



Appendix 14: Township of North Brunswick

The Township of North Brunswick participated in the 2015 Middlesex County Hazard Mitigation Plan (HMP) update. This appendix includes the locally-specific information about the Township. The following sections detail the planning process and participants; the current population, building stock, and land development trends; hazards that specific to the Township and corresponding risk assessments; the Township’s mitigation strategy, and a local capability assessment.

1. Plan Development

On August 22, 2014, the Township Administrator signed an “Intent to Participate” letter and assigned a point of contact for the HMP update. This individual worked with other municipal employees, consultants, volunteers, and other stakeholders through the formation of a Local Planning Committee, as listed below. The local planning committee filled out the municipal worksheets included in Appendix E and worked to gather the necessary information to support the plan update. The LPC met with the Planning Consultant on June 24th, 2015 to review the worksheets, risk assessment information, and mitigation action strategy. The LPC has reviewed and commented on all drafts of this appendix.

Table 14-1: Township of North Brunswick Local Planning Committee Members

Name	Title	Organization
Mark Cafferty	Emergency Management Coordinator	North Brunswick Township
Michael Proietti	Deputy EMC/Zoning Officer	North Brunswick Township
Scott Kunz	Municipal Engineer	North Brunswick Township
Thomas Paun	Floodplain Administrator/Construction Official	North Brunswick Township
Thomas Vigna	Land Use Planner	North Brunswick Township
Lisa Russo	Municipal Clerk	North Brunswick Township
Francis Womack	Mayor	North Brunswick Township
Robert Lombard	Administrator	North Brunswick Township
Kala Sriranganathan	Municipal CFO	North Brunswick Township
Eric Chaszar	DPW Director	North Brunswick Township
Joe Battaglia	Deputy Chief of Police	North Brunswick Township
John Kriskowski	Township Engineer	CME Associates



2. Community Profile

2.1 Physical Location

The Township of North Brunswick has a total area of 12.13 square miles and is located in the west-central region of Middlesex County, New Jersey. North Brunswick is bordered by New Brunswick to the north, East Brunswick and Milltown to the east, South Brunswick to the south and Franklin Township, Somerset County, to the west.

2.1.1 Hydrography and Hydrology

The Township of North Brunswick is located entirely in the Raritan River Basin. North Brunswick’s eastern boundary is defined by Westons Mill Pond and Farrington Lake. Both of which are fed by Lawrence Brook and its tributaries. The northern portion of the Township drains into the Mile Run sub-watershed and stream. The western portion of this Township drains into Six Mile Run and its tributaries.

2.2 History and Governance

The Township of North Brunswick was formally incorporated on February 21, 1798 and was one of the earlier townships established in the State. The Township is governed under the Mayor-Council-Administrator form of government, and has an elected Mayor and six Council members, all elected at-large. The Mayor is elected directly to a four-year term of office. Town Council members are elected to serve three-year terms on a staggered basis, with two seats coming up for election every year. The Township Council holds monthly meetings open to the public where it discusses legislation under consideration.

2.3 Demographics

2.3.1 Population Trends

According to the U.S. Census Bureau, the population in 2010 was 40,742.¹ This is a 12.3% increase from 2000. The Township of North Brunswick has a population density of 3,396 persons per square mile. It is the 14th densest municipality within the County. A summary of major population and household characteristics may be found in the following tables.

Table 14-2: Township of North Brunswick Population Summary Estimates (2010 Census) ²

Population	Quantity	Percent of Municipal Population
Total Population	40,742	100
Median Age	35.5	N/A
17 years and under	9,546	23.4

¹ U.S. Bureau of the Census. American Fact Finder “North Brunswick Township, NJ”. <http://factfinder.census.gov/>. Retrieved 8/16/15.

² Ibid.



65 years and over	3,780	9.3
Race		
White	18,991	46.6
Black/African-American	7,116	17.5
Native American/Alaskan Native	171	0.4
Asian	9,888	24.3
NOTE: Indian	6,952	17.1
NOTE: Chinese	969	2.4
NOTE: Korean	523	1.3
Native Hawaiian/Pacific Islander	15	0.0
Other Race (unspecified)	3,323	8.2
Two or More Races	1,238	3.0
Hispanic or Latino	7,223	17.7

Population statistics may further reveal potential vulnerabilities in the community. The following table details the distribution of two groups included in vulnerable population analyses (children and the elderly) according to household description. Residents living alone, particularly the elderly, may have fewer coping mechanisms and resource than those in household groups, therefore may constitute a demographic that could require assistance in mitigating their vulnerability.

Table 14-3: Township of North Brunswick Household Characteristics Summary Estimates (2010 Census) ³

Households	Quantity	Percent of Total
Total Households	14,551	100
Family Households (related)	10,400	71.5
Family Households w children under 18	5,196	35.7
Non-Family Households (unrelated)	4,151	28.5
Non-Family Households, living alone	3,245	22.3
Non-Family Households, living alone Male over 65 years	272	1.9
Non-Family Households, living alone Female over 65 years	650	4.5

2.3.2 Vulnerable Populations

Vulnerable populations include those groups that may require special assistance, considerations, accommodation or other needs during emergency events to facilitate their effective and safe compliance with emergency instructions. This includes, but is not limited to, those individuals needing mobility assistance (strollers, wheelchairs, etc.), those with financial needs (cannot afford hotel rooms, food, necessities, during evacuation periods, etc.), those requiring translation or interpretation services to understand emergency information (non-English-speaking populations, Deaf and hard of hearing), persons considered legal minors, those persons with cognitive impairments, persons with specialized medical needs (electric dependent equipment, refrigerated medications, use of Personal Assistants for

³ Ibid.



routine and basic care, medical transportation needs, etc.), and populations with social disadvantages other needs that may require unique considerations during emergency events.

