6,7	Borough Administration	Low	Low	Borough	Short	L	Action/Project, PR ES	Not initiated; funding and personnel issues.
MV7 [MV11 (MV12)]	Participate in Community Rating System (FEMA)	Borough of Manville is currently a Class 7 and is working towards becoming a Class 5.	Carried Forward	Existing	Flooding	12	Borough Administration	Medium	Low	Borough	Short	H	Action/Project, PR	Ongoing; active in CRS, rating 7, trying for a 5. Recertification ongoing.
MV8 [MV12 (MV14)]	Evaluate, improve and develop new evacuation routes	Develop routes for residents to follow during times of emergencies that require evacuations.	Carried Forward	Existing	All	8	OEM; Police; Fire; Rescue	Medium	Low	Borough	Short	M	Action/Project, PR ES	Not initiated; funding budget issues.

Proposed Hazard Mitigation Initiatives														
2019 Initiative Number	Initiative Name	Initiative Description	New Initiative Or Carried Forward	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	2018 Action Status
MV9 [MV13]	Community outreach - reduce flood risks via education	Communication plans with residents via Borough calendar, flood information on Borough website and public outreach session schedule for July 2018	Carried Forward	N/A	All Hazards	5,13	Municipality with support from Planning Partners, County Planning, NJOEM, FEMA	Medium	Medium	Municipal Budget, HMA programs with local or county match	Short Term	High	Action/Project, PE	Ongoing. Residents notified via Borough website, community newspaper, DPW community calendar and letters sent directly to homes within our flood plains. Borough administrator is now a Certified Floodplain Manager (CFM).
MV10 [MV16]	Track storm related damage/data	Develop programs and procedures to capture and archive loss data from events. Seek training programs.	Carried Forward	N/A	All Hazards	1,8	Municipality with support from County, NJOEM and FEMA	Medium	Medium	Municipal Budget	Short	Medium	Action/Project, PR	Not initiated; funding and personnel issues.
MV11 [MV20]	Damage Assessment Capabilities	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). Borough to initiate contact with County regarding training. Meet with Somerset County to discuss damage assessment capabilities at the local level through training for municipal officials.	Carried Forward	N/A	All Hazards	3	Municipality with support from County, NJOEM and FEMA	Medium	Medium	Municipal Budget, FEMA HMA and HLS grant programs	Short-Long Term DOF	Medium	Action/Project, PR	Not initiated; Borough to initiate contact with County regarding training.
MV12 [MV21 (MV15)]	Update 5 year County HMP plan	Continue to support the implementation, monitoring, maintenance and updating of this 5 year plan updating cycle.	Carried Forward	New and Existing	All Hazards	6,7,13	Municipality with support from Planning Partners, County Planning, NJOEM, FEMA	High	Low – High (for 5 year update)	Municipal Budget, FEMA planning grants	On-going	High	Action/Project, PR	Ongoing; active participant in plan updating.
MV13 [MV22]	Mitigate Structures in Hazard Prone Areas	Purchase, relocate, or elevate structures located in hazard-prone areas to protect structures from future damage, with initiatives MV 2, MV3, and MV4, as well as any repetitive loss and severe repetitive loss properties, as priority. Phase 1: Identify appropriate candidates based on cost-effectiveness. 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	Carried Forward	Existing	Flood, Severe Storm	4	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from County Planning, NJOEM, FEMA	High	High	FEMA Mitigation Grants	Long Term DOF	Medium	Action/Project, PP	Ongoing; FMA Flood Planning Grant near completion. Need to move critical facilities out of flood plains via FEMA grants. DPW, Fire Company #1 and Manville Rescue Squad buildings top priority.





Proposed Hazard Mitigation Initiatives														
2019 Initiative Number	Initiative Name	Initiative Description	New Initiative Or Carried Forward	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Objectives Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	2018 Action Status
MV14 [MV26]	NOAA Storm Ready participation	Borough Administration is researching Storm Ready requirements and will bring before the Council a recommendation.	Carried Forward	N/A	Severe Storm	12	Municipality with support from County, NJOEM and FEMA	Medium	Low	Municipal Budget	Short Term DOF	Medium	Action/Project, PE	Initiated but not completed. Borough Administration is researching Storm Ready requirements and will bring before the Council a recommendation.
MV15 [MV27]	Mandate underground utilities for new development	Adopt regulations for underground utilities in new developments	Carried Forward	N/A	Severe Storm	1,2,4,8	Municipal Council	Medium	Low	Municipal Budget	Short	High	Action/Project, PR	Not initiated. No major development has been undertaken. As new development is approved, underground utilities will be considered and researched.
MV16 [MV28]	Waive permit fees - residential power generation	Modify fee ordinance to eliminate permit fees for residential power generator installations.	Carried Forward	N/A	Severe Storm	12	Municipal Council	Medium	Low	Municipal Budget	Short	High	Action/Project, PR	Not initiated. Need fee ordinance modification for permit waivers due to flood/storm resiliency issues.
MV17 [MV29]	Educate public on use of generators	Provide public education and outreach on proper installation and/or use of backup power generators.	Carried Forward	N/A	Severe Storm	5,13	Municipal Clerk	Medium	Low	Municipal Budget	Short	High	Action/Project, PR	Not initiated. Develop literature to be placed on Borough website.
MV18	Relocate Fire and EMS	Move emergency facilities to high ground	New	Existing	Flood, Severe Storm	6,7	Municipal Government	High	High	FEMA HMGP Project Grants	Short	High	Action/Project, PR	New initiative in the 2019 HMP
MV19	Flood proofing	Protect buildings and infrastructure with flood walls.	New	New and Existing	Flood, Severe Storm	4	Manville Department of Public Works	High	High	FEMA HMGP Project Grants	Short	High	Action/Project, PR	New initiative in the 2019 HMP
MV20	Lower flood waters - Raritan River	River diversion channel to lower flood waters. Phase 1 – Study, Phase 2 - Project	New	New and Existing	Flood, Severe Storm	1,2,8	NJDEP/ Somerset County Government	High	High	FEMA HMGP Project Grants	Short	High	Action/Project, PR	New initiative in the 2019 HMP

**Notes:**

\* 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:**

- ARC American Red Cross
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- HMA Hazard Mitigation Assistance
- HMP Hazard Mitigation Proposal
- N/A Not applicable
- NFIP National Flood Insurance Program
- NJOEM New Jersey 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
- SRL = Severe Repetitive Loss Grant Program

**Timeline:**

- Short Term= 1 to 5 years
- Long Term = 5 years or greater



NOAA National Oceanic and Atmospheric Administration  
 SCPD Somerset County Planning Department  
 USACE U.S. Army Corp of Engineers  
 USGS U.S. Geological Survey

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:

- 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 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

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.

**Notes (for Mitigation Type):**

1. PR = Prevention: 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.
2. PP = Property Protection: 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.
3. PE = Public Education and Awareness: 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.
4. NR = Natural Resource Protection: 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.
5. SP = Structural Projects: 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.
6. ES = Emergency Services: 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.
7. Initiative= Initiatives are comprised of EVERYTHING your community wants to do or is doing in order to meet its mitigation goals. Initiatives include Capabilities, Actions and Projects.
8. Capability= Regulatory, administrative, technical, and fiscal staffing, tools and/or resources. Capabilities can be existing, or in need of further development/expansion.
8. Action/Project= Specific activities or projects that your community plans to undertake or is currently completing in order to achieve its long term mitigation goals. Actions/Projects can include, but are not limited to: structural projects, infrastructure projects, natural systems protection projects, or education and awareness programs.





### 9.12.8 PRIORITIZATION OF MITIGATION INITIATIVES

The table below summarizes the priority levels for each mitigation initiative, listed by number. Please note that the Borough has opted to carry forward legacy initiative numbers from the 2014 plan, for internal municipal tracking purposes, formatted as: “2019# [2014# (2009#)]”.

Prioritization of Mitigation Initiatives							
Initiative #	# of Objectives Met	Benefits	Costs	Do benefits equal or exceed costs? (Yes or No)	Is project Grant eligible? (Yes or No)	Can project be funded under existing programs/budgets? (Yes or No)	Priority (High, Med., Low)
MV1 [MV3 (MV2)]	1	H	H	Y	Y	N	H
MV2 [MV4 (MV3)]	1	H	H	Y	Y	N	H
MV3 [MV5 (MV4)]	3	H	H	Y	Y	Y	M
MV4 [MV7 (MV7)]	2	M	M	Y	Y	Y	H
MV5 [MV8 (MV8)]	2	H	M	Y	Y	Y	H
MV6 [MV10 (MV11)]	2	L	L	Y	N	Y	L
MV7 [MV11 (MV12)]	1	M	L	Y	N	Y	H
MV8 [MV12 (MV14)]	1	M	L	Y	N	Y	M
MV9 [MV13]	2	M	M	Y	Y	Y	H
MV10 [MV16]	2	M	M	Y	N	Y	M
MV11 [MV20]	1	M	M	Y	N	Y	M
MV12 [MV21 (MV15)]	3	M	M	Y	N	Y	H
MV13 [MV22]	1	H	H	Y	Y	N	H
MV14 [MV26]	1	M	L	Y	N	Y	M
MV15 [MV27]	4	M	L	Y	N	Y	H
MV16 [MV28]	1	M	L	Y	N	Y	H
MV17 [MV29]	2	M	L	Y	N	Y	H
MV18	2	H	H	Y	Y	N	H
MV19	1	H	H	Y	Y	N	H
MV20	3	H	H	Y	Y	N	H

Notes:

H = High

L = Low

M = Medium

N = No

Y = Yes

### 9.12.8.1 Explanation of Priorities

Explanations of priority classifications used to assess the mitigation initiatives described in this annex are presented below:

High Priority = A project that meets multiple objectives (i.e., multiple hazards), where potential benefits exceed the costs. High-priority projects have funding secured or are on-going projects that meet eligibility requirements for the Hazard Mitigation Grant Program (HMGP) or Pre-Disaster Mitigation (PDM) Grant Program. High-priority projects can be completed in the short term (1 to 5 years).

Medium Priority = A project that meets goals and objectives, where the potential benefits outweigh the costs. Funding for medium-priority projects has not been secured but these projects are eligible for grants under HMGP, PDM, or other grant programs. These projects can be completed in the short term, once funding is completed. Medium-priority projects will become high-priority projects once funding is secured.

Low Priority = A project that will mitigate the risk of a hazard, where the potential benefits do not exceed the costs or have benefits that are difficult to quantify. Funding for low-priority projects has not been secured and these projects are not eligible for HMGP or PDM grant funding. The timeline for completion is considered long term (1 to 10 years). Low-priority projects may be eligible other sources of grant funding from other programs. A low-priority project could become a high-priority project once funding is secured as long as it could be completed in the short term.

