



## Appendix 21: Township of South Brunswick

The Township of South 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 28<sup>th</sup>, 2014, the Mayor signed an “Intent to Participate” letter and assigned the OEM Coordinator as the Point of Contact for the HMP update. The Chief 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. In addition to these worksheets, the Township’s codified ordinances were reviewed and used to supplement this appendix.

**Table 21-1: Township of South Brunswick Local Planning Committee Members**

Name	Title	Organization
Chief Hayducka	OEM Coordinator	South Brunswick PD
Deputy Chief Stoddard	Deputy Coordinator	South Brunswick PD
Bernie Hvozdovic	Dep Co and Twp MGR	South Brunswick Township
Ray Olsen	Public Works Director	South Brunswick DPW
Jim Dowgin	Construction Official	South Brunswick Township
Brian Bidlack	Building Codes	South Brunswick Township
Mike Rakes	DPW Supervisor	South Brunswick DPW
Joe Monzo	CFO	South Brunswick Township



## 2. Community Profile

### 2.1 Physical Location

The Township of South Brunswick has a total area of 41.04 square miles and is located in the southwest portion of Middlesex County, New Jersey. South Brunswick Township is bordered by East Brunswick, and North Brunswick to the north, Monroe to the east, Cranbury and Plainsboro to the south in Middlesex County, and Franklin Township, Somerset County to the west.

#### 2.1.1 Hydrography and Hydrology

South Brunswick falls entirely in the Raritan Basin, but is comprised of 8 drainage areas (Shallow Brook, Devils Brook, Manalapan Brook, Lawrence Brook, Heathcote Brook, Millstone River, Sixmile Run, and Oakeys Brook).

The Lawrence Brook runs directly through the heart of the Township, collecting water from smaller drainage areas before funneling into Davidsons Millpond. Other significant waterbodies in the Township include the Devils Brook and Pigeon Swamp.

### 2.2 History and Governance

The Township of South Brunswick was formally incorporated on February 21, 1798. The Township is governed under the Council-Manager form of government, and has an elected Mayor and four Council members, for a total of five Township Council members. The Mayor is elected directly to a four-year term of office. Town Council members are elected to serve four-year terms on a staggered basis, with two seats or three (two plus the mayoral seat) coming up for election every other 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 43,417.<sup>1</sup> This is a 15.1% increase from 2000. The Township of South Brunswick has a population density of 1,069.1 persons per square mile. It is the 23rd densest municipality within the County. South Brunswick has a very large Asian Indian population at approximately 25% of the total population. A summary of major population and household characteristics may be found in the following tables.

---

<sup>1</sup> U.S. Bureau of the Census. American Fact Finder "South Brunswick Township, NJ". <http://factfinder.census.gov/>. Retrieved 9/11/15.



**Table 21-2: Township of South Brunswick Population Summary Estimates (2010 Census) <sup>2</sup>**

Population	Quantity	Percent of Municipal Population
Total Population	43,417	100
Median Age	38.7	N/A
17 years and under	12,034	27.7
65 years and over	4,068	9.4
Race		
White	22,611	52.1
Black/African-American	3,348	7.7
Native American/Alaskan Native	72	0.2
Asian	15,592	35.9
Note: Asian Indian	11,040	25.4
Native Hawaiian/Pacific Islander	8	0.0
Other Race (unspecified)	658	1.5
Two or More Races	1,128	2.6
Hispanic or Latino	2,624	6.0

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 21-3: Township of South Brunswick Household Characteristics Summary Estimates (2010 Census) <sup>3</sup>**

Households	Quantity	Percent of Total
Total Households	15,069	100
Family Households (related)	11,696	77.6
Family Households w children under 18	6,683	44.3
Non-Family Households (unrelated)	3,373	22.4
Non-Family Households, living alone	2,832	18.8
Non-Family Households, living alone Male over 65 years	268	1.8
Non-Family Households, living alone Female over 65 years	640	4.2

### 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

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.