Identifiable vulnerable populations in North Brunswick include (but may not be limited to) the following:

Table 14-4: Township of North Brunswick Vulnerable Population Estimates (2010)

Population Type	Population Estimate (2010 Census) ⁴
Under 5 years of age	2,961
Under 18 years of age	9,546
Over 65 years of age	3,780
Limited English Proficiency (LEP)	5,923.30 (equals 15.4% of population over 5 years old)
Institutionalized	1,057
Living in Group Quarters	64

North Brunswick has a high rate of renter-occupied houses and a wide diversity of ethnicities and languages spoken in its population. In addition to these statistics, approximately 5.6% of the population lives below the poverty line. The mean household income is \$97,124, with the per capita income at approximately \$34,892 (2013 estimates).⁵

2.4 Land Use and Development

North Brunswick is largely built-out, with over 70 percent classified as urbanized or developed.

Table 14-5: Township of North Brunswick Land Cover Summary

Land Cover Class	Percent of Total Land ⁶	2002 (acres)	2007 (acres)	2012 (acres)	Percent Change ⁷
Agriculture	3.98%	390.18	316.15	312.56	-19.89%
Barren Land	0.85%	189.52	92.94	66.62	-64.85%
Forest	9.46%	798.57	744.10	743.27	-6.92%
Urban	70.04%	5183.09	5453.40	5505.45	6.22%
Water	2.31%	171.34	180.37	181.83	6.12%
Wetlands	13.36%	1127.33	1073.06	1050.30	-6.83%

⁴ Ibid.

⁵ U.S. Bureau of the Census. American Fact Finder "North Brunswick Township, NJ". <http://factfinder.census.gov/>. Retrieved 8/16/15.

⁶ Percent based on acres of land in 2012

⁷ Change is calculated between 2002 and 2012



2.4.1 Open Space

2.4.2 Buildings and Development

Table 14-6: Township of North Brunswick Housing Statistics

Housing Characteristics	Estimate
Total Occupied Housing Units	14,564
Percent Owner-occupied	59.5
Percent Renter-occupied	40.5
Percent built after 2000	9.1
Percent built before 1979	53.4

2.4.3 Recent and Expected Development

Project Name	Type	Number of Structures	Locations	Known Hazards	Description/Status
Hartland Square	Residential	108	Berkshire Ln., Cambridge Dr., Canterbury Ln., Oxford	None	Completed
TOD Associates	Mixed	1,875	100 Grand Ave.	None	Under construction
Train Station	Transportation		Station Ave.		Planning
Bus Depot	Transportation		Station Ave.		Planning



2.5 Critical Facilities and Infrastructure

2.5.1 Essential Facilities

The Township has a municipal complex and Police Department, three Fire Companies, a rescue squad, and a public library. None of these facilities are located in known hazard zones and have not sustained significant damage from flooding in previous storms. The damage to these facilities in previous events has been largely caused by high winds.

2.5.2 Transportation

Primary transportation routes include U.S. 1, U.S. 130, State Routes 26, 27, 91 and 171, and County Routes 606, 608, 620, 680 and 682. New Jersey Transit provides bus service and the New Jersey Turnpike is accessible via municipalities to the east and south. There are plans to expand mass transit service options within the Township in the future including rail and bus service.

2.5.3 Critical Utilities and Infrastructure

The Township is serviced by PSE&G for its electricity. North Brunswick reported that service in the Township can be unreliable with periodic brown-outs and slow restoration of service. New Jersey American Water services the Township's water, but the Township owns a water treatment plant that is managed by New Jersey American Water. This plant was damaged in Sandy. It has since been repaired but it has not mitigated against future flood events.

The Township also manages the sewer infrastructure and stormwater infrastructure. The wastewater is pumped to the Middlesex Utility Authority for treatment. One pump station within the Township was damaged in Sandy. It has been repaired but not mitigated.

The stormwater infrastructure within North Brunswick is unable to manage the volume of stormwater in a heavy rain event. Many of the large commercial complexes were built before modern stormwater rules and do not have appropriate retention and detention systems. As a result, stormwater backs-up through the system and floods streets throughout the Township.



3. Hazard Identification and Risk Assessment

This section describes the natural hazards and risks that can affect North Brunswick Township. Like all the other municipalities in Middlesex County, North Brunswick is potentially subject to the effects of all the hazards that are considered in this mitigation plan. However, only a few of these hazards have significant impacts that are unique to the community. The remaining hazards are discussed in detail in the County part of this mitigation plan. FEMA mitigation planning guidance requires that County mitigation plans include a risk assessment section that “assess[es] each jurisdiction’s risks where there vary from the risks facing the entire planning area” (44CFR 201.6 (c) (2) (iii)). Because the Middlesex County HMP update includes separate appendices for each municipality, this requirement is met in the appendices, while risks that affect the entire County uniformly are discussed in the County part of the HMP.

3.1 Background and Hazard Rankings

Table 14-7 shows community hazard rankings. To the extent possible, the level of discussion and detail about specific hazards in this section are based on these rankings. However, in many cases there is insufficient hazard information available at the level of the jurisdiction to allow detailed discussion or risk estimates. For some hazards there is limited jurisdiction-level tabular data included in the County portion of the HMP, and users should refer to those subsections for more detail. The hazards marked with asterisks in the table above are included in this appendix; the others are included in the County portion of this HMP, but not discussed in detail here.