Was prioritization of initiatives based on the above definitions? Yes

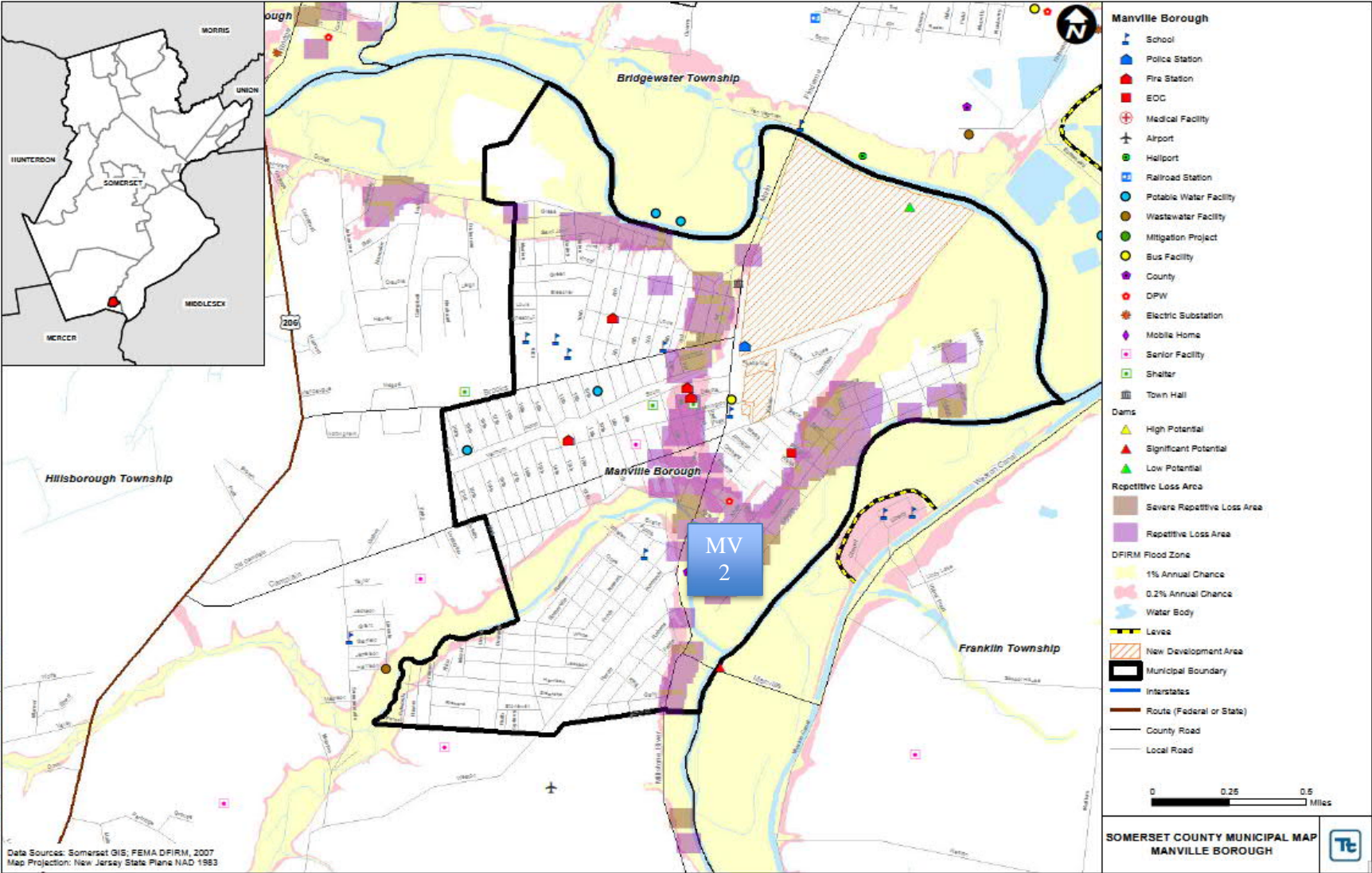
Was prioritization of initiatives based on parameters other than those stated above? Not applicable

### 9.12.9 FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

Manville has no additional risk vulnerabilities that need to be addressed at this time.

### 9.12.10 HAZARD AREA EXTENT AND LOCATION

A hazard area extent and location map illustrating the probable areas impacted within Manville is provided on the following page. This map is based on the best data available at the time of the preparation of this plan, and is 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 Manville has significant exposure. The planning area maps are provided in the hazard profiles within Section 5.4 of this plan.





### 9.12.11 STATUS OF INCORPORATION OF MITIGATION PLANNING INTO EXISTING AND FUTURE PLANNING MECHANISMS

It is the intention of Manville to incorporate mitigation planning as an integral component of daily municipal operations. The following table contains a list of planning mechanisms that have been utilized during prior plan maintenance cycles, and those that will be incorporated into municipal procedures during the upcoming plan maintenance cycle (2019-2024).

Status of Incorporation of Mitigation Planning into Existing and Future Planning Mechanisms				
Planning Mechanisms	Reported Utilization (2009-2014)	Planned Utilization (2014-2019)	Reported Utilization (2014-2019)	Planned Utilization (2019-2024)
<b>Operating Budget</b> When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals and objectives.	X	X	X	X
<b>Capital Improvement Budget</b> When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals and objectives.	X	X	X	X
<b>Human Resource Manual</b> Employee job descriptions may contain hazard mitigation actions.	X	X	X	X
<b>Building and Zoning Ordinances</b> Prior to land use, zoning changes, or development permitting, the municipality will review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use.	X	X	X	X
<b>Comprehensive Land Use Plan</b> When applicable, the municipality will incorporate hazard mitigation actions in the development and extent of the regulations.	X	X	X	X
<b>Grant Applications</b> Data and maps will be used as supporting documentation in grant applications.	X	X	X	X
<b>Municipal Ordinances</b> When updating municipal ordinances, hazard mitigation will be a priority.	X	X	X	X
<b>Fire Plan</b> The Hazard Mitigation Plan will be used as a resource for the development of future Fire Plans.	-	X	-	X
<b>Capital Improvement Planning</b> The municipality will establish a protocol to review current and future projects for hazard vulnerability. The municipality will incorporate hazard-resistant construction standards into the design and location of projects.	-	X	-	X
<b>Day-to-Day Operations</b> The municipality will incorporate hazard mitigation actions in daily operations and all projects.	X	X	X	X
<b>Local School Service Projects</b> The municipality will work closely with the local school district and assist with community service projects for	-	X	-	X

Status of Incorporation of Mitigation Planning into Existing and Future Planning Mechanisms				
Planning Mechanisms	Reported Utilization (2009-2014)	Planned Utilization (2014-2019)	Reported Utilization (2014-2019)	Planned Utilization (2019-2024)
the service organizations. Several of the municipality's hazard mitigation actions can be implemented as a joint project with the school district.				
<b>Municipal Budget</b> Adopted annually, the municipality will look at mitigation actions when allocating funding.	-	X	X	X
<b>Economic Development</b> The local economic development group will take into account information regarding identified hazard areas when assisting new businesses in finding a location.	-	X	-	X

### 9.12.12 ADDITIONAL COMMENTS

There are no additional comments at this time.



9.12.12 NFIP ADMINISTRATOR INPUT

Adoption Date of your Current Floodplain Management Ordinance	Date of Entry into NFIP <sup>1</sup>	Position or Title of Your Jurisdiction's Designated Floodplain Manager/Administrator (may also be called NFIP Coordinator)		Is this person a Certified Floodplain Manager?	Is floodplain management an auxiliary function?	Is your community in good standing with the NFIP?	
09/26/16	02/15/18	Borough Administrator		<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No	<input type="checkbox"/> Yes   <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No	
Provide an explanation of NFIP administration services (i.e., permit review, GIS, education or outreach, inspections, engineering capability, etc.):							
SEE ATTACHED							
Describe barriers to running an effective NFIP program in the community (if applicable):							
SEE ATTACHED							
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?
06/19/2013	<input type="checkbox"/> Yes   <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes*   <input type="checkbox"/> No * Class 7	<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No	<input type="checkbox"/> Yes   <input type="checkbox"/> No
* Describe any outstanding compliance issues (i.e., current violations):							
SEE ATTACHED							

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 type="checkbox"/> No	<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No
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 in 2009?			
<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No	<input type="checkbox"/> Yes   <input type="checkbox"/> No UNKNOWN		<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes*   <input type="checkbox"/> No			
* If you answered "yes", that there have been changes to your local program since 2009, please describe:								
The Borough NOW has a C.F.M. on staff to assist residents.								
Provide a description of your community assistance and monitoring activities:								
SEE ATTACHED								
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 type="checkbox"/> No				<input checked="" type="checkbox"/> Yes   <input type="checkbox"/> No				

Borough of  
**Manville**  
New Jersey

A New Beginning with a Proud Past

# ACQUISITION ACTION PLAN

Borough of Manville

Public Document

April 2018

Prepared by:



**TETRA TECH**

6 Century Drive, Suite 300  
Parsippany, NJ 07054



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## **EXECUTIVE SUMMARY**

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After applying for and receiving a 2015 FEMA Flood Mitigation Assistance (FMA) planning grant, the Borough of Manville partnered with Tetra Tech Inc. (Tetra Tech) to rank flood-prone structures in the Borough and prioritize mitigation target areas. The purpose was to provide the Borough with a third party unbiased evaluation of structures in flood-prone areas suitable for acquisition and develop a multi-year prioritized mitigation strategy, in the form of an action plan, to pursue FEMA Hazard Mitigation Assistance (HMA) funding to mitigate these flood-prone structures.

The Borough formed a committee of municipal officials to work directly with Tetra Tech and contribute to this process. The committee consisted of:

Andrea Bierwirth	Borough Administrator
Richard Onderko	Mayor
Vince LoMedico	Director of Public Works
Patrick Renaldi	Director of Code Enforcement
John Tamburini	Construction Official
Philip Petrone	Councilman
Michele Magnani	Councilwoman
Dayna Camacho	Councilwoman
Stan Schrek	Borough Engineer

Together with the Borough committee, prioritization criteria were identified to individually rank each property in the Borough. Elements noted in the prioritization criteria listed in the 2016 FEMA Notice of Funding Opportunity were considered and incorporated into the Borough's ranking criteria to ensure competitive future grant applications. The committee developed the ranking criteria to ensure a fair and equitable ranking structure for all properties. Utilizing the total score of each property, a spatial analysis was conducted in ArcGIS utilizing the 'hot spot analysis (Getis-Ord Gi\*) tool to identify statistically significant hot spots, or clusters of properties.

The hot-spot analysis results were presented to the committee and further evaluated. Defined clusters were delineated and reviewed with the committee to ensure each cluster contained an appropriate number of properties (approximately 50 structures) the Borough can manage and oversee successfully per application cycle through project implementation and completion. The committee also strove to ensure that each cluster contained at least one NFIP-defined Repetitive Loss or Severe Repetitive Loss property in anticipation of future FEMA grant funding. Exhibit A summarizes the cluster of properties prioritized for future hazard mitigation grant funding applications sponsored by the Borough. Future grant funding availability includes FEMA Hazard Mitigation Assistance (HMA) Grant opportunities, FEMA Hazard Mitigation Grant Program (HMGP) opportunities and NJ Department of Environmental Protection funding.