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 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 South Brunswick include (but may not be limited to) the following:

**Table 21-4: Township of South Brunswick Vulnerable Population Estimates (2010)**

Population Type	Population Estimate (2010 Census) <sup>4</sup>
Under 5 years of age	2,469
Under 18 years of age	12,034
Over 65 years of age	4,068
Limited English Proficiency (LEP)	3,720 (equals 8.9 % of population over 5 years old)
Institutionalized	51
Living in Group Quarters	5

In addition to these statistics, approximately 2.9% of the population lives below the poverty line. The mean household income is \$125,987, with the per capita income at approximately \$43,643 (2013 estimates).<sup>5</sup>

## 2.4 Land Use and Development

The Township of South Brunswick is suburban community with access to major roadways and transportation networks. According to the American Community Survey the majority of the development occurred in the Township between 1980 and 2000. The Land Use/Land Cover data from NJDEP indicates that there is still growth and change occurring within the Township, though the Township did not report any major development since the 2011 HMP Plan adoption. Based on the 2014 Tax Assessment data from the County, the prominent land use for assessed parcels within the Township are residents (86%). There are still a number of operating farms and agricultural lands within the Township, though this has decreased since 2002. The Township does have significant wetland areas adjacent to headwater streams, which are protected by State and local regulations.

<sup>4</sup> Ibid.

<sup>5</sup> U.S. Bureau of the Census. American Fact Finder "South Brunswick Township, NJ". <http://factfinder.census.gov/>. Retrieved 9/11/15.



**Table 21-5: Township of South Brunswick Land Cover Summary**

Land Cover Class	Percent of Total Land <sup>6</sup>	2002 (acres)	2007 (acres)	2012 (acres)	Percent Change <sup>7</sup>
Agriculture	9.19%	3310.88	2714.57	2411.84	-27.15%
Barren Land	1.61%	376.20	669.04	422.85	12.40%
Forest	17.11%	4846.90	4377.35	4489.55	-7.37%
Urban	43.40%	9995.39	10907.39	11389.03	13.94%
Water	1.88%	397.42	468.43	493.53	24.18%
Wetlands	26.81%	7316.27	7106.27	7036.25	-3.83%

### 2.4.1 Open Space

South Brunswick has the second most preserved land in the County. There are 23 parks within the Township including the Delaware and Raritan Canal Park adjacent to the canal. The open space within the Township is approximately 3,800 acres and preserves about one-third of the Special Flood Hazard Area within the Township.

### 2.4.2 Buildings and Development

The Township has continued to see growth after 2000, with just over 12% of the homes being built in the past 15 years. The majority of the homes has been built after 1979, and is therefore post-FIRM and built to modern building codes and standards. Approximately 76 percent of the residential units within the Town are owner occupied.

**Table 21-6: Borough of South Brunswick Housing Statistics**

Housing Characteristics	Estimate
Total Occupied Housing Units	15,295
Percent Owner-occupied	76.2
Percent Renter-occupied	23.8
Percent built after 2000	12.2
Percent built before 1979	33.7

<sup>6</sup> Percent based on acres of land in 2012

<sup>7</sup> Change is calculated between 2002 and 2012



### **2.4.3 Recent and Expected Development**

The Township did not report any recent or expected major developments at this time.

## **2.5 Critical Facilities and Infrastructure**

### **2.5.1 Essential Facilities**

The Township maintains a Municipal Building, Police Headquarters, a Senior Citizens Center, Public Works Utilities Building, Public Works Garages, and a Community Center. The Township reports that no public buildings have been damaged in previous events and the public facilities are not located within hazard areas. The Township has taken steps to ensure power duplicity for continued operations during storm events by recently upgrading the generator for the Municipal Building and Police Headquarters.

### **2.5.2 Transportation**

South Brunswick has several major roadways that cut through the Township including Route 27, Route 1, Route 130, and the New Jersey Turnpike. County Road 522 runs east to west and connects Route 27 to Route 130. There is a park-and-ride lot at the intersection of Routes 130 and 32 that provides commuter bus access to the Turnpike at exit 8A. The Northeast Corridor Passenger Rail runs through the Township, but there is not a stop within the jurisdiction. NJ Transit does operate buses within the Township.