Table 14-7
Township of North Brunswick
Hazard Identification and Prioritization

Hazard	Priority
Coastal Erosion	Low
Dam/Levee Failure*	Low
Drought	Low
Earthquakes	Low
Extremely High Temps	Low
Extremely Low Temps	Low
Floods*	Low
Hurricanes/Tropical Storms*	Medium
Nor’easters	Medium
Power Outages	Medium
Severe Weather	Medium
Hazardous Substances	Medium
Wildfire	Low
Winter Storm	Medium

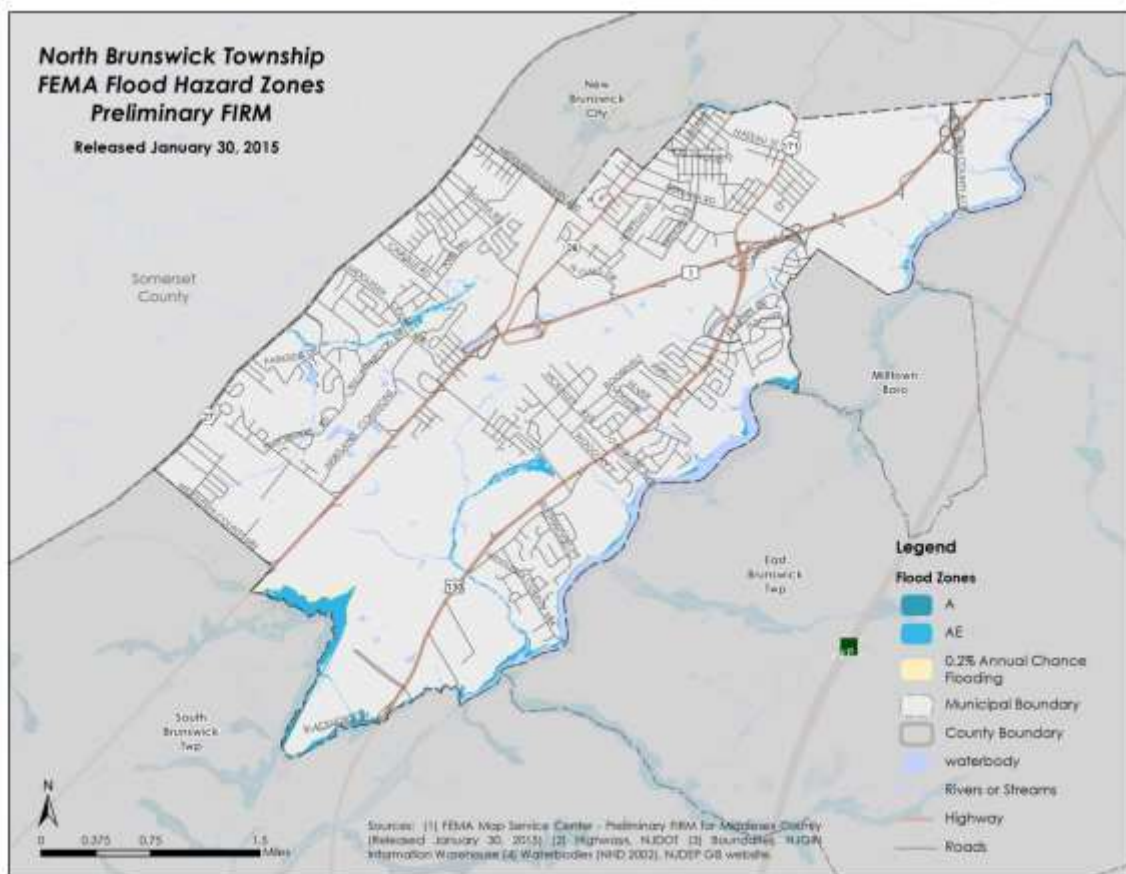


3.2 Flood Hazard

3.2.1 Type, Location, and Extent

One of the best resources for determining flood risk in a jurisdiction is Flood Insurance Rate Maps (FIRMs), which are produced by FEMA. The FIRM is the official map of a community on which FEMA has delineated both the special flood hazard areas (1% annual chance of flooding) and the risk premium zones applicable to the jurisdiction.⁸ At the time the Middlesex County HMP was being updated, the effective FIRM for the North Brunswick is dated July 6, 2010. While the effective FIRM is the approved map and is used for regulatory purposes, the Middlesex County hazard mitigation plan update was developed in 2015, and the best available flood mapping at that time was the FEMA revised Preliminary Flood Map (released on January 30, 2015). This map is shown below in Figure 14-1.

Figure 14-1
North Brunswick Township portion of FEMA Revised Preliminary Flood Insurance Rate Map (January, 2015)
(Source: FEMA Region II, Coastal Analysis and Mapping, Preliminary FIRM, September 19, 2014)



⁸ FEMA online - Floodplain Management. Flood Insurance Rate Map (FIRM) definition



Current FEMA guidance uses the term *extent* as analogous to potential severity. The extent of the flood hazard in North Brunswick is very minor. As shown in the table below, the jurisdiction has very little floodplain, and very few parcels in the jurisdiction are in proximity to floodplains.

Table 14-8
Floodplain and Parcel Data for North Brunswick Township
(Source: FEMA Region II, Coastal Analysis and Mapping, Preliminary FIRM, September 19, 2014)

Data Type	Value
Jurisdiction area in square miles	12.28
Square miles within 100-year floodplain	0.55
Percentage of jurisdiction within 100-year floodplain	4.47%
Number of parcels in jurisdiction	11,681
Number of parcels with centroids within 100-year floodplain	118
Percentage of parcels with centroids within 100-year floodplain	1.01%

[Note: the table refers to centroids, which are the geographic center of a parcel. This is a better indicator of flood exposure than simple intersection with the floodplain, although it does not necessarily mean that any structures or infrastructure are within the boundaries of the Special Flood Hazard Area].