**Exhibit A. Borough of Manville Prioritized Action Plan**

Acquisition Opportunity	Cluster Name	Number of Properties	Number of Properties with NFIP Policies	Number of RL Properties	Number of SRL Properties	Total Rank
1	Lost Valley Floodway	45	15	33	4	271
2	North Second	38	15	26	5	192
3	Pope, Kyle, View	49	30	31	3	257
4	Dukes Floodway, First, Third	52	29	24	1	235
5	Lost Valley, Huff, Bridge, North	36	12	28	5	195
6	Lost Valley, Boesel Floodway	47	12	34	2	223
7	Lost Valley, Boesel, View, Bridge	41	25	22	3	189
8	St. John, Gress	58	37	6	0	168

The Borough will review this acquisition action plan on an annual basis, and update as needed. The following describes potential time horizons and conditions in which the plan may be reviewed and the analysis updated:

- In future years, the FEMA FMA program may change their priorities for project selection. If this occurs, the Borough committee may re-evaluate the ranking criteria and re-run the hot-spot analysis to ensure future grant applications remain competitive.
- A future flood event may change the NFIP status of policy holders.
- As acquisition projects are implemented and completed in the Borough, residents that were contacted and who decided not to participate in previous grant applications may be contacted again to reconsider participating in future grant opportunities.
- As additional funding sources become available outside of the FEMA HMA program, the Borough and residents may reconsider the frequency in which to apply for grant funding.
- As acquisition projects are implemented, the Borough may consider including additional clusters beyond 'Acquisition Opportunity #8' to the updated Action Plan.

The Borough anticipates utilizing this plan to continue to apply for FEMA Hazard Mitigation Assistance funding to prioritize and provide flood-prone residents an option to have their home acquired and eliminate all future flood risk for this property.



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## **BACKGROUND**

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The Borough of Manville is centrally located within the County of Somerset at the convergence of the Raritan and Millstone Rivers. Manville shares boundaries with Bridgewater Township to the north, Franklin Township to the east and Hillsborough Township to the south and west. The Borough is located in one of the most sensitive flood-prone areas in the State of New Jersey and has experienced severe flooding within the 1-percent and 0.2-percent annual change flood zones of both the Raritan River and Millstone River. Extensive damage has been recorded to residential buildings, commercial structures, parklands, roadways, and other public infrastructure. The Borough continues to take significant steps to improve flood mitigation efforts throughout the community and specifically for the property owners located in the floodplain. These efforts are demonstrated through the Borough's participation in the National Flood Insurance Program's (NFIP) Community Rating System (CRS) as a Class 7 community, effective October 1, 2016. In October 2017, the Borough submitted supporting documentation for their annual re-certification in the CRS. In addition, the Borough has applied for and received 2016 Federal Emergency Management Agency (FEMA) hazard mitigation assistance funding to acquire four repetitive loss flood-prone structures.

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## **OBJECTIVE**

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After applying for and receiving a 2015 FEMA Flood Mitigation Assistance (FMA) planning grant, the Borough of Manville partnered with Tetra Tech Inc. (Tetra Tech) to rank flood-prone structures in the Borough and prioritize mitigation target areas. The purpose was to provide the Borough with a third party unbiased evaluation of structures in floodprone areas suitable for acquisition and develop a multi-year prioritized mitigation strategy, in the form of an action plan, to pursue FEMA Hazard Mitigation Assistance (HMA) funding to mitigate these flood-prone structures.

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## **METHODOLOGY**

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The Borough formed a committee of municipal officials to work directly with Tetra Tech and contribute to this process. The committee consisted of Andrea Bierwirth, Borough Administrator; Richard Onderko, Mayor; Vince LoMedico, Director of Public Works; Patrick Renaldi, Director of Code Enforcement; John Tamburini, Construction Official; Philip Petrone, Councilman; Michele Magnani, Councilwoman; Dayna Camacho, Councilwoman and Stan Schrek, Borough Engineer.

At project commencement, Tetra Tech met with the committee to determine the area of focus in the Borough and initiate the data collection process. The first step was to develop a detailed spatial inventory of the structures within the Borough. To begin, the building inventory was generated using parcels and building footprints provided by the Borough and 2017 Tax Assessment data from the New Jersey Department of the Treasury - Division of Taxation. All recent acquisitions and elevations were identified and removed from the structural inventory. Tetra Tech mapped all structures in the 2016 effective 1-percent annual chance floodplain. (refer to Figure 2).





Together with the Borough committee, prioritization criteria were identified to rank each property located in the Borough. The criteria were selected to assist with the identification of the highest at-risk flood-prone properties. Bank-owned and abandoned properties were excluded from the analysis. Elements noted in the prioritization criteria listed in previous FEMA FMA Notice of Funding Opportunities (NOFO) were considered and incorporated into the Borough’s ranking criteria in an attempt to ensure competitive future grant applications. Table 1 summarizes the criteria identified and the associated numeric score. The total score for each property was calculated by summing the scores across all criteria. For the purposes of this analysis, the NFIP RL and SRL property data provided by NJOEM (dated as of April 2017) and the policy and claim data received from FEMA Region 2 (dated as of March 31, 2015) were utilized.

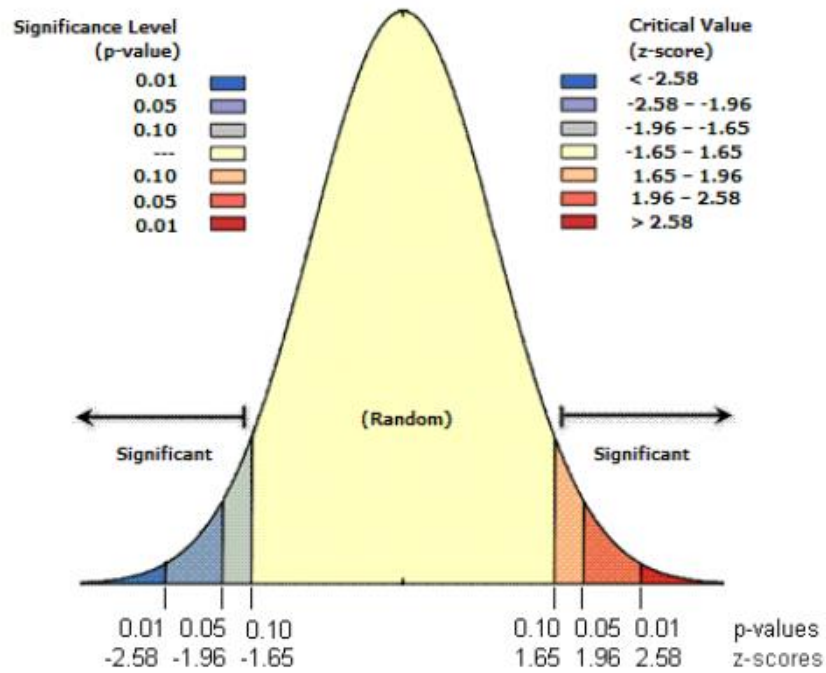
**Table 1. Ranking Criteria and Scores**

Ranking Criteria	Score
Is the property located in the 2016 FEMA Flood Insurance Rate Map-defined floodway?	Yes - 1 No - 0
Is the property located in the 2016 FEMA Flood Insurance Rate Map-defined floodplain?	In 100 year zone - 2 In 500 year zone - 1 Out of floodplain - 0
Most current National Flood Insurance Program Status	Severe Repetitive Loss property - 3 Repetitive Loss property - 2 Claims on policy - 1 Policy holder with no claims - 0
Contiguous to Open Space	Contiguous to Open Space - 1
Adjacent to Abandoned Structure	Adjacent to Abandoned Structure - 1
Flood Insurance (based on 2015 NFIP policy data)	Insured property - 1 Non-insured property - 0
Length of Ownership	Home purchased before September 2011 - 1 Home purchased after September 2011 - 0
Cumulative NFIP Claim Totals	Cumulative NFIP claim total is greater than 200% of market value - 3 Cumulative NFIP claim total is between 100%-199% of market value - 2 Cumulative NFIP claim total is between 50%-99% of market value - 1

Utilizing the total score of each property, a spatial analysis was conducted in ArcGIS utilizing the ‘hot spot analysis (Getis-Ord  $G_i^*$ ) tool to identify statistically significant hot spots, or clusters of properties. In summary, the analysis identifies statistically significant spatial clusters of high values (hot spots) and low values (cold spots). ArcGIS creates a new output feature class with a z-score, p-value, and confidence level bin for each feature. The higher (or lower) the z-score, the more intense the clustering. A z-score near zero indicates no apparent spatial clustering.

As shown in Figure 1, the absolute value of the z scores (high and low or red and blue on our maps) indicate there is statistically significant clustering (confidence level of 99 percent) using the property scores. The red or  $>+2.58$  represent ‘hot spots’ or clustering of high scoring properties. The purple or  $<-2.58$  represents ‘cold spots’ or clustering of low scoring properties. The yellow indicates the pattern exhibited could very likely be random.

**Figure 1. The Standard Normal Distribution of the p and z values**



z-score (Standard Deviations)	p-value (Probability)	Confidence level
< -1.65 or > +1.65	< 0.10	90%
< -1.96 or > +1.96	< 0.05	95%
< -2.58 or > +2.58	< 0.01	99%

Source: [http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/What is a z score What is a p value/005p00000006000000/](http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/What%20is%20a%20z%20score%20What%20is%20a%20p%20value/005p00000006000000/)





## RESULTS

The results of the analysis are presented in Table 2 in this section with maps of the NFIP areas and hot-spots following the narrative. Figure 2 illustrates the location of all Borough properties for reference. Figure 3 illustrates the statistically significant hot spots and cold spots using the Getis-Ord  $G_i^*$  statistics in the Borough study area. As noted, the higher (or lower) the z-score, the more intense the clustering. A z-score near zero indicates no apparent spatial clustering.

The hot-spot analysis results were presented to the committee and further evaluated. Defined clusters were delineated and reviewed with the committee to ensure each cluster contained an appropriate number of properties the Borough can manage and oversee per application cycle through project implementation (approximately 50 structures). Figure 4 displays the committee-agreed upon clusters. The cluster names are labeled as black underlined text and are associated with the street names in which they cover. The cluster boundaries that have been identified as groups of properties to include in future FEMA grant applications in the defined study area are depicted by lines of varying colors.

**Table 2. Borough of Manville Prioritized Action Plan**

Acquisition Opportunity	Cluster Name	Number of Properties	Number of Properties with NFIP Policies	Number of RL Properties	Number of SRL Properties	Total Prioritization Value
1	Lost Valley Floodway	45	15	33	4	271
2	North Second	38	15	26	5	192
3	Pope, Kyle, View	49	30	31	3	257
4	Dukes Floodway, First, Third	52	29	24	1	235
5	Lost Valley, Huff, Bridge, North	36	12	28	5	195
6	Lost Valley, Boesel Floodway	47	12	34	2	223
7	Lost Valley, Boesel, View, Bridge	41	25	22	3	189
8	St. John, Gress	58	37	6	0	168

NFIP = National Flood Insurance Program

RL = NFIP-defined repetitive loss property

SRL = NFIP-defined severe repetitive loss property

Beyond the acquisition opportunities displayed in Table 2, the Borough may, upon Committee approval, open up applications to other areas in the Borough; to include NFIP-insured properties outside of these clusters.