### **2.5.3 Critical Utilities and Infrastructure**

The Township is serviced by PSE&G and JCP&L for its electricity and natural gas. To date, the Township reports that service is usually reliable and outages are only experienced in severe events. The Township is responsible for water distribution and the management of wastewater within the jurisdiction. The Township purchases water through Middlesex Water Company, but is responsible for the delivery and billing. The Township is responsible for cleaning out and maintaining the sewer infrastructure.



### 3. Hazard Identification and Risk Assessment

This section describes the natural hazards and risks that can affect Township of South Brunswick. Like all the other municipalities in Middlesex County, South 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

One of the first steps in developing jurisdictional appendices was for participating municipalities to review and prioritize the hazards that can affect them. This was done based on how often a hazard has occurred, how significant effects have been in the past, the difficulty and cost of recovering from such events. Municipalities ranked the list of hazards as high, medium, low, or no concern.

Table 21-7 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 21-7**  
**Township of South Brunswick**  
**Hazard Identification and Prioritization**

<b>Hazard</b>	<b>Priority</b>
Coastal Erosion	NA
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	Low
Severe Weather	Medium
Hazardous Substances	Low
Wildfire	Low
Winter Storm	Medium



### 3.3 Flood Hazard

#### 3.3.1 Type, Location, and Extent

The Township of South Brunswick is located in southwest Middlesex County, and is one of the larger municipalities in Middlesex County. It is less developed than many other jurisdictions, and includes fairly large areas of open space, many of which are adjacent to floodplains. There are four flood sources in the Township, and these each have various tributaries surrounding them. The flood sources are: Lawrence Brook, in the northern part of South Brunswick, draining north to the Raritan River; Heathcote Brook and Devils Brook, both of which are in the central part of the jurisdiction, and flow westward; and Shallow Brook, in the southern part of South Brunswick, also flowing west.

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. At the time the Middlesex County HMP was being updated, the effective FIRM for the Township of South 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 21-1. Floodplains are mostly related to the four streams noted in the text above.

As shown in Table 21-8 below, although the jurisdiction has a relative large land area, and more than 15 percent of it is in the floodplain, a very small percentage of parcels have their centroids in the floodplain.

**Table 21-8**  
**Floodplain and Parcel Data for the Township of South Brunswick**  
(Source: FEMA Region II, Coastal Analysis and Mapping, Preliminary FIRM, January 2014)

Data Type	Value
Jurisdiction area in square miles	41.0
Square miles within 100-year floodplain	6.4
Jurisdiction area within 100-year floodplain	15.6%
Number of parcels in jurisdiction	15,532
Number of parcels with centroids within 100-year floodplain	528
Parcels with centroids within 100-year floodplain	3.4%

[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].