3.2.2 Previous Occurrences and the Probability of Future Floods

Of the 15 flood insurance claims paid since North Brunswick entered the NFIP, about half were related to Tropical Storm Irene, and although the remainder extend back to 1980, they are relatively small and spread out, suggesting that there may be minor ponding or runoff problems from time to time, but there is little or no serious vulnerability. Given the jurisdiction’s inland location and lack of flood history, the probability of future flooding is probably about the same as it has been in the past.

3.2.3 Flood Impacts and Vulnerabilities to Flooding

The impacts from past floods in this jurisdiction have been minimal. Based on detailed reviews of NFIP claims data and floodplain maps, the community has very little vulnerability to floods because there are almost no developed areas within floodplains. As part of the data collection phase of this hazard mitigation plan, North Brunswick provided some details about damages in Hurricane Irene (2011) and Hurricane Sandy (2012). Heavy rain and high winds in Irene caused some road closures and power loss in the community. The routes were re-opened at 10 a.m. the day following the storm. There was some damage to the Township water treatment plant (\$26,529, as indicated in FEMA Project Worksheets) and incoming electrical service to on facility was damaged at a cost of \$3,256. There was some scattered damage to private property, but this was mostly due to high winds downing trees and limbs.



3.2.4 National Flood Insurance Program and Repetitive Loss Properties

To provide a sense of the flood risk in a community it is also beneficial to summarize the policies in force and claims statistics from the National Flood Insurance Program (NFIP). There is a discussion of the NFIP in the County section of this hazard mitigation plan. North Brunswick has been a member of the NFIP since 1979.

**Table 14-9
NFIP Policies and Claims**

Number of Parcels:	
North Brunswick:	11,681
Middlesex County:	283,276
Number of Policies In-Force:	
North Brunswick:	58
Middlesex County:	4,489
Number of Claims:	
North Brunswick:	15
Middlesex County:	3,478
Total Paid Claims	
North Brunswick:	\$89,603
Middlesex County:	\$109,727,837

FEMA NFIP statistics indicate that as of February 2014, federal flood insurance policies were in-force on 58 properties in North Brunswick. Between 1978 and 2015, there have been a total of 15 NFIP insurance claims in the jurisdiction, with a total claims value of \$89,603.⁹ Table 14-9 compares the number of policies in-force and paid claims in the jurisdiction. The table shows that North Brunswick comprises less than one percent of the NFIP policies in-force in Middlesex County.

The Township of North Brunswick is not presently a member of the Community Rating System (CRS), a voluntary program for communities participating in the NFIP. The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. For CRS participating communities, flood insurance premium rates are discounted in increments of 5%

based on creditable activities.¹⁰ CRS communities are ranked between 1 and 10, with Class 1 communities receiving a 45% premium discount.

It should be noted that NFIP claims are not a direct or completely accurate proxy for flood risk in a community. The data does not include flood damages to structures that had no flood insurance. Also, in some cases, structures or contents may have been underinsured. The NFIP claims data also does not include any damages to public facilities, which may be insured via other means (such as self-insurance or non-FEMA policies); such damages may also be addressed through other federal programs such as FEMA’s Public Assistance Program. Table 14-9 summarizes NFIP claims in North Brunswick from 1978 to 2014, and the current number of policies in force.

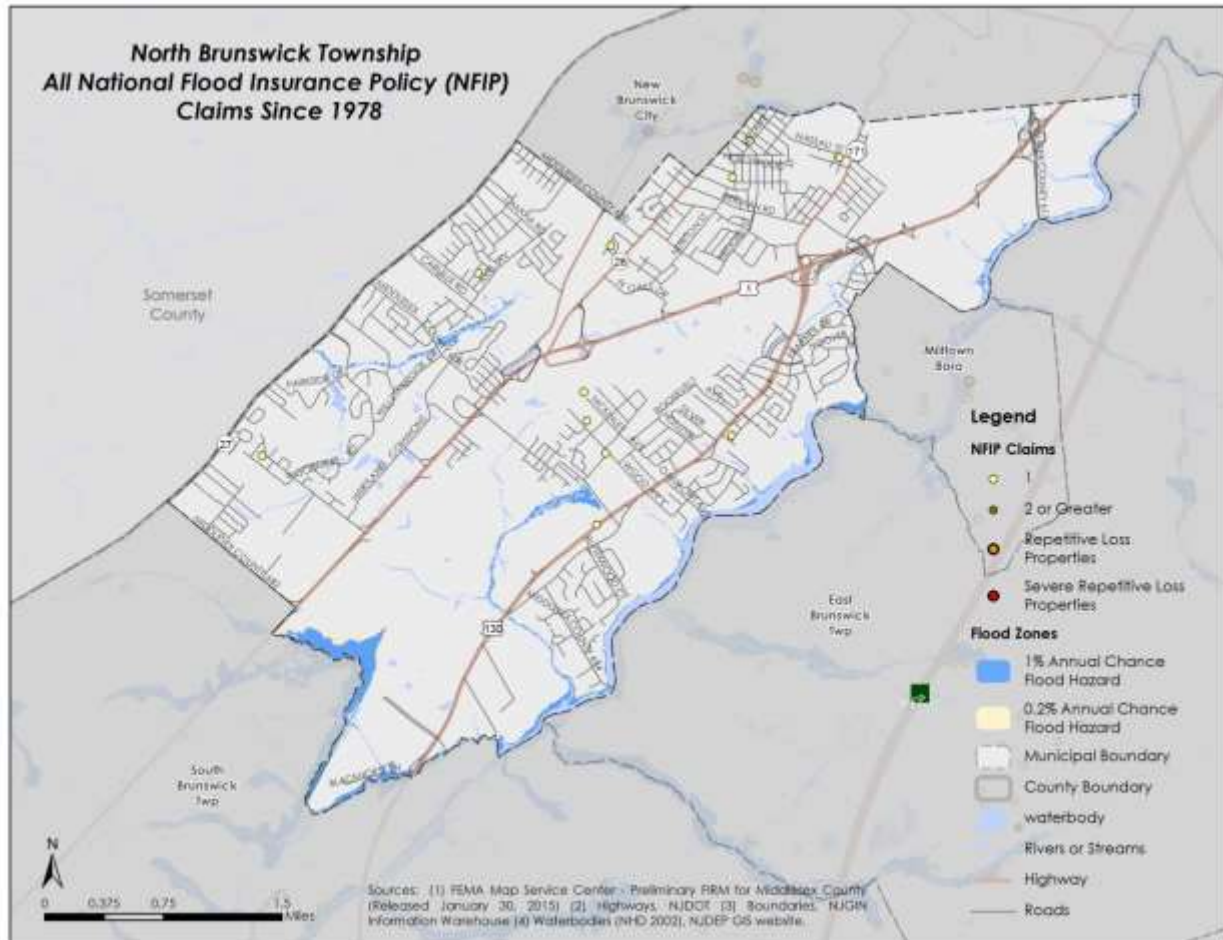
⁹ FEMA – Policy and Claim Statistics for Flood Insurance