## **PLAN MAINTENANCE**

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The Borough will review this acquisition action plan on an annual basis, and update as needed. The following describes potential time horizons and conditions in which the plan may be reviewed and the analysis updated:

- The FEMA floodplain and floodway delineations may be updated as part of the FEMA Risk Mapping, Assessment and Planning (Risk Map) program. If this occurs, the Borough committee may evaluate these changes to determine if property scores need to be updated and the analysis re-run to ensure results are based on best-available flood risk information.
- In future years, the FEMA FMA program may change their priorities for project selection. If this occurs, the Borough committee may re-evaluate the ranking criteria, potentially adjust based on the NOFO, and re-run the hot-spot analysis to ensure future grant applications remain competitive.
- Over time, property ownership may change and/or additional residents may obtain flood insurance in clusters that already had FEMA FMA grant applications submitted, making them eligible to participate. The Borough committee will evaluate when including these residents in future grant applications is appropriate.
- A future flood event may change the NFIP status of policy holders. For example, a repetitive loss property may become a severe repetitive loss property as a result of an additional flood event and the total amount of the paid claim. The Borough may consider updating the ranking and re-running the hot-spot analysis based on updated NFIP statistics which are released by FEMA quarterly.
- As acquisition projects are implemented and completed in the Borough, residents that did not participate in previous grant applications may be asked again to participate in the future.
- As additional funding sources become available outside of the FEMA HMA program, the Borough and residents may reconsider the frequency in which to apply for grant funding.

## **CONCLUSION**

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The Borough anticipates utilizing this acquisition action plan to continue to apply for FEMA Hazard Mitigation Assistance funding to prioritize and provide flood-prone residents an option to have their home acquired which will eliminate all future flood risk for their property.



**Figure 2. Borough of Manville Properties**

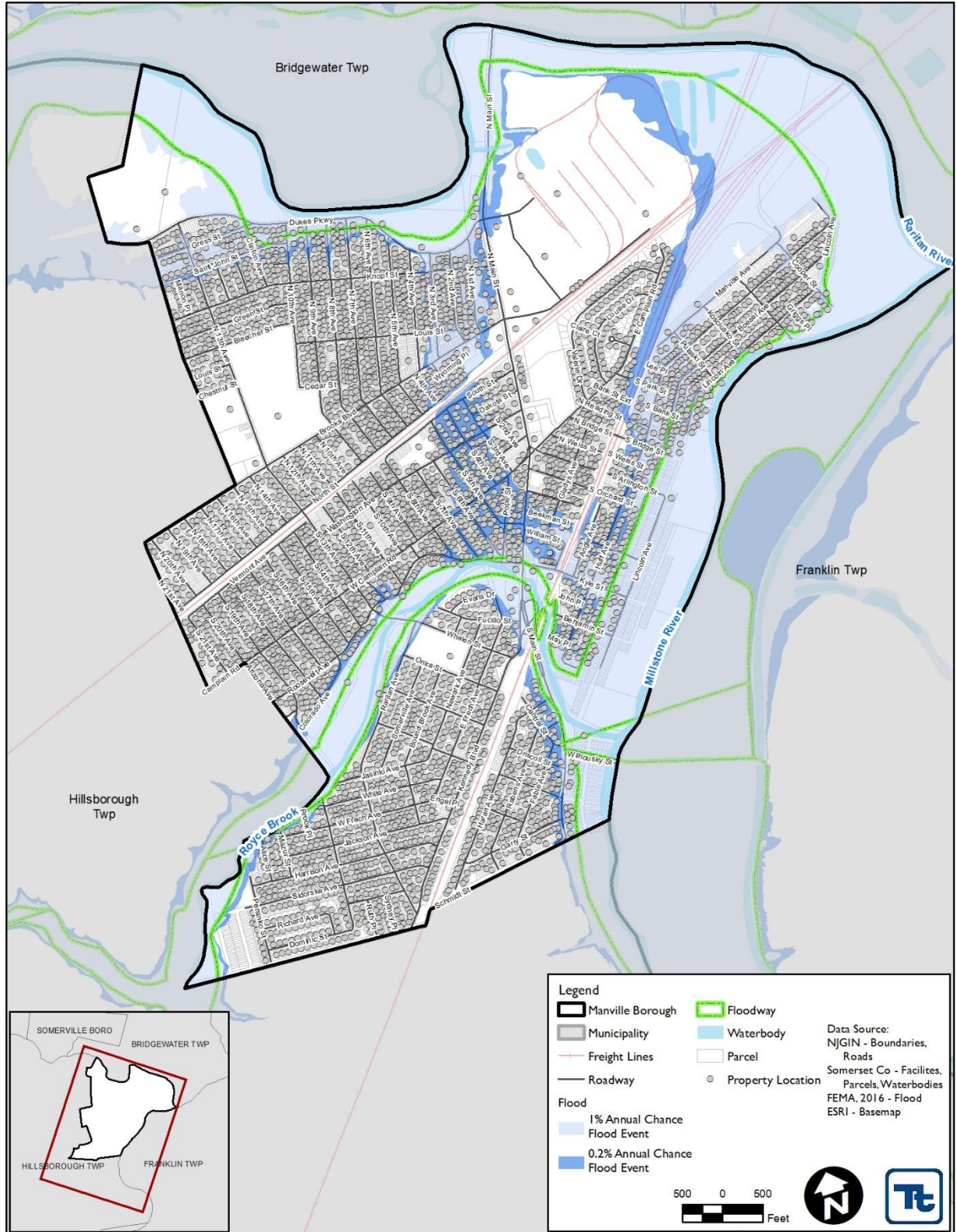






Figure 3. Borough of Manville Hot-Spot Analysis Results

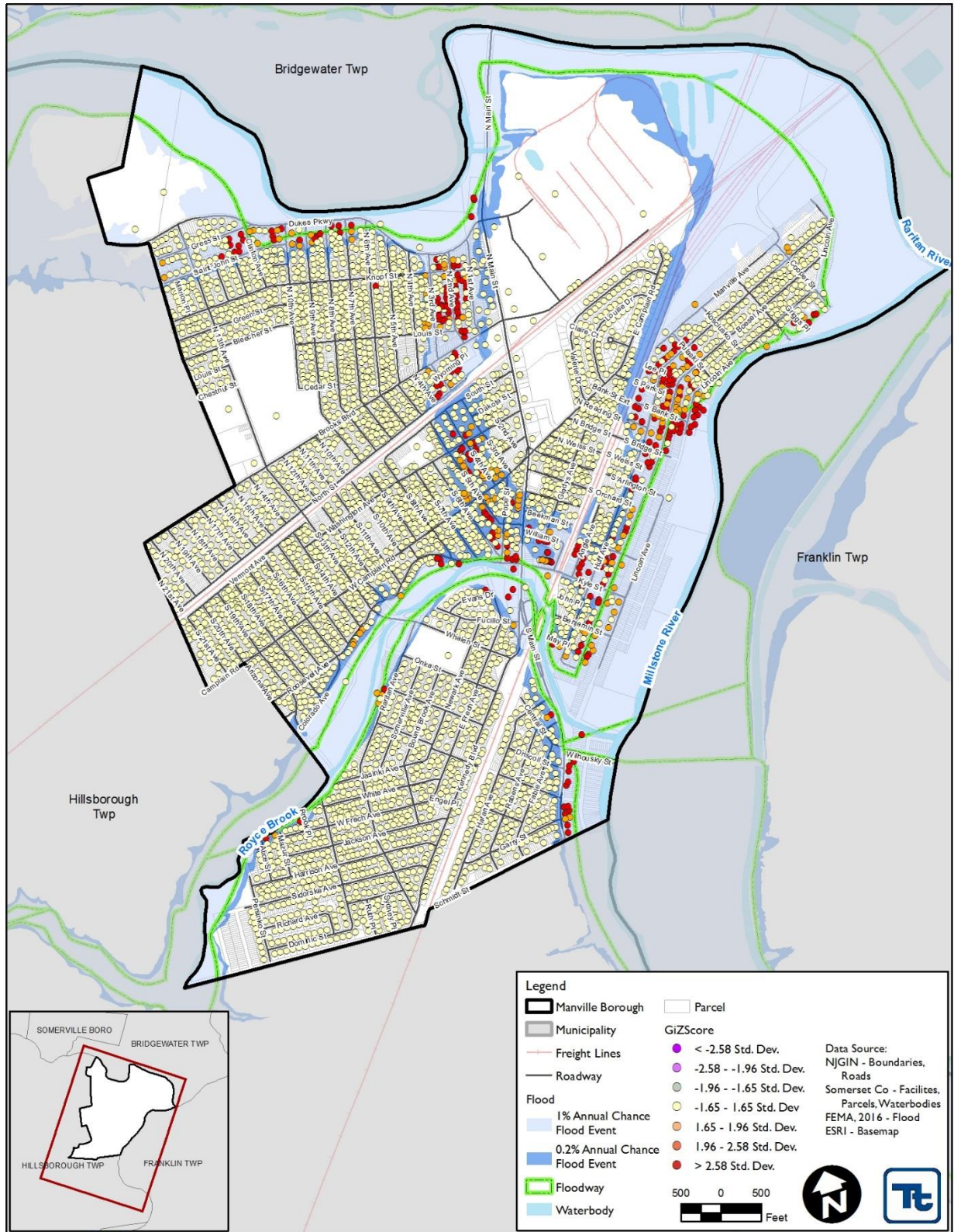
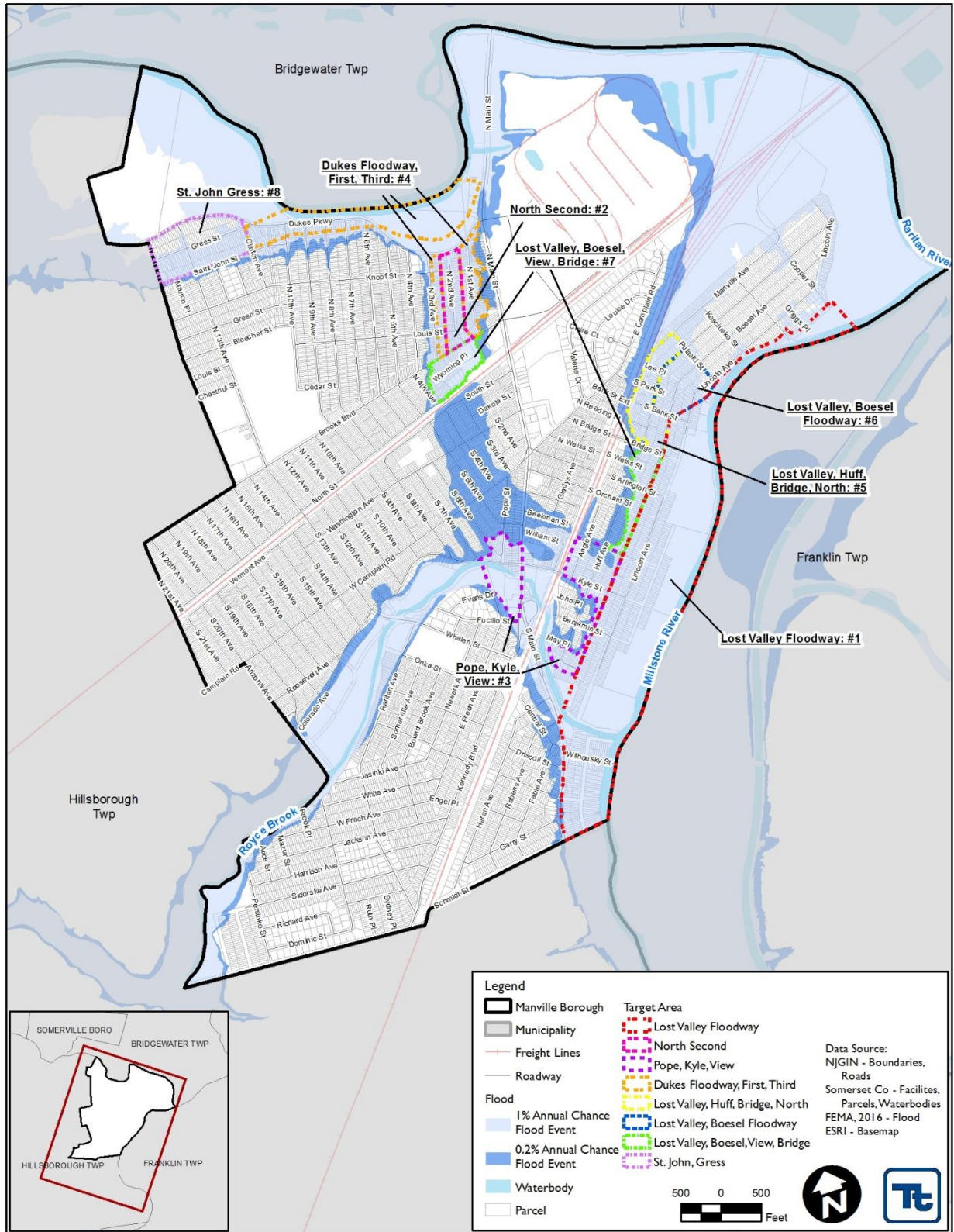