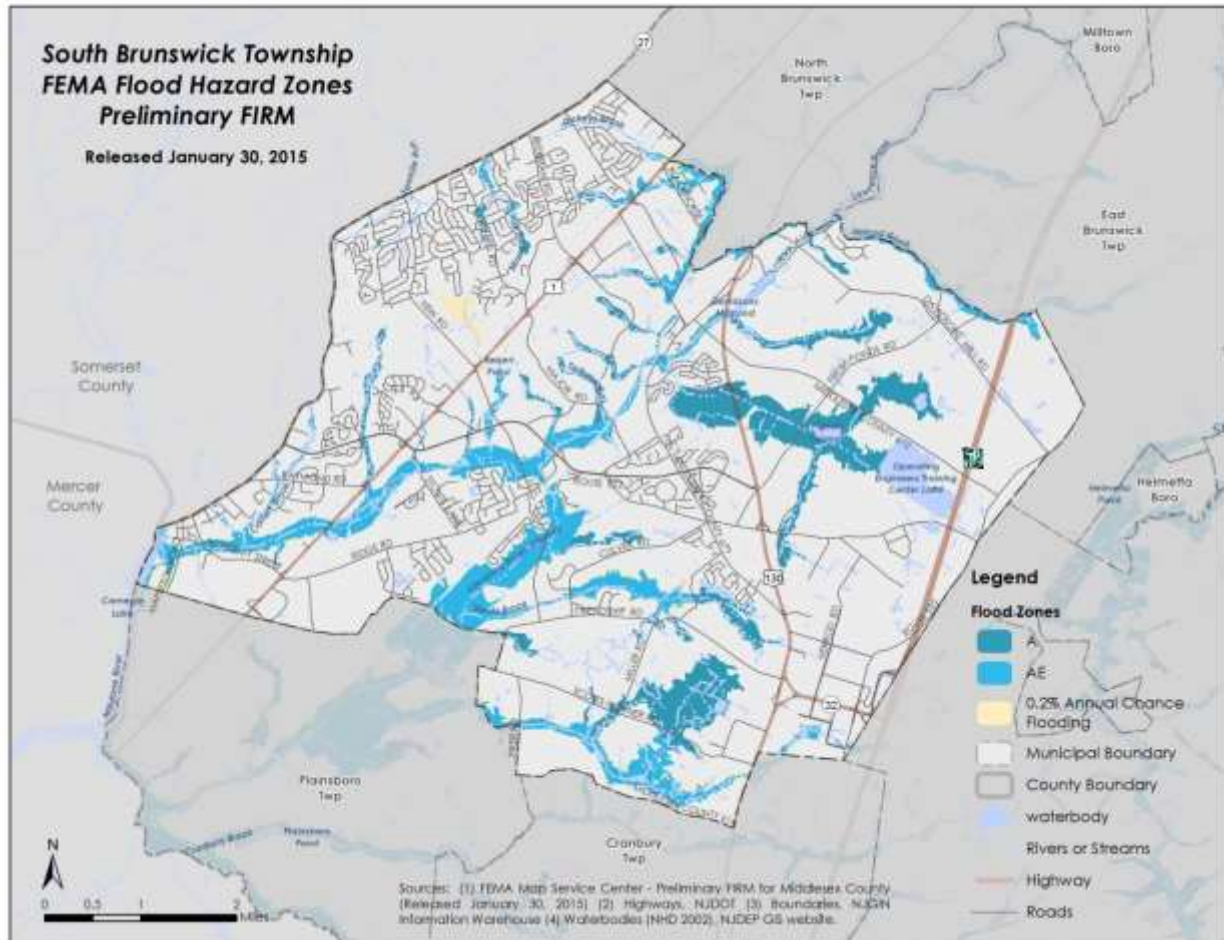
Current FEMA guidance uses the term *extent* as analogous to potential severity. The extent of the flood hazard in South Brunswick is relatively minor, with flood insurance claims suggesting relatively low





levels, based on the size of the claims.

**Figure 21-1**  
**South Brunswick portion of FEMA Revised Preliminary Flood Insurance Rate Map**  
(Source: FEMA Region II, Coastal Analysis and Mapping, Preliminary FIRM, January 2014)



### 3.3.2 Previous Occurrences and the Probability of Future Floods

A few localized areas of South Brunswick have flooded a few times in the past, although for the most part flooding is infrequent. NFIP claims extend back to the 1970s, but there are very few claims in any given event, except for Tropical Storm Irene (2011), which produced 10 of the 35 claims in the record. The community has no coastal exposure, so sea level rise is not a direct concern with regard to increased surge. As such, the probability of future flooding will likely remain about the same as it has been in the past.



### 3.3.4 Flood Impacts and Vulnerabilities to Flooding

The impacts from past floods in this jurisdiction have not been especially significant compared to other Middlesex jurisdictions with exposure to larger flood sources. While there are a few properties with some vulnerability to flooding, the numbers and patterns of flood insurance claims (including significant events such as Irene) do not suggest a high level of vulnerability in this community.

### 3.3.5 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. South Brunswick has been a member of the NFIP since 1985.

FEMA NFIP statistics indicate that as of February 2014, federal flood insurance policies were in-force on 209 properties in South Brunswick. Between 1978 and 2014, there have been a total of 35 NFIP insurance claims in the jurisdiction, with a total claims value of \$406,718. <sup>8</sup> Table 21-9 compares the number of policies in-force and paid claims in the jurisdiction. The table shows that the Township comprises 4.7% of the NFIP policies in-force in Middlesex County. Notably, the average NFIP claim in South Brunswick (\$11,620) is about one third of the overall County, which is \$31,549.

