



Appendix 2: Township of Cranbury

The Township of Cranbury 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

The OEM Coordinator was the Point of Contact for this plan update. The Coordinator worked with other municipal employees 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 Consultant on June 29th, 2015 to review the risk assessment and determine an updated mitigation strategy.

Table 2-1
Township of Cranbury Local Planning Committee Members

Name	Title	Organization
Rickey Varga	Police Chief/OEM Coordinator	Cranbury PoC
Denise Marabello	Township Administrator/CFO	Cranbury Alternate POC
William Tanner	Township Engineer	Cranbury Township
Dave Hoder	Planning Engineer	Cranbury Township
Richard Priess	Planner	Cranbury Township

2. Community Profile

2.1 Physical Location

The Town of Cranbury has a total area of 13.42 square miles and is located in the south region of Middlesex County, New Jersey¹. Cranbury is borders Mercer County to the south, and is surrounded by Plainsboro Township to the west, South Brunswick Township to the north, East Windsor Township to the east and Monroe township to the east.

Transportation routes include the New Jersey Turnpike (U.S. I-95), U.S. Route 130, County Routes 535, 539, 615 and 614, as well as 31 miles of local roads.²

¹ Cranbury Department of Planning. 2010 Master Plan. Page 1-1.

² NJDOT. 2014. Mileage by Municipality and Jurisdiction, “Middlesex County”, Page 1.

http://www.state.nj.us/transportation/refdata/sldiag/mileage_Middlesex.pdf Retrieved 6/25/15.



2.1.1 Hydrography and Hydrology

The Township of Cranbury is entirely located in the Raritan Basin. Within the Township there are three major rivers and brooks that flow from west to east. Each of these runs the length of the Township, thus dividing the town into three subsections. The Millstone River defines the southern border with East Windsor Township. The lower section of the Township drains into this subwatershed. At the northern section, the Cedar Brook flows from its headwaters in Monroe Township into the Cranbury Brook at the border between Cranbury Township and Plainsboro Township. The Cranbury Brook flows directly through the center of the Township, crossing from Monroe Township into Plainsboro. Both of these brooks are part of the Cranbury Brook subwatershed.

2.2 History and Governance

The Township of Cranbury was formally incorporated on March 7, 1862 as a jurisdiction in Middlesex County that included the Village of Cranbury along with lands from the townships of South Brunswick and Monroe, with later additions from Plainsboro Township^{3,4}. Cranbury is governed under the Township system, with five members on the Township Committee, a Mayor selected annually from and by the membership of the Committee, and a Township Administrator. The Township Committee serves staggered three-year terms such that one member is up for election each year⁵.

2.3 Demographics

2.3.1 Population Trends

According to the U.S. Census Bureau, the population in 2010 was 3,857.⁶ This is a 19.5% increase from 2000. The Township of Cranbury has a population density of 287 persons per square mile. It is the 25th, or least dense municipality within the County. A summary of major population and household characteristics may be found in the following tables.

Table 2-2: Township of Cranbury Population Summary Estimates (2010 Census)⁷

Population	Quantity	Percent of Municipal Population
Total Population	3,857	100
Median Age	46.2	N/A
17 years and under	1,051	27.2
65 years and over	642	16.5
Race		
White	3,106	80.5
Black/African-American	133	3.4
Native American/Alaskan Native	4	0.1
Asian	530	13.7

³ Ibid.

⁴ Cranbury Historical and Preservation Society, "About Cranbury: History of Cranbury". <http://www.cranburyhistory.org/cranbury/history.html> Retrieved 6/25/15.

⁵ Cranbury Township website. "Township Committee". http://cranburytownship.org/twp_committee.html Retrieved 6/25/15/

⁶ U.S. Bureau of the Census. American Fact Finder "Cranbury Township, NJ". <http://factfinder.census.gov/> . Retrieved 8/16/15.

⁷ Ibid.