Figure 4. Borough of Manville Priority Cluster Areas





## Appendix A

Property Owner Outreach Material

# Notice of Voluntary Interest

Borough of Manville  
Property Acquisition Project  
**Homeowner Voluntary Interest Notice**

Please complete this form if you are interested in exploring further your options for reducing your flood losses. Signing this does not commit you to any action.

Property Address:

Owner(s) Mailing Address:

Owner(s) Name(s):

Contact Telephone Number:

**The local government is required by FEMA to inform you that your participation in this project for open-space acquisition is voluntary. Neither the *State* nor the *Local Government* will use its eminent domain authority to acquire the property for open-space purposes if you choose not to participate in a Hazard Mitigation Assistance grant program, or if negotiations fail.**

\_\_\_\_\_  
Owners Signature                      Date

\_\_\_\_\_  
Owners Signature                      Date

\_\_\_\_\_  
Owners Signature                      Date

**Voluntary Participation Agreement: Acquisition – Due:**  
**FEMA Hazard Mitigation Grant Program (FMA)**

Please **drop off or mail** your completed agreement with signature to:

Borough of Manville  
325 North Main Street, Manville, NJ 08835 (908) 725-9478 x103

(Separate forms needed for each property owned, including Vacant Lots if on separate deed)

Property Owner: \_\_\_\_\_

(Co-Owner's Full Name): \_\_\_\_\_

Phone #: ( ) \_\_\_\_\_ Work #: ( ) \_\_\_\_\_ Cell #: ( ) \_\_\_\_\_

Property Address: \_\_\_\_\_  
(To be acquired) \_\_\_\_\_

Mailing Address: (If different)

County: \_\_\_\_\_

E-Mail: \_\_\_\_\_

**PROPERTY INFORMATION** Body of water causing flooding: \_\_\_\_\_

Do you currently have Flood Insurance? Yes No Insurance Company: \_\_\_\_\_

Flood Insurance Policy #: \_\_\_\_\_

**Please circle the appropriate answers below:**

Is your property in foreclosure? Y N If yes, please indicate mortgage lender: \_\_\_\_\_

Have you filed claims in last 10 years? Y N ICC? Y N Is home substantially damaged? Y N

<u>Property:</u>	<u>Type Home:</u>	<u>Foundation Type:</u>	<u>Type Structure:</u>
Owner Occupied-Primary	Single Family	Basement Y N	Wood
Owner Occupied- Secondary	2-4 Family	If yes, Finished Y N or Partial Y N	Masonry (Brick)
Rental	Multi (5+)	Crawl Space Y N	Stone
Vacant Lot	Manufactured	Elevated on piers/columns/posts/piles	Cement
Other (Explain)	Vacant Land	Slab on Grade	Other _____
_____	Other (Explain)	Vacant Land	
		Basement Outside Entrance Y N	
		Other (Explain) _____	

If rented now, please provide name, address, and phone number of renter (use extra pages as needed)

TAX Parcel #: \_\_\_\_\_ Date of Construction: \_\_\_\_\_ Number of Stories above ground: \_\_\_\_\_

Total Living Area in Sq Ft. (All floors) \_\_\_\_\_ Estimate the Fair Market Value of your home: \$ \_\_\_\_\_

**Flood and Damage History (use extra pages as needed):**

Date: \_\_\_\_\_ Damage \$'s: \_\_\_\_\_ Date: \_\_\_\_\_ Damage \$'s: \_\_\_\_\_  
Date: \_\_\_\_\_ Damage \$'s: \_\_\_\_\_ Date: \_\_\_\_\_ Damage \$'s: \_\_\_\_\_

*I understand that the sale of this property under the FEMA Flood Mitigation Assistance Program's Acquisition Component is voluntary in nature, and that I am under NO obligation to participate, and that I may withdraw from the program at any time.*

*I currently plan to participate in the voluntary property acquisition program.*

Print Name(s) of Property Owner(s) \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Co-Owner's Signature (If applicable) \_\_\_\_\_



DEPARTMENT OF HOMELAND SECURITY  
 FEDERAL EMERGENCY MANAGEMENT AGENCY  
**DECLARATION AND RELEASE**

**O.M.B. No. 1660-0002**  
**Expires August 31, 2013**

**DECLARATION AND RELEASE**

In order to be eligible to receive FEMA Disaster Assistance, a member of the household must be a citizen, non-citizen national or qualified alien of the United States. **Please read the form carefully, sign the sheet and return it to the Inspector, and show him/her a current form of photo identification.** Please feel free to consult with an attorney or other immigration expert if you have any questions.

I hereby declare, under penalty of perjury that (check one):

- I am a citizen or non-citizen national of the United States.
- I am a qualified alien of the United States.
- Print full name and age of minor child: I am the parent or guardian of a minor child who resides with me and who is a citizen, non-citizen national or qualified alien of the United States. Print full name and age of minor child: \_\_\_\_\_

**By my signature I certify that:**

- \* Only one application has been submitted for my household.
- \* All information I have provided regarding my application for FEMA disaster assistance is true and correct to the best of my knowledge.
- \* I will return any disaster aid money I received from FEMA or the State if I receive insurance or other money for the same loss, or if I do not use FEMA disaster aid money for the purpose for which it was intended.

**I understand that**, if I intentionally make false statements or conceal any information in an attempt to obtain disaster aid, it is a violation of federal and State laws, which carry severe criminal and civil penalties, including a fine up to \$250,000, imprisonment, or both (18 U.S.C. §§ 287, 1001, and 3571).

**I understand that** the information provided regarding my application for FEMA disaster assistance may be subject to sharing within the Department of Homeland Security (DHS) including, but not limited to, the Bureau of Immigration and Custom Enforcement.

**I authorize FEMA to verify** all information given by me about my property/place of residence, income, employment and dependents in order to determine my eligibility for disaster assistance; and

**I authorize** all custodians of records of my insurance, employer, any public or private entity, bank financial or credit data service to release information to FEMA and/or the State upon request.

NAME (print)	SIGNATURE	DATE OF BIRTH	DATE SIGNED
INSPECTOR ID NO.	FEMA APPLICATION NO.	DISASTER NO.	
ADDRESS OF DAMAGED PROPERTY	CITY	STATE	ZIP CODE

**PRIVACY ACT STATEMENT**

**AUTHORITY:** The Robert T. Stafford Disaster Relief and Emergency Assistance Act as amended, 42 U.S.C. § 5121 -5207 and Reorganization Plan No. 3 of 1978; 4 U.S.C. §§ 2904 and 2906; 4 C.F.R. § 206.2(a)(27); the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (Pub. L. 104-193) and Executive Order 13411. DHS asks for your SSN pursuant to the Debt Collection Improvement Act of 1996, 31 U.S.C. § 3325(d) and § 7701(c) (1).

**PRINCIPAL PURPOSE(S):** This information is being collected for the primary purpose of determining eligibility and administering financial assistance under a Presidentially-declared disaster. Additionally, information may be reviewed internally within FEMA for quality control purposes.

**ROUTINE USE(S):** The information on this form may be disclosed as generally permitted under 5 U.S.C. § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA - 008 Disaster Recovery Assistance Files System of Records (September 24, 2009, 74 FR 48763) and upon written request, by agreement, or as required by law.

**DISCLOSURE:** The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent the individual from receiving disaster assistance.

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*Cover Photo:* Word cloud of recommendations from focus groups on Lost Valley Nature Park, © The Nature Conservancy

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## Overview

This report focuses on recommendations for the proposed Lost Valley Nature Park along Lincoln Avenue, the Millstone River and Royce Brook in the Borough of Manville. Yet, Manville's efforts on recreation, public access, and conservation complement and support regional efforts and thus, should be considered within the larger regional context. Efforts such as the Rutgers-led [Sustainable Raritan River Initiative](#) have also identified increased recreational use of the Raritan River trails and waterways and habitat restoration as priority strategies to improve the health of the watershed for nature and people. Because Manville's approach to planning and design of the Lost Valley Nature Park is interdisciplinary – focusing on ecology, human health, recreation, economic development and flood resilience – this pilot project is a good demonstration and model that could be replicated by other communities across the Raritan Watershed hoping to create similar nature parks adjacent to rivers.



*Photo:* The Lost Valley Nature Park access to the Millstone River. © The Nature Conservancy

**The Challenge:** The Raritan River is the largest river wholly contained within the state of New Jersey, covering seven counties and 100 municipalities. In the past, the perception had been that the Raritan River (and tributaries) were polluted, and a liability. Even today, the river is underutilized as an asset that contributes to economic development and quality of life. Residents and decision makers are not fully aware that the river and the land that surrounds it provides many benefits to people, such as:

- buffering homes and roads from flooding;
- supporting nature-based tourism activities, which in turn support local businesses;
- improving water quality by filtering water;
- enhancing aesthetic qualities in terms of an appealing view; and
- supporting health benefits to residents through recreation and improved air quality.



However, the health of the river is impaired. Surface water pollution and stormwater runoff are harming the river. Those types of water pollution affect wildlife populations and have an impact on communities who want to swim, fish, or boat in the river or who rely upon the river for clean drinking water. Along the mainstem river, where flooding is a major issue, many communities have suffered a variety of impacts from flood damage, and this is exacerbated by the loss of natural land cover and wetlands that would otherwise be providing a role in flood mitigation.

Located in Somerset County, the Borough of Manville has a population of 10,400. Manville is located along the Raritan River, Millstone River, and Royce Brook and has experienced a disproportionate amount of flooding since Hurricane Floyd in 1999. Manville is an interesting case study because to date, 108 homes that experienced repetitive loss from flooding were bought out and removed through the state's Blue Acres buyout program. Many communities across the Raritan are starting to embrace the river as an asset to improve community wellbeing through increased investment in public access. Access is still insufficient in Manville for residents to truly obtain the full health, economic development, recreational and quality of life benefits that the river could be providing to the community.