**Table 21-9**  
**NFIP Statistics in South Brunswick and Middlesex County**  
(Source: FEMA National Flood Insurance Program, February 2015)

City/County Name	# of Parcels	# of Policies In-Force	% of County Policies	# of Claims	Total Paid Claims (\$)
SOUTH BRUNSWICK, TOWNSHIP OF	15,532	209	4.66%	35	\$406,718
MIDDLESEX COUNTY	283,276	4,489	----	3,478	\$109,727,837

South Brunswick is not presently a member of the Community Rating System (CRS), a voluntary program for communities participating in the NFIP. The Township had been part of the program but was rescinded to a class 10 community. 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.<sup>9</sup> 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

<sup>8</sup> FEMA – Policy and Claim Statistics for Flood Insurance

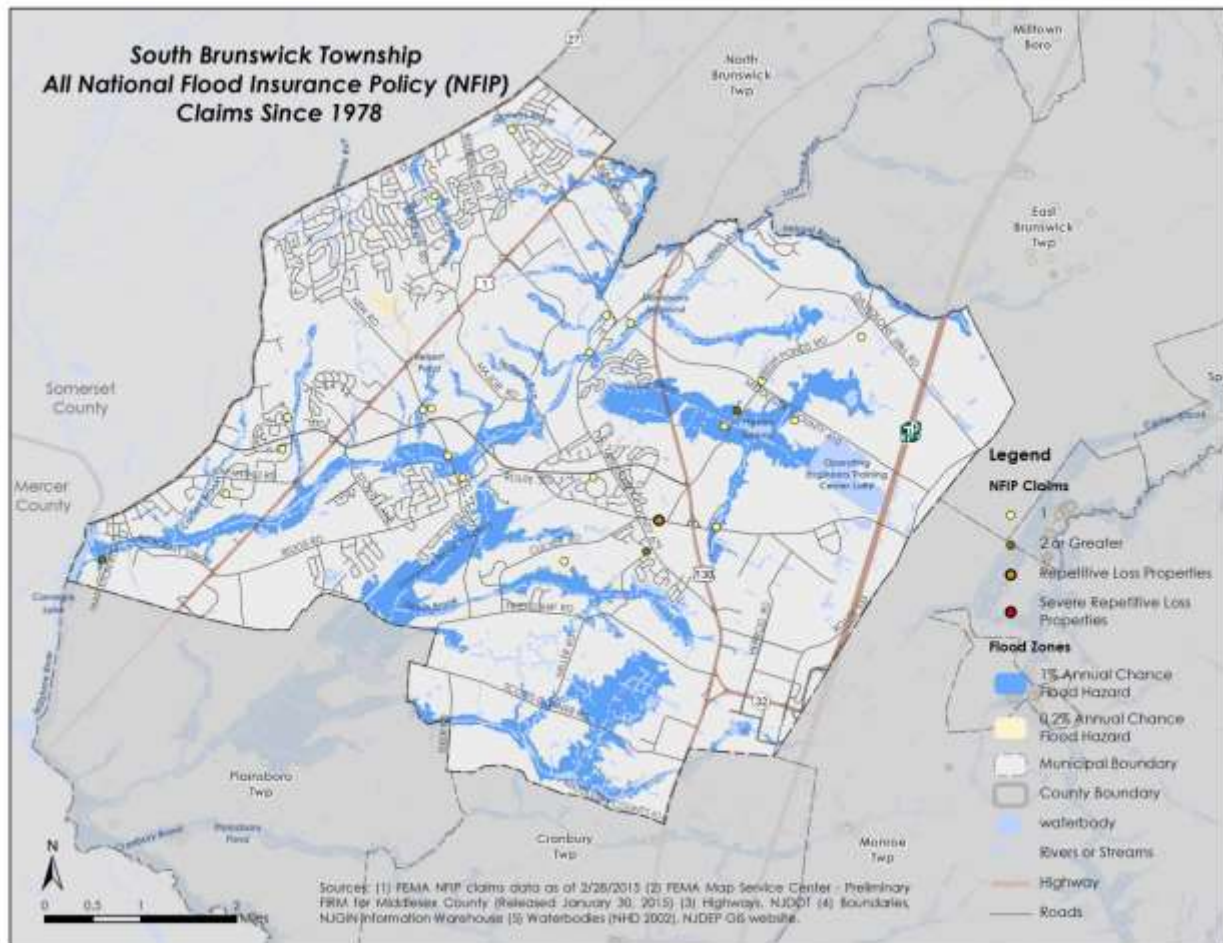
<sup>9</sup> FEMA – Community Rating System (CRS).



