



## Appendix 4: Borough of Fanwood

This appendix is part of the 2016 Union County Hazard Mitigation Plan (HMP) update, and includes only jurisdiction-specific information about the Borough of Fanwood, which is one of the 20 municipalities within Union County that is participating in the plan update. Union County led the planning process and outreach for this update. For a detailed description of the planning process and the public outreach efforts for this update, see Section 3 of the 2016 HMP.

### 1. Planning Process and Participation

The County formed a Steering Committee, which was responsible for key decisions during the plan update. This committee sent a letter to the Mayor of each municipality within the County. The Mayors and local officials selected a single individual to represent the town in the broader process. This person was the point of contact for the plan update, but worked with other municipal employees, consultants, volunteers, and other stakeholders throughout the planning process. This collection of participants, considered the local planning committee, is listed below. The committee was responsible for various decisions that informed the development of this appendix, including: prioritizing the natural hazards that can affect the community, reviewing and prioritizing the mitigation actions that are included in Table 4-1, and informing community leaders about the status of the County mitigation plan update, including this appendix

The Borough of Fanwood Planning Committee evaluated and identified the hazards of concern, completed the request for information (RFI), reviewed the plan documents and vulnerability assessment, identified local stakeholders for outreach, and worked collectively to update the mitigation strategy. In order to complete the update process Fanwood attended the kickoff meeting held by Princeton Hydro in May 2014. To further the plan development, the Planning Committee met with Princeton Hydro to review the plan documents and revise the mitigation strategy in a workshop format on February 22nd, 2015. The Planning Committee reviewed all drafts and worked collaboratively with stakeholders to ensure the plan reflects current priorities and capabilities.

**Table 4-1**  
**Borough of Fanwood Planning Committee Members**

Name	Title	Organization	Role in Process
Richard Trigo	Chief of Police	Fanwood Police Department	Lead
Eleanor McGovern	Borough Administrator	Borough Hall	Liaison
Peter Bondar	Engineer	T&M Engineering	Member
Colleen Mahr	Mayor	Borough of Fanwood	Member
John Piccola	Fire Chief	Fanwood Fire Department	Liaison to Fire Dept
Howard Drewes	OEM Coordinator	Borough of Fanwood	Member
Dianne Howarth	Administrative Assistant	Fanwood Police Department	Member
Clint Dickson	DPW Director	Department of Public Works	Member



## 2. Community Profile

Borough of Fanwood is 1.3 square miles and is situated in the western half of Union County. Route 28 and the NJ Transit Raritan Valley commuter rail line pass through the Borough. Figure 4-1 is a map of the Borough of Fanwood. See Section 2 of the 2016 Plan update for a map of Union County.

As of the 2010 Census, the population was estimated at 7,318 people, an increase of 2% from a population of 7,174 in the 2000 U.S. Census.<sup>1</sup>

The original inhabitants of Fanwood were of the Lenape Tribe. The area was settled by Scottish immigrants as a farming community, as well as hosting travelers along a stage coach route. Following the Revolutionary War, population growth was experienced and Fanwood eventually separated from Fanwood Borough, now called Scotch Plains. The Borough of Fanwood was formally incorporated on November 2, 1895, as a train station hub. The train station remains an important part of the Borough to this day, serving commuters along the Raritan Valley Line.

The government of Fanwood follows a Borough format, represented by an elected Mayor who serves a four-year term with no re-election limits, and six-member elected council that represents both legislative and executive functions. Each council member serves a three-year term, stagger so that two members conclude terms in each year.<sup>2</sup>

### 2.1 Land Use and Development

Fanwood is a densely developed community, with nearly 97 percent of its 1.33 square miles of land area classified as urban/developed. Almost 93 percent of the parcels within Fanwood are classified as residential, based on tax assessment data. Between 2004 and 2012, 97 building permits were issued for residential homes within the Borough. This is 1.18 percent of the total building permits issued for Union County during this time period. Just over 44 percent of these permits were for 1- and 2-family homes. Fanwood has a population density of 5502 people per square mile. The 2010 census estimates that 10.7 percent of the housing within the Borough was renter-occupied, much lower than the County average of 30.5 percent renter-occupied properties.