¹⁰ FEMA – Community Rating System (CRS).



Figure 14-2 shows all NFIP claims in North Brunswick between 1978 and 2015.

Figure 14-2
Map of NFIP Claims in the Township of North Brunswick (1978 to 2015),
Including Repetitive Loss and Severe Repetitive Loss Properties
(Source: FEMA National Flood Insurance Program, February 2014)



The average NFIP flood insurance claim in North Brunswick is \$5,376, far below the County average of \$31,549, suggesting very low levels of flooding when events do occur.

3.2.5 Flood Risk to Repetitive Loss Properties in North Brunswick

FEMA requires a discussion of NFIP Repetitive Loss and Severe Repetitive flood loss statistics in hazard mitigation plans. A repetitive loss property is a structure covered by a contract for flood insurance made available under the NFIP that has incurred flood-related damage on two occasions, in which the cost of the repair, on average, equaled or exceeded 25% of market value of the structure at the time of each such flood event. As of February 2015, there were no NFIP Repetitive Loss properties in this jurisdiction.



3.2.6 Flood Risk to Severe Repetitive Loss Properties in North Brunswick

The definition of Severe Repetitive Flood Loss (SRL) is included in the County portion of this mitigation plan. As of February 2014, there were no SRL properties in North Brunswick Township.