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.

Figure 21-2 shows all NFIP claims in South Brunswick from 1978 to 2014. Although the jurisdiction has a relatively large percentage of its land in the floodplain, there are few claims.

**Figure 21-2**  
**Map of NFIP Claims in the Township of South Brunswick (1978 to 2015),**  
**Including Repetitive Loss and Severe Repetitive Loss Properties**  
(Source: FEMA National Flood Insurance Program, February 2015)



### 3.3.6 Flood Risk to Repetitive Loss Properties in South Brunswick

FEMA requires a discussion of NFIP Repetitive Loss and Severe Repetitive flood loss statistics in hazard mitigation plans. In 2012, the Biggert Waters act redefined repetitive loss property as 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. This definition is being used to prioritize properties for mitigation funding. The data about Repetitive Loss properties in this subsection are based on the previous definition. Under the revised definition above, South Brunswick has no RL properties. See Section 4 of the County portion of this HMP for more details on repetitive loss properties in the County.

The flood risk assessment in this section is based in part on analysis of NFIP data on repetitive flood loss properties. As of February 2014, Middlesex County had 429 such properties based on a query of the FEMA BureauNet NFIP interface. Of this total, one property is located in South Brunswick; this comprises far less than one percent of the County total. Table 21-10 provides a comparison of the residential repetitive loss claims for Middlesex County and South Brunswick. The tables below include the number of repetitive loss properties, building and contents damages, the total number of claims, and the average claim amounts.

The single repetitive loss property in South Brunswick was responsible for a total of two insurance claims, totaling \$24,480. Table 21-10 provides summary repetitive loss statistics for the community. The very small number of RL properties suggests relatively low flood risk in this community.

**Table 21-10**  
**Repetitive Loss Statistics in South Brunswick and Middlesex County**  
(Source: FEMA National Flood Insurance Program, February 2015)

City/County Name	Properties	Total Building	Total Contents	Total Losses	# of Claims	Average Claim
Township of South Brunswick	1	\$24,268	\$212	\$24,480	2	\$12,240
Middlesex County	429	\$44,015,885	\$5,106,609	\$49,122,494	1,322	\$37,158

The next table provides the results of a simple risk projection for repetitive loss properties. This is done by annualizing past insurance claims and using this as the basis for estimating future losses. This method employs standard FEMA statistical techniques, and may be used for developing a sense of flood risk, i.e. total future losses over the 100-year planning horizon. The results below should be considered general and preliminary. It is possible to complete more accurate risk assessments for specific projects using FEMA software and methodologies, combined with information about sites and facilities.



**Table 21-11**  
**100-Year Risk Projection for NFIP Repetitive Loss Properties in South Brunswick Township**

Data	Value
Period in years	5
Number of claims	2
Average claims per year	0.40
Total value of claims	\$24,480
Average value of claims per year	\$4,896
<b>Projected risk, 100-year horizon</b>	<b>\$69,866</b>

### 3.3.7 Flood Risk to Severe Repetitive Loss Properties in South Brunswick

Severe Repetitive Flood Loss was also redefined in the Biggert Waters Act as properties that have “incurred flood-related damage for which four or more separate claims payments have been made under flood insurance coverage under this title, with the amount of each claim exceeding \$5,000, and with the cumulative amount of such claims payments exceeding \$20,000; or for which at least two separate claims payments have been made under such coverage, with the cumulative amount of such claims exceeding the value of the insured structure.” The data about Severe Repetitive Loss properties in this subsection are based on the previous definition. Under the revised definition above, South Brunswick has no SRL properties.

## 3.4 Hurricanes and Tropical Storms

Based on input from the hazard ranking process, South Brunswick considers hurricanes and tropical storms significant hazards, and thus there is a short discussion in the present subsection.

### 3.4.1 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 21-12 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 Countywide results in the main section of this HMP update.