Population	Quantity	Percent of Municipal Population
Native Hawaiian/Pacific Islander	1	0.0
Other Race (unspecified)	14	0.4
Two or More Races	69	1.8
Hispanic or Latino	99	2.6

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 2-3: Township of Cranbury Household Characteristics Summary Estimates (2010 Census) ⁸

Households	Quantity	Percent of Total
Total Households	1,320	100
Family Households (related)	1,060	80.3
Family Households w children under 18	561	42.5
Non-Family Households (unrelated)	260	19.7
Non-Family Households, living alone	231	17.5
Non-Family Households, living alone Male over 65 years	24	1.8
Non-Family Households, living alone Female over 65 years	79	6.0

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

⁸ Ibid.



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

Table 2-4: Township of Cranbury Vulnerable Population Estimates (2010)

Population Type	Population Estimate (2010 Census) ⁹
Under 5 years of age	135
Under 18 years of age	1,051
Over 65 years of age	642
Limited English Proficiency (LEP)	161 (equals 4.5% of population over 5 years old)
Institutionalized	120
Living in Group Quarters	10

In addition to these statistics, approximately 1.4% of the population lives below the poverty line. The mean household income is \$185,567, with the per capita income at approximately \$63,600 (2013 estimates).¹⁰

2.4 Land Use and Development

The Township of Cranbury is one of the oldest towns in the State. It was settled as a rural village along major transportation routes and it still maintains its rural character. According to the 2010 Township Master Plan, the Township heavily values preserving its historic and rural character. Over one-third of the land is still dedicated to agricultural purposes. The Township has been very active in the County’s Farmland Preservation Program, which will aid in the effort to maintain the Township’s open space and low density.

Between 2002 and 2012 the urban land cover increased by nearly 23 percent, but it still falls second to agriculture as the dominant land cover in the Township. Since 2010, the Township reported that experienced minimal development. The major projects are listed below.

Though agriculture is a dominant, Cranbury does have a significant residential base in the community. Over 74 percent of the parcels in the Township are assessed for residential use.

2.4.1 Open Space

The Township of Cranbury has approximately 500 acres of open space. Over 20 percent of this land is within the Special Flood Hazard Area. This means that over 12 percent of the flood hazard area in the Township has been dedicated to open space. This does not include dedicated farmland within the Township, so these numbers do not represent all of the land that is protected from development.

⁹ Ibid.

¹⁰ U.S. Bureau of the Census. American Fact Finder “Cranbury Township, NJ”. <http://factfinder.census.gov/>. Retrieved 8/16/15.



Table 2-5: Township of Cranbury Land Cover Summary

Land Cover Class	Percent of Total Land ¹¹	2002 (acres)	2007 (acres)	2012 (acres)	Percent Change ¹²
Agriculture	33.40%	2886.00	2871.43	3074.14	-6.59%
Barren Land	1.31%	29.65	112.46	353.78	-68.21%
Forest	7.05%	671.53	606.35	695.14	-12.77%
Urban	33.14%	2875.25	2848.88	2316.54	22.98%
Water	1.82%	158.58	156.38	149.46	4.63%
Wetlands	23.29%	1976.71	2002.24	2008.67	-0.32%

2.4.2 Building Stock Overview

The Township of Cranbury has a historic village center, with older buildings that are a mixture of commercial and residential. According to the 2013 American Community Survey (ACS), approximately 17 percent of the houses in the Township were built before 1939. Nearly half, 42 percent, of the residential development in the Township occurred before 1979. There was a significant increase in residential properties between 1980 and 2010. The 2013 ACS reports that approximately 250-300 homes were built in the township in each of those three decades. Though this is still a small number of residences, it means that almost 60 percent of all the houses in the Township were built in those 30 years. Developments during this period had to adhere to modern building codes and hazard information. There is not publically available information on the building stock of commercial, office, and warehouse properties within the Township.

Table 2-6: Township of Cranbury Housing Statistics

Housing Characteristics	Estimate
Total Occupied Housing Units	1,377
Percent Owner-occupied	90.7%
Percent Renter-occupied	9.3%
Percent built after 2000	42.0%
Percent built before 1979	17.8%

¹¹ Percent based on acres of land in 2012

¹² Change is calculated between 2002 and 2012



2.4.3 Recent and Expected Development

Project Name	Type	Number of Structures	Locations	Known Hazards	Description/Status
1246 South River Rd.	Office Building	1	South River Rd.	None	Completed 2010
324 Half Acre Rd	Warehouse	1	Half Acre Rd.	None	Completed 2010
2670 Route 130 S.	Restaurant	1	Route 130 South	None	Completed 2013

2.5 Critical Facilities and Infrastructure

2.5.1 Essential Facilities

The Township offers its residents police and fire services. The Borough has its own Police Department, Department of Public Works, and volunteer fire company. None of these facilities have experienced damage from previous hazard events. The Township lost a few police cars from felled trees in previous storms, and these were privately insured.