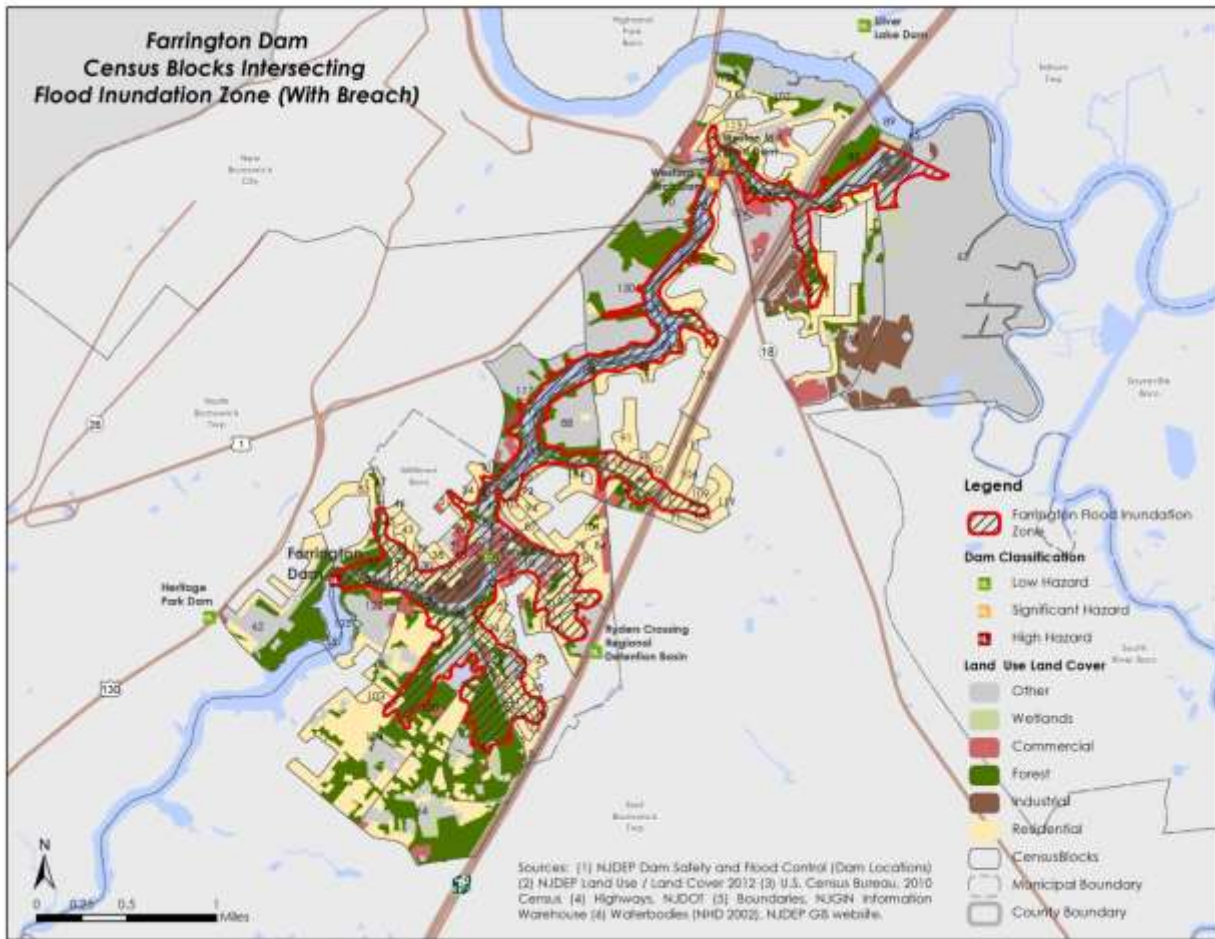
3.3 Dam and Levee Failure Hazards

This subsection briefly discusses dam failure hazards in the Township of North Brunswick. This appendix to the Middlesex County HMP includes this information because one of the State-designated high-hazard damages is located within the jurisdictional boundaries of North Brunswick. There is more detailed information about the overall dam and levee failure risk in Middlesex County in the main portion of this document. There is also additional information on dam designations on the [NJDEP Bureau of Dam Safety and Flood Control](#) website. The present subsection provides some additional detail Regency Pond dam.

High-hazard (potential) dams are defined by the State as those where failure or operational failure will probably cause loss of life and/or significant infrastructure losses. Dam failure risks have several components, including the age and condition of the dam, antecedent conditions (extreme rainfall, seismic events), downstream topography, and the type and extent of populations and infrastructure downstream. Given the number of variables involved, it is never possible to state definitively the probability of dam failure, or the consequences. However, it is possible to develop a general sense of downstream extent and populations potential affected using census block information merged with GIS-based inundation limits. For North Brunswick Farrington Dam, this process indicated that the expected dam failure flood inundation limit intersects 134 census blocks, with a total population of 8,431 and total housing units of 2,991. This does not suggest that any possible dam failure would necessarily impact those numbers of people and housing units, only that this is the total expected exposure. Figure 14-3 graphically shows the inundation limits and the census blocks with which the flood waters intersect.



Figure 14-3
Intersection of Census Blocks with Potential Downstream Inundation Limits, Farrington Dam



3.4 Hurricanes and Tropical Storms

During the initial data collection phase of this HMP update, North Brunswick provided some information about local impacts from Tropical Storm Irene and Hurricane Sandy. During Irene the community experienced road closures, though most were re-opened by late morning the next day. The primary route to Robert Wood Johnson hospital was closed for a time. There were some power outages, one of which resulted in the emergency power generator coming on line at the Municipal building. There was damage to the Township water treatment plant totaling \$25,529, and the incoming electrical service was damaged by a downed tree – this cost \$3,255. One home received moderate damage to the basement due to three collapsed walls. The township estimated this cost at \$125,000, although this has not been validated.

During Hurricane Sandy, North Brunswick experienced some road closures due to fallen trees and flooding. Several roads were closed for more than 24 hours. Most commercial facilities were closed due to the Governor’s State of Emergency declaration, but these generally reopened within two days.



However, three commercial facilities, including a supermarket, were closed for two weeks due to the storm, placing additional stress on the community. The water treatment plant sustained some damage, as did the Department of Public Works grounds, the library, and the municipal complex. Residential damage was limited to 18 homes, three with moderate damage from fallen trees. The others had roofing and siding damages from the wind, as well as electrical service damage. Two industrial facilities reported some roofing failures, though these were not verified by community officials.

Wind Risk Estimates

There are three significant hazards related to hurricanes, tropical storms, and to a lesser extent, nor'easters. These are: floods, storm surge, and high winds. Both floods and storm surge are addressed in the flood section of the present municipal appendix, as well as the County section of the hazard mitigation plan update. This subsection provides a preliminary quantification of hurricane wind risk based that was generated by FEMA's HAZUS-MH software (version 2.1, 2014). The calculations in Table 14-10 show a range of loss categories across the top row versus "occupancy classes" on the first column. The occupancy classes are various land uses that are represented in HAZUS. The last two columns indicate the projected 50-year and 100-year risks, i.e. the total amount of damage over those planning horizons. The figures are based on annualizing losses, then discounting them to present value using the software. There is more detailed information about the calculations and County-wide results in the main section of this HMP update.

FEMA Project Worksheets from Tropical Storm Irene and Hurricane Sandy

Following many natural disasters, FEMA engineers and field teams complete formal assessments of damage to community assets, and document these in project worksheets (PWs). The PWs are the basis of FEMA Public Assistance grants for repairs. There are seven categories of damage, indicated by the letters A through G. These are: A – debris removal; B – emergency protective measures; C – roads and bridges; D – water control facilities; E – public buildings; F – utilities, and; G – recreational facilities/other. The categories and amounts of the PWs are listed in Table 14-12 below for Tropical Storm Irene and Hurricane Sandy. Note that in some cases there are multiple different organizations in a community that are applicants for FEMA Public Assistance. In order to simplify the table, the PW amounts for all applicants in a community are combined.