### 3.4.2 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 21-14 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 21-12**  
**Probabilistic Wind Risk in South 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	19,088,309	\$396,247	\$127,988	\$0	\$21,536	\$63	\$9,773	\$149
Commercial	9,404,879	\$70,344	\$33,094	\$1,488	\$11,025	\$4,761	\$5,694	\$4,709
Industrial	3,420,324	\$26,306	\$18,579	\$2,444	\$1,776	\$271	\$307	\$441
Agricultural	98,711	\$767	\$393	\$48	\$118	\$8	\$5	\$3
Religious	288,109	\$2,485	\$884	\$0	\$341	\$180	\$30	\$424
Government	165,608	\$940	\$433	\$0	\$208	\$11	\$61	\$622
Education	188,300	\$1,194	\$491	\$0	\$209	\$50	\$9	\$117
<b>Totals</b>	<b>32,654,239</b>	<b>\$498,284</b>	<b>\$181,861</b>	<b>\$3,980</b>	<b>\$35,214</b>	<b>\$5,344</b>	<b>\$15,879</b>	<b>\$6,466</b>

**Table 21-13**  
**Probabilistic Wind Risk in South 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	\$555,756	\$7,669,994	\$7,930,088
Commercial	\$131,116	\$1,809,531	\$1,870,893
Industrial	\$50,123	\$691,748	\$715,206
Agricultural	\$1,342	\$18,527	\$19,155
Religious	\$4,345	\$59,967	\$62,000
Government	\$2,275	\$31,395	\$32,459
Education	\$2,069	\$28,561	\$29,529
<b>Totals</b>	<b>\$747,027</b>	<b>\$10,309,722</b>	<b>\$10,659,330</b>

**Table 21-14**  
**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	\$118,041	\$56,459	\$0	\$0	\$0	\$34,742	\$0	\$209,242
Hurricane Sandy	\$505,593	\$433,157	\$34,554	\$0	\$5,249	\$0	\$16,110	\$994,663
<b>Total</b>	<b>\$623,634</b>	<b>\$489,616</b>	<b>\$34,554</b>	<b>\$0</b>	<b>\$5,249</b>	<b>\$34,742</b>	<b>\$16,110</b>	<b>\$1,203,904</b>



## 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 Cranbury during this plan update.

### 4.1.1 Planning and Regulatory

Tool / Program (code, ordinance, plan)	( Yes/No)	Code Citation and Comments
Master Plan	Y	
Capital Improvements Plan	Y	
Floodplain Management / Basin Plan	Y	
Stormwater Management Plan	Y	
Open Space Plan	Y	
Stream Corridor Management Plan	Y	
Watershed Management or Protection Plan	Not specifically	
Economic Development Plan	Y	
Comprehensive Emergency Management Plan	Y	
Emergency Operation Plan	Y	
Post-Disaster Recovery Plan	Y	
Transportation Plan	Y	
Strategic Recovery Planning Report	Y	
Zoning Ordinance	Y	
Subdivision Ordinance	Y	
NFIP: Cumulative Substantial Damages	-	
Growth Management Ordinances	Y	
Site Plan Review Requirements	Y	
Stormwater Management Ordinance	Y	
Municipal Separate Storm Sewer System (MS4)	Y	
Combined Sewer Overflows (CSO)	NO	
Natural Hazard Ordinance		All Hazards Plan
Post-Disaster Recovery Ordinance	N	
Real Estate Disclosure Requirement	N	
Other [Special Purpose Ordinances (i.e., sensitive areas, steep slope)]	N	

### 4.1.2 Staff/Personnel

Resources	Is this in place? (Y/N)	Department/ Agency/Position
Planning Board	Y	
Mitigation Planning Committee	N	
Environmental Board/Commission	Y	
Open Space Board/Committee	Y	
Economic Development Commission/Committee	Y	
Maintenance Programs to Reduce Risk		Storm water maintenance agreement
Mutual Aid Agreements	Y	
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Y	