2.5.2 Transportation

The New Jersey Turnpike runs north to south through the Township. Exit 8a is just north of the Township border. During this stretch of the Turnpike, State Route 130 runs parallel through the Township. There are also a number of County roads that connect surrounding communities to these major thoroughfares. There are no rail lines within the Township; NJ Transit operates a couple of bus lines that service the Township.

2.5.3 Critical Utilities and Infrastructure

The Township of Cranbury does not manage its own critical utilities. Wastewater is sent to the Middlesex County Utilities Authority, routed through the Dey Road pump station. The Township is responsible for the sewer lines and works with the County and Developers to ensure that capacity continues to match demand. This is a separate storm sewer system.

The Township does not service the town with water, gas or electric. The Township is served by New Jersey American Water Company and PSE&G for these services. The Township reports no chronic problems with service during hazard events.



3. Hazard Identification and Risk Assessment

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

Table 2-7
Township of Cranbury
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
Geological Hazards	Medium*
Hazardous Substances	Medium
Hurricanes/Tropical Storms	Low
Nor’easters	Low
Power Outages	Low

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 2-7 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.



3.2 Flood Hazard

3.2.1 Type, Location, and Extent

The Township of Cranbury is located in southern Middlesex County. The Millstone River comprises the southern border of the jurisdiction; Cranbury Brook roughly bisects the Township in an east-west direction; and Cedar Brook also runs east to west, meeting the Millstone outside Cranbury’s boundaries. There are several minor tributaries to the streams noted above. The community has no exposure any coastline. As discussed below, Cranbury is not particularly floodprone. Although 11.05% of the land area is designated floodplain, only 37 parcels have centroids within it, suggesting that nearly all development is at relatively low risk of flooding.

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.¹³ At the time the Middlesex County HMP was being updated, the effective FIRM for the Township of Cranbury 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 2-1. Nearly all the floodplain is related to the three streams noted above.

Table 2-8 provides basic information about floodplain and parcels subject to flooding within the jurisdiction based on the Preliminary FIRM.

Table 2-8
Floodplain and Parcel Data for Cranbury Township
(Source: FEMA Region II, Coastal Analysis and Mapping, Preliminary FIRM, January 2015)