Table 14-10
Probabilistic Wind Risk in North Brunswick, 50- and 100-year Planning Horizons
(Source: FEMA, HAZUS-MH version 2.1)

Occupancy Class	Total SF	Building Damages	Contents Damages	Inventory Loss	Relocation Cost	Business Income Loss	Rental Loss	Lost Wages
Residential	17,009,166	\$344,444	\$88,732	\$0	\$21,121	\$15	\$12,232	\$36
Commercial	4,410,456	\$31,251	\$13,607	\$418	\$5,137	\$3,387	\$2,886	\$3,740
Industrial	1,818,664	\$12,871	\$9,044	\$1,354	\$820	\$153	\$148	\$255
Agricultural	66,016	\$452	\$225	\$27	\$70	\$4	\$3	\$2
Religious	263,119	\$2,216	\$758	\$0	\$307	\$165	\$27	\$387
Government	18,762	\$123	\$63	\$0	\$27	\$1	\$6	\$148
Education	375,642	\$2,537	\$1,117	\$0	\$467	\$118	\$23	\$277
Totals	23,961,825	\$393,894	\$113,546	\$1,799	\$27,949	\$3,842	\$15,326	\$4,845

Table 14-11
Probabilistic Wind Risk in North Brunswick, 50- and 100-year Planning Horizons
(Source: FEMA, HAZUS-MH version 2.1)

Occupancy Class	Total Annualized Loss	50-year Risk	100-year Risk
Residential	\$466,580	\$6,439,277	\$6,657,636
Commercial	\$60,427	\$833,954	\$862,234
Industrial	\$24,644	\$340,114	\$351,647
Agricultural	\$783	\$10,802	\$11,168
Religious	\$3,861	\$53,281	\$55,088
Government	\$369	\$5,089	\$5,262
Education	\$4,537	\$62,622	\$64,745
Totals	\$561,201	\$7,745,138	\$8,007,780

Table 14-12
FEMA Public Assistance Expenditures in Tropical Storm Irene and Hurricane Sandy, by Category
(Source: FEMA Region II, Public Assistance)

Event Name/Public Assistance Category	A	B	C	D	E	F	G	Total
Tropical Storm Irene	\$21,759	\$71,327	\$0	\$0	\$2,000	\$29,785	\$0	\$124,870
Hurricane Sandy	\$269,558	\$284,370	\$0	\$0	\$7,389	\$0	\$341	\$561,658
Total	\$291,317	\$355,697	\$0	\$0	\$9,389	\$29,785	\$341	\$686,528



4. Capability Assessment

Each community within the planning area has a unique set of capabilities and priorities that affect its mitigation strategy. The following tables detail the capabilities assessed for the Township of North Brunswick during this plan update.

4.1.1 Planning and Regulatory

Tool / Program (code, ordinance, plan)	(Yes/No)	Code Citation and Comments
Master Plan	Y	2006
Capital Improvements Plan	Y	
Floodplain Management / Basin Plan	Y	DPW for Township-owned basins
Stormwater Management Plan	Y	NJDEP regulated
Open Space Plan	N	
Stream Corridor Management Plan	N	
Watershed Management or Protection Plan	N	
Economic Development Plan	N	
Comprehensive Emergency Management Plan	Y	EOP approved by NJOEM 10/02/13
Emergency Operation Plan	Y	
Post-Disaster Recovery Plan	N	
Transportation Plan	Y	Middlesex County
Strategic Recovery Planning Report	N	
Zoning Ordinance	Y	Approved Jan 2013, North Brunswick Code Chapter 205
Subdivision Ordinance	Y	Approved Jan 2013, North Brunswick Code Chapter 205
NFIP: Cumulative Substantial Damages	N	
Growth Management Ordinances	Y	Chapter 195 – Affordable Housing
Site Plan Review Requirements	Y	Chapter 205
Stormwater Management Ordinance	Y	Approved Mar 2006, Chapter 205 1 & 6
Municipal Separate Storm Sewer System (MS4)	Y	
Combined Sewer Overflows (CSO)	N/A	
Natural Hazard Ordinance	N	
Post-Disaster Recovery Ordinance	N	
Real Estate Disclosure Requirement	N	
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	Y	Steep Slope Chapter 205 1 & 6

4.1.2 Staff/Personnel

Resources	Is this in place? (Y/N)	Department/ Agency/Position
Planning Board	Y	Community Development
Mitigation Planning Committee	N	
Environmental Board/Commission	Y	Council Members
Open Space Board/Committee	Y	Parks and Recreation
Economic Development Commission/Committee	N	



Resources	Is this in place? (Y/N)	Department/ Agency/Position
Maintenance Programs to Reduce Risk	N	
Mutual Aid Agreements	Y	Police, Fire, EMS
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Y	Planning Board, Zoning Board
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Township Engineer (CME), Code Enforcement Officers in the Community Development Department
Planners or engineers on staff with a strong understanding of natural hazards	Y	Planning, Zoning
NFIP Floodplain Administrator	Y	CO
Surveyors	Y	Township Engineer (CME Associates)
GIS layers and maps	Y	Community Development Department
Personnel trained in GIS	Y	Community Development Department
Personnel trained in HAZUS	N	
Emergency Manager	Y	FT Coordinator, 2 PT Deputies
Grant Writer	Y	Various Departments
Staff with expertise in cost/benefit analysis	Y	Finance Department
Professionals trained in conducting damage assessments	Y	Code Enforcement in the Community Development Department

4.1.3 Education/Outreach and Community Classifications

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

4.1.4 Fiscal Capabilities

	Yes/No
Do you have a line item in your operating budget for mitigation project funding?	N
If no, will you look at mitigation actions when allocating funding in the future?	Y
Do you have a line item in the Capital Improvement Budget for mitigation project funding?	N
Have you provided funding for mitigation projects identified in the hazard mitigation plan?	N
Does your town have the authority to Levy Taxes for specific purposes?	N
Does your town have user fees for water, sewer, gas or electric service?	Y
Do you impose impact Fees for homebuyers or developers of new development/homes?	N
Does your community have an open space acquisition fund?	Y
Do you use bonds to finance projects (general obligation bonds, special tax bonds, private activity bonds)	Y



5. Mitigation Strategy

This section describes what projects, initiatives, and other actions the Township has undertaken or plans to implement to reduce risk and loss within its jurisdiction. This includes the status of previously identified actions and any other projects that have been completed since the 2010 Plan was adopted. The additional actions were determined by the LPC based on self-determined priorities and experience.