Resources	Is this in place? (Y/N)	Department/ Agency/Position
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Y	
Planners or engineers on staff with a strong understanding of natural hazards	Y	
NFIP Floodplain Administrator	Y	
Surveyors	N	
GIS layers and maps	Y	
Personnel trained in GIS	Y	
Personnel trained in HAZUS	Y	
Emergency Manager	Y	
Grant Writer	Y	
Staff with expertise in cost/benefit analysis	Y	
Professionals trained in conducting damage assessments	Y	

#### 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)	YES	10	Feb 29, 2008
Building Code Effectiveness Grading Schedule (BCEGS)	YES	3/3	
Public Protection (ISO Fire Protection Classes 1 to 10)	YES		
Storm Ready	NO		
Firewise	NO		
Disaster/Safety Programs in/for Schools	Schools responsible		
Organizations with Mitigation Focus (advocacy group, non-government)	NO		
Public Education Program/Outreach (through website, social media)	YES		
Public-Private Partnerships	YES		

#### 4.1.4 Fiscal Capabilities

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



## 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
Protection of Sewer Pumping Station #1	Township of South Brunswick DPW	The flood protection for Pump Station #1 is no longer required. Pump Station #1 has been eliminated and taken out of service, with the installation of the Route 130 Gravity Sewer line during the 1990's. All sanitary wastewater flows via gravity to Pump Station #10.	
Stream mitigation to protect mobile home facility.	Township of South Brunswick DPW	See section 5.3	

### 5.2 Other Mitigation Activities

In addition to working on the above projects, the Township of South Brunswick identified the need to upgrade a substandard generator for the Municipal Building and Police Headquarters. This project was completed in 2015.

### 5.3 Proposed Mitigation Actions

The table below details the mitigation initiatives the Township of South 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
Mitigate infiltration and backups during heavy rain events.	Reduction of infiltration and backups. I&I accounts for 17% - 20% of our annual flows to MCUA and Stony Brook	Utilities Department	Municipal	Ongoing	
Purchase sewer cleaner/vacuum truck	Leak and backup protection	Utilities Department	Municipal Capital	2015	
Soil erosion remediation at the Kingston Sanitary Sewer Trunk line	The bank of the stream which runs parallel to our pipe has eroded, exposing our sewer pipe in some areas	Alaimo Engineering	This project will put out to bid early next year	2016	
Pump Station #13 Force Main	This project is for the relining of a 24" Asbestos Concrete pipe which is over 30 years old and has failed multiple times over the last few years	Utilities Department	Project will be put out to bid early next year. The first two phases are expected to be complete in 2016, with future phases planned	2016	



<p>Replacing 8 manholes, which have lost their structural integrity and have infiltration along the Kendall Park to Kingston Sanitary Trunk Sewer</p>	<p>These manhole replacements will eliminate infiltration we estimate to be between 75-100 gallons per minute</p>	<p>Utilities Department</p>	<p>Municipal</p>	<p>This project should begin within the next month</p>	
<p>Phase II of the Kendall Park to Kingston Sanitary Trunk Sewer project will include a flow study to locate which areas of the line have infiltration</p>	<p>Once these areas are located, we will slip line the pipe in phases. This project will eliminate infiltration, and reduce the expenses associated with treatment</p>	<p>The Sewer Department</p>	<p>2016 Capital Budget</p>	<p>2017</p>	
<p>Sanitary Sewer Master Plan Update</p>	<p>This update is required to plan for the township's future sanitary sewer needs and assure there is adequate capacity</p>	<p>The Sewer Department</p>	<p>2016 Capital Budget</p>	<p>2017</p>	



<p>We are investigating the purchase of a diesel powered by-pass pump, which is trailer mounted.</p>	<p>This piece of equipment is essential for emergencies, whether it be a pump station failure or the need to by-pass pump during a sewer line repair.</p>	<p>The Sewer Department</p>	<p>Municipal</p>	<p>2016</p>	
<p>Mitigate repetitive loss properties</p>	<p>Reduction in property loss due to flooding</p>	<p>OEM/Administration</p>	<p>Grants</p>	<p>Funding dependent</p>	



## 6. Plan Implementation

The LPC shall document, as needed and appropriate:

- Hazard events and losses in South 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 South 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 South 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 South 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 2015 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 South 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. The OEM 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 OEM 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 South 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.