*Photo:* Proposed site of the future Lost Valley Nature Park, © The Nature Conservancy

**The opportunity:** Opportunities exist to collaborate around restoration of buyout and floodplain areas, and to improve community well-being. Manville is an optimal location to pilot these types of restoration projects. Manville is described by residents as a desirable place to live. Manville has charming character, with a walkable Main Street, thriving local businesses, green parks and a good amount of open space. These resources position the community strongly for attracting new visitors, businesses and jobs. With partners, the Borough of Manville can leverage the borough's many existing assets as we pursue a vision for a healthy, more sustainable future.

Many of the buyout properties in Manville are in the Lost Valley section of town, with a couple dozen parcels immediately adjacent to a large, county-owned property that runs along the edge of the

Millstone River and Royce Brook. The existing river-front site can thus be expanded to include the portion of land where the homes have been bought-out. Currently the river-front site has ball fields, a playground and a boat ramp, but the site is greatly underutilized by visitors. This site – the future **Lost Valley Nature Park** - offers the opportunity to restore a natural area and improve recreational opportunities for the community.

Further, the Weston Mill Dam was removed in August 2017, and that is a solid step towards increasing access to the river by increasing the distance kayakers can paddle without interruption. Thus, this is good timing to leverage the success of the removal of the Weston Mill Dam and continue to invest in public access along the river.

**The project:** The Nature Conservancy is collaborating with the Borough of Manville around creating a holistic recreation plan to repurpose the Lost Valley Nature Park, an area of open space along the Millstone River. Somerset County Planning Division also actively supports Manville’s efforts around the Lost Valley Nature Park, as this area fits into the County’s greenway that will connect Manville to miles of trails (once the Greenway is completed). Also, this project is consistent with and advances the recommendations of the County’s Supporting Priority Investment Phase III Study.

The goals of the project are to improve recreational access for a variety of activities and types of visitors; enhance and restore the ecology of the site for wildlife and to improve water quality; increase the flood attenuation capacity of the site if/where possible; and connect visitors to local businesses.

While the full project is large in scope, the nature park can be implemented in smaller, defined components over multiple phases. This will allow for residents and visitors to experience some benefits within the next 1-2 years, even if not all recommendations are implemented. The following are examples of priority investments listed in this report that are likely to be lower cost and more feasible to implement in the short-term:

- Install an entrance sign to welcome visitors to the site.
- Create at least one new trail, likely along the road to the boat ramp.<sup>1</sup>
- Stop mowing the fields, especially the strip of land closest to the river. Allow for native vegetation to grow back.
- Begin process of planting additional trees along the river.<sup>2</sup>
- Begin planting wildflowers (i.e. native pollinator habitat). If planted in the area where the new trail is created, this will improve the aesthetics of the trail for those visiting the nature park.<sup>3</sup>

Refer also to “**Appendix A. Table of On-the-ground improvements**” for a full list of priority capital investments for the park.

**About this report and the conceptual design:** This report includes the following:

- A conceptual design of the site,

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<sup>1</sup> Refer to the area in the conceptual design in the blue circle, titled, “Initial area of investment, approximate area for trails/boardwalk.”

<sup>2</sup> Refer to the conceptual design to the yellow line titled “Initial area of investment, plant trees up to 50 ft.”

<sup>3</sup> Begin with the location cited in the conceptual design that is both yellow (“Potential areas for planting native pollinator habitat”) and within the blue circle (“Initial area of investment, approximate area for trails/boardwalk.”)

- Recommendations on site design,
- Recommendations for complementary strategies related to public access, economic development, and marketing of the site, and
- Suggested next steps to move the nature park forward.

The Nature Conservancy incorporated expert feedback on permitting, ecology, hydrology, and public access in this report as well. Additionally, the Conservancy led efforts to get stakeholder feedback on conceptual design for the Lost Valley Nature Park site. As part of Sustainable Jersey's Community Asset Mapping action, the Conservancy (in partnership with the public library) held six focus groups at the Manville Public Library in June and July 2017, resulting in the participation of 80 Manville residents.<sup>4</sup> During the Community Asset Mapping, we also elicited feedback on needs and recommendations for the site. The feedback from individual participants in the focus groups is included in the summary portion of each section of the report, and the Recommendations portion of each section has the priority actions highlighted.

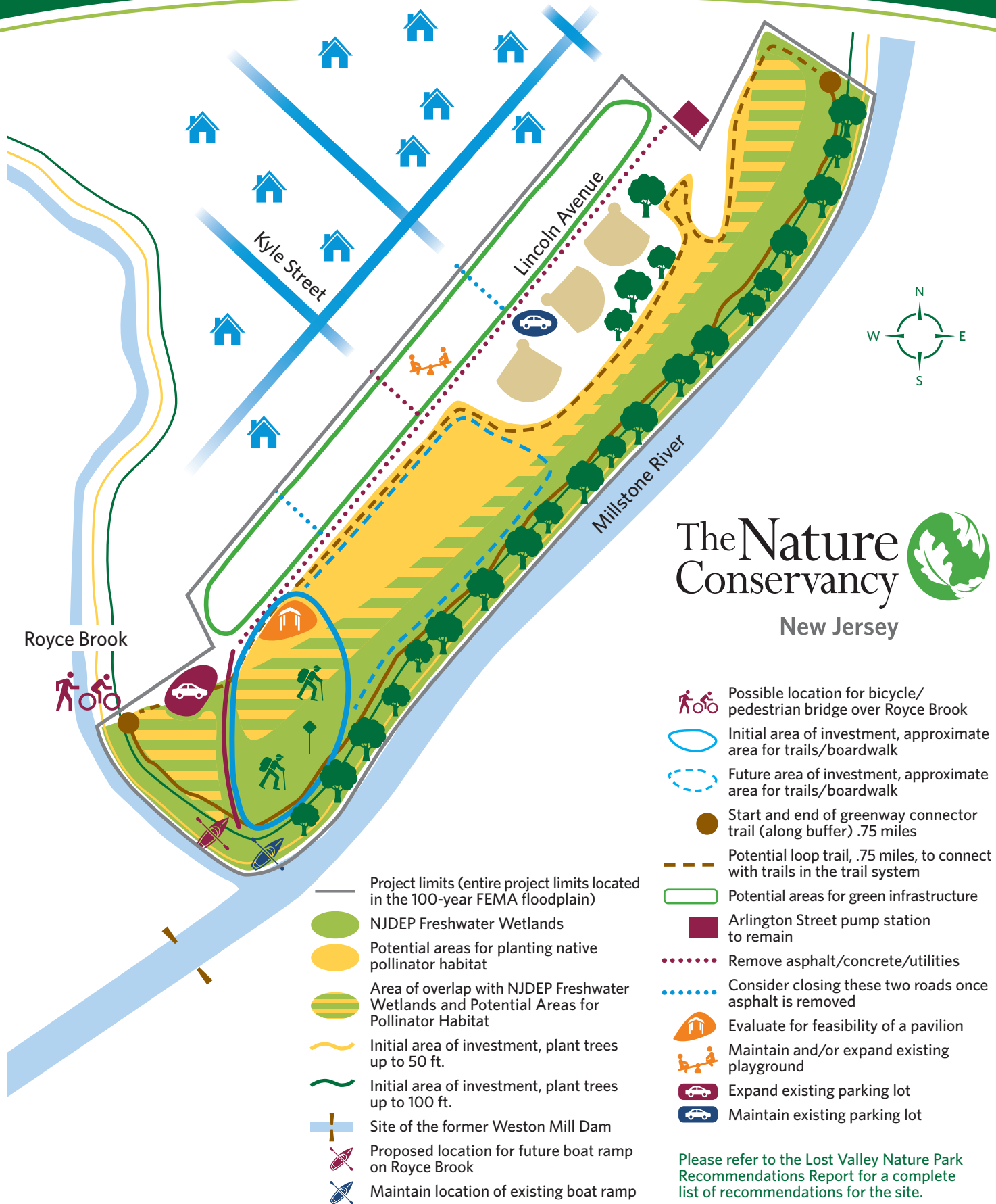
Manville's Green Team has been a supportive partner on the development of the conceptual design and recommendations report and should be considered a potential partner when implementing the recommendations in this report. Manville's Public Works Department is the entity responsible for maintaining the Lost Valley Nature Park site through an agreement with Somerset County and should also be considered a potential partner on all recommendations in the report.

The full project area is located within the 100-year FEMA floodplain area, and portions of the site are wetlands. All recommendations related to on-the-ground improvements to the Lost Valley Nature Park may be subject to New Jersey Department of Environmental Protection approvals. The conceptual design is a first look at potential site layout and location of restoration activities and visitor amenities. To apply for permits, some site improvements may also require an engineering design.

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<sup>4</sup> Additionally, Manville will be able to receive 10 points towards certification with [Sustainable Jersey](#) because the Community Asset Mapping action was completed.

# Lost Valley Nature Park Conceptual Design



The Nature Conservancy  
New Jersey

Please refer to the Lost Valley Nature Park Recommendations Report for a complete list of recommendations for the site.



## Public Access

### SUMMARY

The park is currently not designed to be a visitor-friendly nature park and thus there is no signage, no trails, and an overall lack of visitor amenities. Many opportunities exist to expand public access to the nature park to improve the boating and hiking opportunities. Currently the site has two small parking areas, one next to the baseball fields and one next to the dirt road leading to the existing boat ramp. These parking areas will be insufficient once the park becomes an official nature park and the number of visitors to the site increases. Also, the site lacks access to other open space, including County greenways. According to the County, there are opportunities for linkages with Raritan River Greenway, Peter's Brook Greenway, the D&R Canal and Duke Farms. Facilitating these linkages will support walkable communities for residents and visitors alike. While these Greenways are not yet completed, it is advisable to include them in the park design to ensure compatibility and future connections.

During the focus groups, participants expressed the importance of being able to walk safely to the nature park from other parts of town. In summary, they noted:

- Consider safety for residents walking to the Lost Valley Nature Park, including more sidewalks and an overpass in town where missing.
- Is there a safer way to connect the Canal path for cyclists?

### RECOMMENDATIONS

**Concentrate early investments by focusing on access at the southwestern-most portion closest to the Royce Brook.**

- Clustering together the parking lot, boat ramp, and other amenities will be appealing to visitors and is a more efficient use of resources for construction and maintenance.

**Plan for increased public access by increasing the size of the parking lot adjacent to the road to the boat ramp, and considering alternative places to park for events.**

- Focusing on the parking lot adjacent to the dirt road that leads to the boat ramp will help cluster site amenities for greater visitor access. Keep the parking lot unpaved to maintain the ability of the lot to absorb floodwaters. Expanding the parking lot to up to the maximum size allowable by permit will help the site be prepared for increased future usage.
- Provide overflow options that may include grassy pavers or even simply on-grass parking during those times when the park experiences special events or activities. Grassy pavers would allow for cars to park on them without destroying the grass, while still allowing rainwater to infiltrate. They're also low cost and low



*Photo: Existing parking lot adjacent to dirt road to the boat ramp. © The Nature Conservancy*

maintenance compared to other permeable pavements. They can be better for infiltration than dirt parking lots because theoretically the soil shouldn't become as compacted.