5.1 Past Mitigation Actions

The table below lists the mitigation projects and actions that were included in the original 2010 Plan.

Mitigation Action	Responsible Party	Status	Review Comments
North Brunswick 1: Backup power (generator) and/or utility protective measures to Fire Station #2	Fire Company	Has not been completed due to lack of funds	
North Brunswick 2: Backup power (generator) and/or utility protective measures to Fire Station #1	Fire Company	Has not been completed due to lack of funds	
North Brunswick 3: Conduct a drainage feasibility study on Twp. Of NB - Water Utilities	Fire Company		This project has been replaced with the study on the water treatment plant detailed below

5.2 Other Mitigation Activities

The Township has a generator project in the design phase for the municipal complex to ensure operations during a long-term power outage.

5.3 Proposed Mitigation Actions

The table below details the mitigation initiatives the Township of North Brunswick would like to pursue to minimize future effects of hazard events. These actions have been determined through a local assessment of current risk and needs. The LPC met with the Plan Consultant to review all hazard and risk assessment data and evaluate the strategy. These initiatives are dependent upon funding and may change based on municipal priorities and future hazard events.

For each new mitigation action, the Township has ranked as ‘High’, ‘Medium’, or ‘Low’, based on the evaluation criteria outlined in Section 5.



Proposed Action	Anticipated Benefits	Responsible Party	Funding or Implementation Mechanism	Timeline	Priority
Investigate drainage project feasibility near Huron Rd and Route 1	Reduce regular street flooding that prevents ingress and egress for emergency vehicles	NJDOT	Capital Improvement		High
Install generator at pump station	Ensure future back-up power at lift station	DPW	Capital Improvement		High
Investigate options for floodproofing, elevating, or mitigating the water treatment plant	Reduce potential damage from future storm events and minimize risk of service disruption to residents	DPW	Capital Improvement		High
Investigate green infrastructure and stormwater management retrofit opportunities to reduce system loading	Reduce street flooding that prevents passage of emergency vehicles to responding to calls or reaching surrounding hospitals	DPW/ Engineering	Capital Improvement		Medium



6. Plan Implementation

The LPC shall document, as needed and appropriate:

- Hazard events and losses in North Brunswick and the effects that mitigation actions have had on impacts and losses,
- Progress on the implementation of mitigation actions, including efforts to obtain outside funding for projects,
- Any obstacles or impediments to the implementation of actions,
- Additional mitigation actions believed to be appropriate and feasible,
- All public and stakeholder input and comment on the Plan that has been received by the Township.
- Copies of any grant applications filed on behalf of the Township

Continued Public Input

The Township of North Brunswick is committed to incorporating public input into its ongoing hazard mitigation planning. The public will have an opportunity to comment on the Plan prior to any changes and during the 5-year plan update. The annual progress reports will be posted on the County mitigation website in addition to the adopted Plan.

All public comments and input on the plan will be recorded and addressed, as appropriate. Opportunity to comment on the plan will be provided directly through the County's website. Public comments can also be submitted in writing to the County's HMP Coordinator. All public comments shall be addressed to: Middlesex County Office of Emergency Management c/o All Hazards Pre-disaster Mitigation Plan Coordinator, 1001 Fire Academy Drive, Sayreville, NJ 08872.

The Township of North Brunswick's LPC shall ensure that:

- Copies of the latest approved Plan are available for review at Township Hall along with instructions to facilitate public input and comment on the Plan.
- Public notices are made as appropriate to inform the public of the availability of the Plan, particularly during Plan update cycles.
- For minor changes to this appendix, the Township of North Brunswick will post a notice on the Township's website and invite the public to review and comment.
- For major changes involving Township Council approval, the Township will use its standard public notice procedures inviting the public to review the document and provide feedback.

Plan Adoption

On [insert date] Middlesex County submitted the initial draft of the 2015 Plan Update to NJOEM for review and comment. After addressing NJOEM comments in the document, the HMP was resubmitted



for final consideration and approval by NJOEM and FEMA. FEMA approved the plan on [insert date], and the Plan update was forwarded to the Middlesex County Board of Chosen Freeholders for adoption, which occurred on [insert date].

The Township Council approved the plan on [insert date]. The Township resolution for adoption is provided below, the County's adoption resolution is provided as Appendix F of the 2014 HMP update. Following adoption, the plan update was resubmitted to FEMA for final approval, which occurred on [insert date]. The FEMA approval letter is included as Appendix G.

Plan Maintenance

The Township of North Brunswick will review this Appendix of the County's hazard mitigation plan appendix each year and give the County's HMP Coordinator an annual progress report. Emergency Management Coordinator is responsible for convening the LPC, initiating the plan review, and submitting the annual progress report. The LPC may use worksheets #1 and #3 in the FEMA 386-4 guidance document, to facilitate the review and progress report. FEMA guidance worksheets are provided in Appendix H. Local progress reports shall be provided to the County HMP Coordinator at least two weeks prior to the annual plan review meeting.

Additionally, the LPC will convene and review the plan when major hazard events impact the jurisdiction, potentially yielding opportunities for mitigation grant funding, or when new information suggests that plan elements do not accurately reflect the community's risk or its mitigation priorities.

If necessary, the Emergency Management Coordinator will convene a meeting of the LPC to review and approve all changes. The Township retains the discretion to implement minor changes to the document without formal procedures involving the Township Council subject to local policies and regulations.

In addition to the annual progress report, the Township of North Brunswick will provide Middlesex County with a copy of the written notice of any changes to the jurisdictional appendix at the time such changes are implemented.