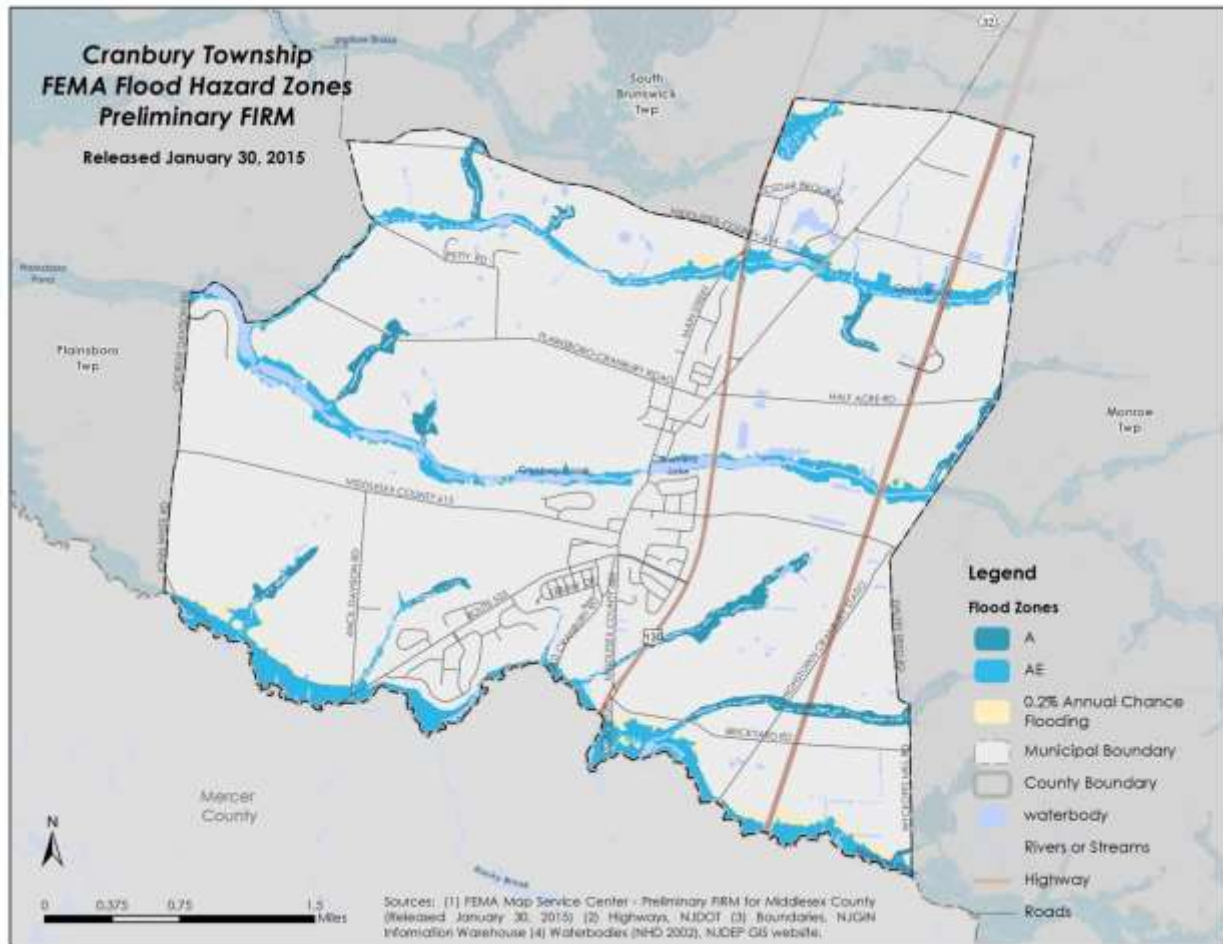
Data Type	Value
Jurisdiction area in square miles	13.43
Square miles within 100-year floodplain	2.76
Jurisdiction area within 100-year floodplain	11.05%
Number of parcels in jurisdiction	1,556
Number of parcels with centroids within 100-year floodplain	37
Parcels with centroids within 100-year floodplain	2.38%

[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].

¹³ FEMA online - Floodplain Management. Flood Insurance Rate Map (FIRM) definition



Figure 2-1
Township of Cranbury portion of FEMA Revised Preliminary Flood Insurance Rate Map
(Source: FEMA Region II, Coastal Analysis and Mapping, Preliminary FIRM, January 2015)



Current FEMA guidance uses the term *extent* as analogous to potential severity. The extent of the flood hazard in Cranbury appears to be low, based on a review of GIS data and flood insurance claims. There are very few claims, and the average claim is well below the County average, suggesting low levels of flooding. It is assumed that in more severe events, flood prone areas may experience depths of one or two feet.

3.2.2 Previous Occurrences and the Probability of Future Floods

As noted above, most of the flooding in this jurisdiction has occurred around the area where Main Street crosses Cranbury Brook. The majority of the few insurance claims appear to be related to Tropical Storm Irene. Analysis of floodplain maps and insurance claims suggests little or no potential for flooding in other areas of the jurisdiction. The probability of future floods is likely 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 relatively minor, affecting only a few properties and then only intermittently during relatively severe events. As such, vulnerabilities may be considered quite low. In Hurricane Irene the Township reported severe flooding, with some roads closed for two or more days; emergency services and police personnel worked overtime to manage detours. Closed roads included North and South Main Street, Old Trenton Road, Route 130 North, Dey Road, Old Cranbury Road, and South River Road. Superstorm Sandy caused numerous road closures due to fallen trees (Main Street, John White Road, Plainsboro Road), and long power outages. There was also a significant amount of debris to remove after the event.