- Continue to maintain the existing parking lot near the ball fields. Given the frequency with which the ball fields flood, the ball fields are unable to be used at certain times of year. Thus, it is likely that the current capacity of this parking lot is sufficient, the number of users of this parking lot is not likely to increase, and it is worth maintaining but likely not worth expanding the parking lot near the ball fields.

**Reduce the number of roads into the park to reduce road maintenance efforts, while continuing to maintain existing dirt roads at the site.**

- Once asphalt is removed from the roads noted in the conceptual design, consider closing Benjamin Street and View Street and only maintain Kyle Street and Lincoln Avenue open as dirt/gravel roads to access the parking lots.
- Entrance roads to the site and the road to the boat ramp will require periodic maintenance in terms of gravel to fill potholes.

**Design and implement a new boat ramp along the Royce Brook, while also maintaining the existing boat ramp.**

- If the number of boaters increases significantly at the site, the current boat ramp may not be sufficient to support higher usage of the site. Additionally, the Royce Brook has a slower flow and would be an easier spot for families with children to launch kayaks. Consider the creation of a new boat ramp along the Royce Brook, close to its confluence with the Millstone River.
- Maintain the existing boat launch as well. Having two boat launches will help spread the number of visitors over two locations, reducing impact.



*Photo: Site for potential new boat ramp along the Royce Brook. © The Nature Conservancy*

**Install an entrance sign, as well as wayfinding and gateway signs.**

- Install an entrance sign to welcome visitors to the nature park. Entrance signs should be welcoming and not overwhelmed by a list of rules for site usage. Coordinate with Somerset County to match signage with County signs.
- Work with the Public Works Department of the Borough and other relevant partners to identify all locations to install wayfinding signs. Identify major intersections where these directional signs are needed, and get approval from landowner to install signs.
- When entering into the Lost Valley, a gateway sign is recommended to welcome visitors to the area. Then, additional signs should be installed at nature park entrance points to welcome visitors to the Lost Valley Nature Park.

## **Encourage connectivity to regional walking and biking paths and routes.**

- Work with the County and other relevant landowners to identify points of connection to regional walking and biking paths.
- Somerset County's Supporting Priority Investment Phase III Study recommends investigation of a bicycle and pedestrian bridge over the Royce Brook.

## **Visitor Amenities & Activities**

### **SUMMARY**

Selection of visitor amenities at nature parks will be based upon the attributes of the site, the interests of site visitors, and whether the site is targeting tourists, residents or both. In the case of the Lost Valley Nature Park, residents at the focus group meetings noted that the site is currently used by some residents, but many people did not use the site due to lack of amenities (e.g. lack of trails). Thus, it's important to continue to maintain and improve access to the site for residents. There was also considerable interest with focus group participants and other project stakeholders to target tourists – additional visitors to the site from outside of Manville, who may then spend money at local businesses after visiting the nature park. It is recommended to invest in amenities that would make the site tourist ready – for instance, residents may not need ample signage to find the site, but visitors will expect additional wayfinding signs.

The Lost Valley Nature Park floods several times a year, and flood levels should be considered when designing all site amenities. It may be a safety hazard if items (e.g. a picnic table) were to dislodge and float downstream during a flood event. Also, when selecting site amenities, take into consideration that items may be damaged by flooding.

During the focus group meetings, participants had ample feedback on how to improve the site. Several common areas of feedback are as follows:

- The most frequent feedback received through the focus groups was an interest in seeing multiple activities at the Lost Valley Nature Park. Most participants didn't feel strongly about what specific activities should be available at the site, apart from the standard walking, fishing and boating that one would expect to see at a nature park. They wanted a variety to choose from –anything from bocce courts to exercise equipment to an archery range to a dog park to flooding the site for ice skating in the winter.
- Numerous focus group participants mentioned that they enjoy walking the track at the high school and that mileage markers should be installed on any trails at the nature park. These can be attached at quarter mile intervals on delineator posts.
- Several focus group participants recommended incorporating art into the site, such as a sculpture garden.
- People expressed significant interest in activities that are appropriate for young children.

## RECOMMENDATIONS

**Include different types of trails for different purposes, including a wider trail that connects to the Greenway and smaller hiking loops.**

- We recommend including a wider “edge” trail along the edge of the forested buffer (see solid brown line in conceptual design). This main trail will connect to the County Greenway and is likely to be fairly straight, several feet wide, and be surfaced so that it is also accessible by bicycles.
- Refer to American Disability Act recommendations to make the greenway connector trail wheel chair accessible.
- Because the Greenway is not yet complete, consider adding in a loop trail (see dashed brown line in conceptual design). This loop trail may connect to other hiking loops.
- Include smaller walking or hiking loops that meander through the park. In order for a more efficient use of resources, in Phase 1 start with small loops or even a single loop (within blue circle around in the conceptual design). This trail will be narrower than the edge trail, and may not need to be surfaced. In Phase II, expand the area (into the dashed blue circle in the conceptual design) to include more trail loops.

**Coordinate with ecological restoration partners to create trails through wildflower meadows or adjacent to trees.**

- Trails through trees or wildflowers are more likely to be visually appealing to visitors. As shown in the photo of the Garrett Preserve at Cape Island Creek, trails can be mowed through the wildflower meadows. Once trail routes are selected, create a map and keep the trails in the same location each year, and mark them with delineator posts.



*Photo: An example of a similar site, with trails mowed through wildflower meadows at the Garrett Preserve at Cape Island Creek in Cape May County. © Damon Noe, The Nature Conservancy*

**Trails should be well-marked.**

- Include a trail map next to the parking lot, then have markers along the trail.

**Install various types and styles of interpretive signs.**

- Interpretive signs enhance the visitor experience. Signs that explain the ecology of the site tend to be appealing to visitors and can enhance their appreciation of the site. Signs could focus on the wetlands and how floodplains naturally flood; birds and birding; native pollinators; etc.
- Visitors may also appreciate structures such as insect hotels, purple martin boxes or bluebird boxes.

- Consult with partners such as The Nature Conservancy and Duke Farms on how to design good quality, user-friendly signage which could reduce costs towards a graphic designer.

**Consider installing a boardwalk for the wettest portions of the site.**

- If funding opportunities arise, a boardwalk would be appealing to many visitors. A large percentage of the site is wetland and stays wet for certain portions of the year. A boardwalk over the wettest portion of the trail system would help prevent the trail from getting overly degraded during wet periods. It would also improve the experience for visitors at the muddiest times of year. Successful fundraising campaigns have been mounted to support construction of boardwalks at The Wetlands Institute and Edwin B. Forsythe National Wildlife Refuge. Consider partnering with a local non-profit to fundraise for improvements to the site.

**Install a pavilion.**

- Consider feasibility of installing a pavilion. Installing a pavilion near the parking lot would be a convenient location for visitors to have lunch or dinner in the shade. Investigate if the Borough could collect revenues from renting out the pavilion for birthday parties and other events. Placing the pavilion outside of any area of freshwater wetlands and in a location that was already disturbed (and not good quality habitat) may make permitting more feasible.

**Installing a car counter at the entrance of the parking lot.**

- Car counters are a good way to track the number of vehicles that enter the site over time. Also, it can be a good way to track if an investment in the site amenities or in a marketing campaign resulted in an increase in visitors.

**Work with the Manville Recreation Department and other relevant partners to make a plan for any changes to baseball fields and basketball area.**

- The ball fields that are currently at the park might need to be moved in the future due to the problem of frequent flooding at the site. However, there is already a lack of sufficient ball fields in Manville (especially for teenagers), so residents recommended to not remove the ball fields unless they can be moved to another location.
- There currently exists an area at the nature park to play basketball, though this area is in disrepair. Consider removing the pavement in the future. If a decision is made to keep the basketball court, assess feasibility of using pervious pavement.

**Incorporate art into design, planning and implementation of amenities at the nature park.**

- Work with community partners such as the Manville Arts Council to bring art and culture to the site.
- Please note that the Somerset County Cultural and Heritage Commission provides grant funding for creative placemaking projects and could potentially help fund the implementation of this recommendation.

# Marketing Campaign

## SUMMARY

A marketing campaign around a local destination usually has several components that include branding, advertising, a website presence, and signage. In most cases, increasing the number of visitors to your site doesn't happen automatically. It takes a coordinated effort to market the site. Starting at the beginning of the creation of the new park, partnering with local groups to create a strategic plan and an action plan can ensure that consistent branding is considered.

Focus group participants noted an interest in encouraging use of existing cell phone apps to provide information about the site and in the installation of a community bulletin board for news and emergency information.

## RECOMMENDATIONS

### **Partner with local tourism groups.**

- There can be efficiencies when coordinating with other groups with a similar brand. Take advantage of any regional branding, while also differentiating your site from other sites. Get your site listed on any regional tourism sites. The Somerset County Business Partnership is the designated marketing organization for the County's tourism efforts and should be included as a potential partner.

### **Clusters of similar sites can attract more visitors.**

- Visitors prefer to go to a location with numerous restaurants, or with dozens of nature parks. Coordinating with other local nature parks (e.g. Duke Farms, the D&R Canal, etc.) could be beneficial. There also can be cost-savings with shared advertising.

### **Work with local partners to define your brand.**

- Avoid the "group hug mentality" – you can't try to be everything for all people because it dilutes your brand. Work with Main Street businesses or Sustainable Manville to create a local brand. Building on a Manville brand rather than having a completely separate brand for the Lost Valley Nature Park may be the best approach.

### **Print materials are still recommended in addition to online resources.**

- Before traveling, people use internet for 2/3 of their searching/planning time. But after arriving at a place, people use mostly brochures to decide where to go. Create a brochure for the Lost Valley Nature Park, and consider including other regional sites, as well, in the same brochure.





*Photo: An example of kayak rentals along the Schuylkill River, PA © Montgomery County Planning Commission*

## Economic Development

### SUMMARY

Similar to the idea that it's advisable to develop a marketing campaign at the same time that the park is being created, partnering early in the process with economic development groups also has advantages. Partnering can lead to more shared resources and better project outcomes and reduce duplicate efforts.

### RECOMMENDATIONS

**Include the name "Manville" on Lost Valley Nature Park signs where appropriate and welcome visitors to visit local businesses on Main Street and nearby.**

- Out of town visitors may not know they are in Manville, and welcoming them to shop at Manville's stores may be the nudge visitors need to spend money at local businesses.

**Partner with local businesses.**

- A large percentage of successful case studies around destination marketing and promoting Main Street businesses have been driven by the private sector, with local government playing a smaller support role.
- Local business sponsors of the park could be one way to engage local business owners, possibly allowing their name on park signage, benches or picnic tables.

**Develop and promote local itineraries.**

- Visitors like experiences. Create itineraries that will tell them the best places to go for a walk and put their kayak into the Millstone (the Lost Valley Nature Park), grab a bite to eat, get a drink and any other key sites to visit. Promote itineraries online and in any printed brochures.

### Develop and promote events.

- Coordinate with local businesses to develop and promote events to attract visitors to the area. These events can be used to encourage visitors to spend money at local businesses and visit the Lost Valley Nature Park. Manville Community Day is an event in the fall that already takes place at the nature park, and could be built on to create additional linkages to local businesses.
- New events could also be developed specifically around nature activities at the park.