**Table 2-9
NFIP Policies and Claims**

Number of Parcels:	
Cranbury:	1,556
Middlesex County:	283,276
Number of Policies In-Force:	
Cranbury:	40
Middlesex County:	4,489
Number of Claims:	
Cranbury:	24
Middlesex County:	3,478
Total Paid Claims	
Cranbury:	\$654,757
Middlesex County:	\$109,727,837
Severe Repetitive Loss (SRL)	
Properties:	
Cranbury:	1
Middlesex County:	112
Total Building (SRL)	
Cranbury:	\$32,650
Middlesex County:	\$16,236,097
Total Contents (SRL)	
Cranbury:	\$200
Middlesex County:	\$1,045,153
Number of Claims (SRL)	
Cranbury:	5
Middlesex County:	541
Average Claim (SRL)	
Cranbury:	\$6,570

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. Cranbury has been a member of the NFIP since 1982.

FEMA NFIP statistics indicate that as of February 2015, federal flood insurance policies were in-force on 40 properties in Cranbury. Between 1978 and 2015, there have been a total of 24 NFIP insurance claims in the Township, with a total claims value of \$654,757.¹⁴ Table 2-8 compares the number of policies in-force and paid claims in the jurisdiction. The Table shows that Cranbury comprises less than one percent of the NFIP policies in-force in Middlesex County.

Cranbury 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.¹⁵ CRS communities are ranked between 1 and 10, with Class 1 communities receiving a 45% premium discount.

¹⁴ FEMA – Policy and Claim Statistics for Flood Insurance

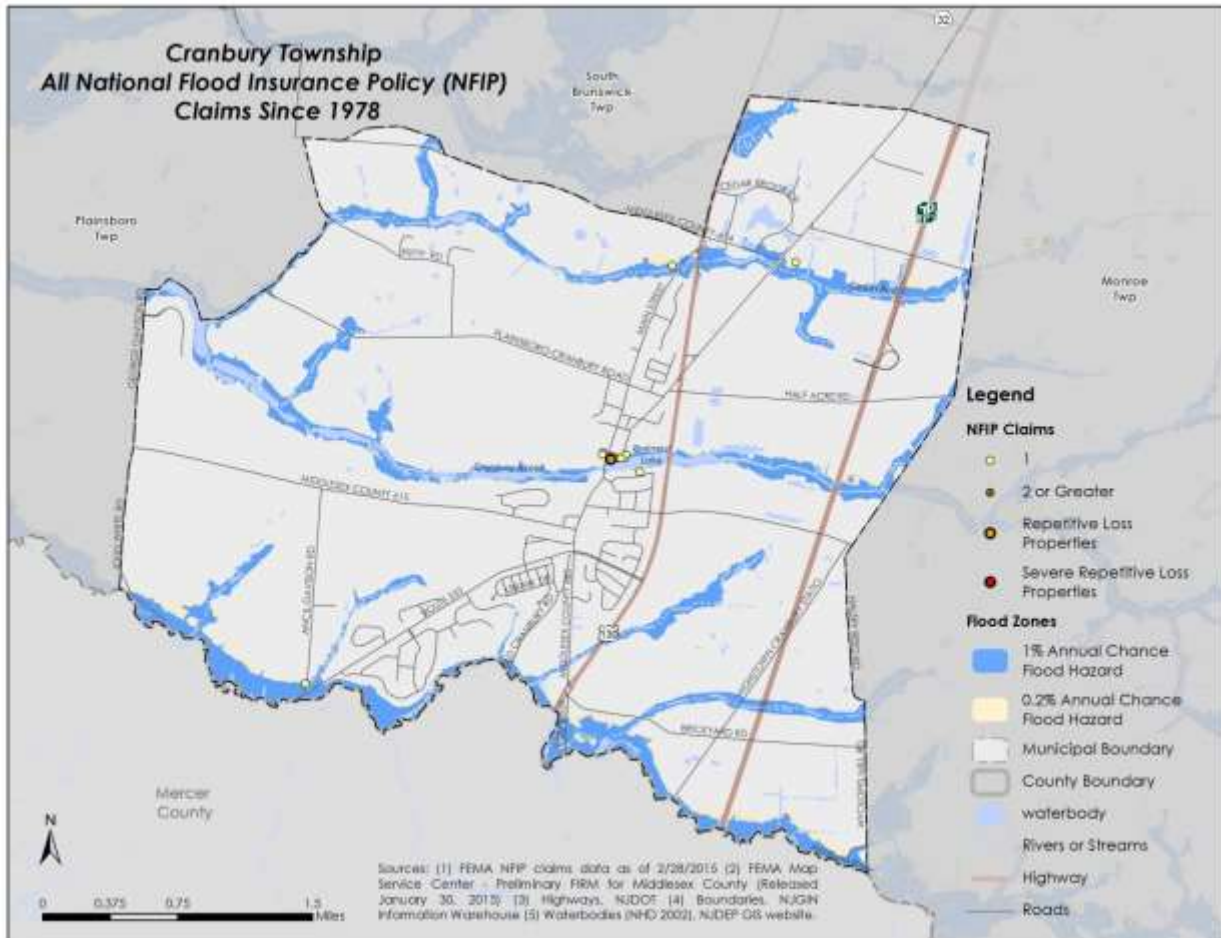
¹⁵ FEMA – Community Rating System (CRS).



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.

Figure 2-2 shows all NFIP claims in Cranbury between 1978 and 2015. The claims are clustered on Main Street immediately north of Cranbury Brook.

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





3.2.5 Flood Risk to Repetitive Loss Properties in the Township of Cranbury

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 Cranbury

The definition of Severe Repetitive Flood Loss is included in the County portion of this mitigation plan. As of February 2014, Cranbury had one property that falls under this definition, and all of Middlesex County had 112. (Note that under the revised definition of Severe Repetitive Loss, the County now has 106 such properties, and Cranbury, none.) Table 2-10 provides basic information about the SRL properties in this jurisdiction. SRL properties are also shown graphically in Figure 2-2 above.

Table 2-10
Statistics on NFIP Severe Repetitive Loss Properties in the Township of Cranbury
(Source: FEMA National Flood Insurance Program, February 2015)

City/County Name	Properties	Total Building	Total Contents	Total Losses	# of Claims	Average Claim
Township of Cranbury	1	\$32,650	\$200	\$32,850	5	\$6,570
Middlesex County	112	\$16,236,097	\$1,045,153	\$17,281,250	541	\$31,943

The next table shows the results of a simple risk (future losses) projection for severe repetitive loss properties. This is done by annualizing past losses and using this as the basis for estimating future losses. This method uses standard FEMA techniques, and may be used for developing a sense of flood risk. 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.

Table 2-11
100-Year Risk Projection for NFIP Severe Repetitive Loss Properties in the Township of Cranbury
(Source: FEMA National Flood Insurance Program, February 2014)

Data	Value
Period in years	33
Number of claims	5
Average claims per year	0.15
Total value of claims	\$32,850
Average value of claims per year	\$995
Projected risk, 100-year horizon	\$14,205



3.3 Hurricanes and Tropical Storms

3.3.1 Hurricane 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 2-12 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 Count results in Section 4.

Table 2-12
Probabilistic Wind Risk in Cranbury, Losses by Occupancy Class
(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	1,965,505	\$78,062	\$29,094	\$0	\$4,449	\$56	\$1,837	\$133
Commercial	1,543,745	\$19,178	\$10,453	\$492	\$2,992	\$1,644	\$1,537	\$1,771
Industrial	1,222,461	\$17,496	\$14,084	\$2,074	\$1,109	\$201	\$203	\$335
Agricultural	45,226	\$559	\$306	\$37	\$88	\$6	\$4	\$3
Religious	37,900	\$557	\$241	\$0	\$79	\$32	\$7	\$75
Government	16,331	\$238	\$165	\$0	\$50	\$1	\$8	\$298
Education	18,300	\$228	\$114	\$0	\$42	\$8	\$2	\$19
Totals	4,849,468	\$116,318	\$54,455	\$2,604	\$8,809	\$1,949	\$3,597	\$2,632

Table 2-13
Probabilistic Wind Risk in Cranbury, 50- and 100-year Planning Horizons
(Source: FEMA, HAZUS-MH version 2.1)