### Partner with local businesses in outdoor recreation.

- Investigate former restaurant (Rhythms) for location for a future kayak or bike rental store, while exploring other partnerships with outdoor retailers.



Photo: Wildflower meadows at the Garrett Preserve at Cape Island Creek, © Damon Noe, The Nature Conservancy

## Ecological Improvements

### SUMMARY

In its current state, the Lost Valley Nature Park doesn't provide many benefits to wildlife. The open areas are dominated by mown lawn grass, and native vegetation is notably missing. Restoring and enhancing the ecology of the site could enhance the aesthetics, improve water quality, attract wildlife species that may be appealing to visitors, and increase flood attenuation capacity of the site.

Unfortunately, with respect to flood risk reduction, consultant review of existing modeling for the Raritan and Millstone Rivers indicated that the potential to increase flood attenuation on this site was minimal, even if large amounts of dirt were excavated. Please refer to "**Appendix B. Evaluation of the Lost Valley Nature Park for Flood Risk Mitigation**" with a brief explanation of the work conducted by the consultant as part of our due diligence to assess the potential for increasing the flood storage



capacity of the site. Increasing the amount of herbaceous and woody vegetation on-site as recommended below, however does provide some flood attenuation value, though likely not an amount that is readily measurable.

## RECOMMENDATIONS

### Remove asphalt, concrete and utilities that remain.

- Refer to the conceptual design to see the location of roads that are targeted for removal. (Arlington Street pump station to remain).

### Expand the forested buffer along the edge of the Millstone to 100 feet wide.

- Reforesting the full width of the natural floodplain provides the most habitat and ecologic benefits, but may not be cost-effective. Reforesting a 100-foot buffer is recommended for simplicity of field plantings; this width will provide significantly greater habitat and ecologic benefits compared to a 50-foot-wide buffer. The 100-foot buffer will be a bigger investment of resources and as such, it may be more realistic to implement the project in phases: first the 50-foot buffer and in the future, install the 100-foot buffer.
- Utilize native tree and shrub species. Given compaction of soil along the buffer, special equipment may be needed to dig holes for reforestation.



*Photo: Compaction of soil along the existing tree buffer. © The Nature Conservancy*

### Plant native wildflowers.

- Planting native wildflowers provides habitat for pollinators, can be more aesthetically pleasing than lawns, and can serve as a destination or feature for creation of trails. Rather than planting native wildflowers on the entire site beyond the forested buffer, it may be more cost-effective to target poor quality habitat for plantings. For instance, plant wildflowers in lawn or grass-dominated areas, but avoid areas that already have healthy (mostly native) wetland plants

growing. Consult with partners such as Dr. Emilie Stander, professor of ecology, at the Raritan Valley Community College.

- Also, prioritize locations with higher visibility to the public to maximize the social benefits of the wildflower plantings.

#### **Encourage growth of native wetland plants in wetland areas.**

- As shown in the adjacent photo, native wetland plants are already starting to grow naturally in areas of the site where mowing has stopped. Because native wetland plants were observed growing at this site, consider stopping mowing all along the wetland area at the edge of the forested buffer. Continue to observe if native wetland plants naturally grow in those additional areas. If not, planting of native wetland plants may be needed.



*Photo: After mowing was stopped in one portion of the nature park, these native wetland plants germinated naturally. © The Nature Conservancy*

#### **Make a plan for managing invasive species.**

- There is some presence of invasive species in the existing vegetated areas, and this could become more of a problem as the riparian buffer is extended and mowing is scaled further back. Work with Drs. Emilie Stander and Jay Kelly, professors of ecology at the Raritan Valley Community College, to make a plan for managing invasive species. Dr. Stander and Dr. Kelly have expressed interest in incorporating invasives management at the Lost Valley Nature Park into their capstone environmental science course, and/or possibly engaging some of their students in long-term monitoring of invasive plant populations that can then help Manville do some adaptive management. Then volunteers could be recruited for invasive species removal events. There is potential to pull in the NJ Invasive Species Strike Team on this too.

#### **Incorporate green infrastructure for stormwater management where appropriate.**

- Closest to roads and other impervious surfaces are likely to be the ideal locations to capture runoff and to showcase green infrastructure installations to the public (refer to suggested location in the conceptual design).
- Consider options such as curb cuts, vegetated swales, rain gardens and pervious pavement. Also consider bio-filters or other green plantings that require minimal maintenance yet perform a valuable natural function.
- Work with university partners to implement small-scale pilot projects to demonstrate new concepts and designs of green infrastructure for stormwater management, which can also serve to educate the public. Currently Dr. Obropta of the Rutgers' Water Resources Program and Pat Rector of Rutgers' Cooperative Extension have provided support to Manville. Also, explore

opportunities to work with Dr. Emilie Stander of the Raritan Valley Community College, who can engage students in the construction and maintenance of green infrastructure projects.

- As a general best practice, reduce and eventually eliminate impervious cover across the site.

## Maintenance

### SUMMARY

Currently, the site requires time from the Borough of Manville Public Works Department to mow the grasses and maintain the site. The type of activities that require maintenance will shift once the site becomes a nature park, and planning around upcoming changes in site maintenance is advised.

### RECOMMENDATIONS

#### **Plan for the change in type of maintenance activities.**

- Currently mowing is the major landscaping activity across much of the site. After the site becomes a nature park, the landscaping will shift to mowing around edges, maintaining trails and other activities related to maintaining public access at the site.

#### **Recruit volunteers to help maintain the site.**

- Partnering with established groups like the boy scout/girl scouts or environmental clubs at the schools is one option for organizing volunteers.
- Another option is to recruit a wider variety of volunteers who regularly visit the site for work days several times a year. The work days can focus on trail maintenance or trail enhancements, trash pick-ups, tree plantings, or other activities.
- Consider organizing an “Adopt a park” group of volunteers from local businesses or other community organizations to help support and maintain the park.
- Seek college students as volunteers as well. Work with Dr. Emilie Stander to engage Raritan Valley Community College students through service learning requirements in classes. College students can help with science and monitoring in addition to maintenance.

#### **Have a plan for maintaining any unpaved roads at or leading into the park.**

- Particularly after rain events, they may need maintenance, and passable roads are important for increasing visitation rates.

#### **Native pollinator habitat benefits from annual mowing.**

- In areas where native pollinator habitat has been planted, mow to the ground once a year, either in late fall or March.

## Permitting and Next Steps

### SUMMARY

The project includes multiple steps.

1. Step One is the planning phase, completed in December 2017.

2. Step Two is the design phase. The initial (conceptual) design of the site is included in the Appendix. Engineering designs may be required for certain structures and features that will be installed at the site.
3. Step Three is permitting.
4. Step Four is implementation – which will likely occur in multiple phases as funding becomes available.

## **RECOMMENDATIONS**

### **Work with a consultant to complete wetland delineation, surveying and topographic assessment of entire site.**

- This is a required next step to prepare for any future permitting.

### **Work with a consultant to identify and implement next steps to prepare for any required permits.**

- Additional next steps to prepare for required permits will include additional engineering services, site work, and possible engineering designs. Landscape architecture services (grading, drainage, soil erosion and sediment control plans) and a more detailed landscape plan (location and specific types of native plantings) will likely also be required. Not all actions listed in this recommendations report will require a permit, so part of this planning process is to identify which actions will need permits and which permits will be required for those site improvements.

### **Collaborate with Rutgers' Landscape Architecture Department to explore opportunities to receive student input on the design of the site.**

- Jean Marie Hartman has verbally committed to offering two Master's students to contribute to the site design in summer of 2018. Dr. Hartman can be reached at [jhartman@rci.rutgers.edu](mailto:jhartman@rci.rutgers.edu).

### **Account for additional time and resources needed to apply for appropriate permits.**

- Two regulatory programs oversee the Lost Valley Nature Park, given its location in the floodplain: wetlands areas rules and flood hazard area rules.

### **Take into consideration local and regional permitting requirements, as well.**

- Consult with the municipal planning board to confirm their requirements. D&R Canal Commission requirements apply to any projects within 1,000 feet of the canal.

## Appendix A. Table of On-the-ground Improvements

Category	Improvement
<b>LOWER COST (EST.)</b>	
Public Access	Install an entrance sign, as well as wayfinding and gateway signs.
Visitor Amenities & Activities	Install a wider “edge” trail along the edge of the forested buffer that will connect to the County Greenway
Visitor Amenities & Activities	Install a loop trail that connects to the edge trail.
Visitor Amenities & Activities	Include smaller walking or hiking loops that meander through the park.
Visitor Amenities & Activities	Include a trail map next to the parking lot, then have markers along the trail.
Visitor Amenities & Activities	Install various types and styles of interpretive signs.
Visitor Amenities & Activities	Installing a car counter at the entrance of the parking lot.
Visitor Amenities & Activities	Incorporate art into design, planning and implementation of amenities at the nature park.
Ecological Improvements	Plant native wildflowers.
Ecological Improvements	Expand the forested buffer along the edge of the Millstone to 100 feet wide.
<b>MEDIUM COST (EST.)</b>	
Ecological Improvements	Incorporate green infrastructure for stormwater management where appropriate.
Visitor Amenities & Activities	Install a pavilion.
Public Access	Plan for increased public access by increasing the size of the parking lot adjacent to the road to the boat ramp.
<b>HIGHER COST (EST.)</b>	
Public Access	Design and implement a new boat ramp along the Royce Brook.
Visitor Amenities & Activities	Consider installing a boardwalk for the wettest portions of the site.
Ecological Improvements	Remove asphalt, concrete and utilities that remain.

Order of magnitude cost tiers:

Lower: <\$100K

Medium: \$100K - \$200K\*

Higher: >\$200K

\*Individual projects in the “medium” category will be less than \$100K, but cumulatively the projects will likely fall in this cost range.

## Appendix B. Evaluation of the Lost Valley Nature Park for Flood Risk Mitigation

**Summary:** Of the many benefits that naturally-functioning floodplains provide, flood attenuation is one that can be particularly important for riverside communities. Where floodplains have been altered or severely degraded, opportunities exist to increase flood risk reduction value through site restoration. Given the ongoing flood risks in Manville, one potential objective for the restoration of the open space near Lincoln Avenue was to tailor the restoration activities to create the Nature Park to also enhance flood risk reduction benefits. However, pro-bono consultant review of the site as represented in the FEMA flood insurance study, Google Earth Pro, and the US Army Corps of Engineers' model indicates that restoration at this site will not offer significant flood benefits; the low likelihood of measurable benefits is due largely to the fact that the floodplain is already well connected to the river and thus is conveying floodwaters as it should, and that the site is influenced by the backwater of the Raritan. Re-establishing native vegetation onsite could provide some resistance to floodwaters, but additional measures will also be needed to have a quantifiable impact on flood reduction to surrounding homes. Therefore, our recommendation is to focus on the other recreational and ecologic benefits that site restoration can provide, as well as green infrastructure for stormwater management where appropriate.

For more details on the methodology employed to draw the above conclusions, please contact: Ellen Creveling, Director of Freshwater Programs at The Nature Conservancy, at: [ecreveling@tnc.org](mailto:ecreveling@tnc.org).