Occupancy Class	Total Annualized Loss	50-year Risk	50-year Risk
Residential	\$113,630	\$1,568,211	\$1,568,211
Commercial	\$38,067	\$525,362	\$525,362
Industrial	\$35,502	\$489,968	\$489,968
Agricultural	\$1,002	\$13,828	\$13,828
Religious	\$990	\$13,667	\$13,667
Government	\$760	\$10,486	\$10,486
Education	\$413	\$5,700	\$5,700
Totals	\$190,365	\$2,627,223	\$2,627,223



3.3.2 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 2-12 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 2-14
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	\$0	\$20,556	\$0	\$0	\$0	\$0	\$0	\$20,556
Hurricane Sandy	\$243,589	\$29,100	\$0	\$0	\$3,959	\$0	\$0	\$276,648
Total	\$243,589	\$49,656	\$0	\$0	\$3,959	\$0	\$0	\$297,204



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 details the capabilities assessed for Borough of South River during this plan update.

4.1 Planning and Regulatory

Tool / Program (code, ordinance, plan)	(Yes/No)	Code Citation and Comments
Master Plan	Y	2010
Capital Improvements Plan	Y	2015
Floodplain Management / Basin Plan	N	
Stormwater Management Plan	Y	2005 to be updated 2014
Open Space Plan	Y	1999
Stream Corridor Management Plan	Y	Ordinance
Watershed Management or Protection Plan	N	
Economic Development Plan	N	
Comprehensive Emergency Management Plan	N	
Emergency Operation Plan	Y	To be updated 2015
Post-Disaster Recovery Plan	N	
Transportation Plan	N	
Strategic Recovery Planning Report	N	
Zoning Ordinance	Y	Updated 2005
Subdivision Ordinance	Y	Updated 2005
NFIP: Cumulative Substantial Damages	N	
Growth Management Ordinances	N	
Site Plan Review Requirements	Y	Updated 2006
Stormwater Management Ordinance	Y	1998 w/ various amendments
Municipal Separate Storm Sewer System (MS4)	N	
Combined Sewer Overflows (CSO)	N	
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 2011



4.2 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	N	
Maintenance Programs to Reduce Risk	N	
Mutual Aid Agreements	Y	Fire
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Y	Richard Preiss – Planner
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Y	Dave Hoder – Planning/Zoning Engineer Bill Tanner – Township Engineer
Planners or engineers on staff with a strong understanding of natural hazards	Y	
NFIP Floodplain Administrator	Y	Bill Tanner - Engineer
Surveyors	N	
GIS layers and maps	N	
Personnel trained in GIS	N	
Personnel trained in HAZUS	N	
Emergency Manager	Y	Chief Rickey Varga
Grant Writer	N	
Staff with expertise in cost/benefit analysis	Y	CFO
Professionals trained in conducting damage assessments	N	

4.3 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)	N		
Public-Private Partnerships	N		



4.4 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?	N
Do you have a line item in the Capital Improvement Budget for mitigation project funding?	Y
Have you provided funding for mitigation projects identified in the hazard mitigation plan?	Y
Does your town have the authority to Levy Taxes for specific purposes?	Y
Does your town have user fees for water, sewer, gas or electric service?	Y – Sewer
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
Cranbury 1: Brainerd Dam Structural Hardening	Township Engineer	Completed	Rehab of dam and culvert 2014-2015
Cranbury 2: Property Acquisition /Elevation of repetitive loss property	Township OEM	Not done because of resources	Keep as future action.
Cranbury 3: Relocation of Township EOC	Township OEM	Completed	EOC moved to PD

5.2 Proposed Mitigation Actions

The table below details the mitigation initiatives the Township of Cranbury 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
Upgrade electrical system at PD	Preserve equipment, security, police operations and EOC operations	Township OEM	Grants/Capital	1-3 years	High
Rehab of the Peddie Road Bridge.	Reduce flood-related impediments to access and egress over the bridge	Township Engineering	Grants/EIT	2-5 years	High
Ensure power duplicity at all critical facilities and utilities	Allow for continued operation of municipal services during and post hazard events	Township OEM	Grants/Capital	2-5 years	High



6. Plan Implementation

The LPC shall document, as needed and appropriate:

- Hazard events and losses in Cranbury 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

6.1 Continued Public Input

The Township of Cranbury 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 Cranbury'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 Cranbury 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.

6.2 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 and 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.

6.3 Plan Maintenance

The Township of Cranbury 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 Cranbury 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.