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<sup>1</sup> US Dept. of Commerce, Bureau of the Census. Fanwood NJ. <http://quickfacts.census.gov/qfd/states/34000.html>. Retrieved 10/9/14.

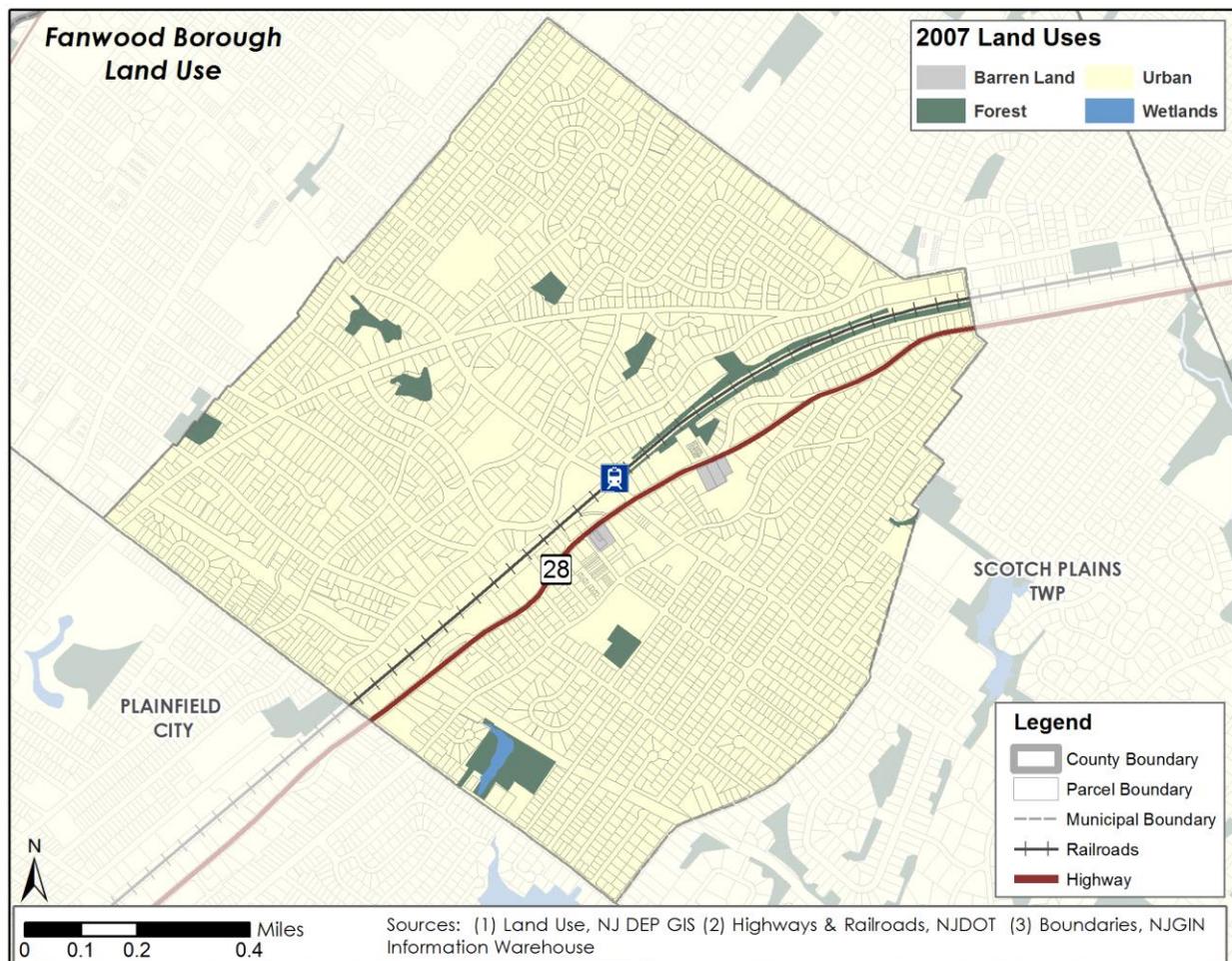
<sup>2</sup> Fanwood, New Jersey. *Government*. <http://www.fanwoodnj.org/government/> Retrieved 10/9/14.



**Table 4-2**  
**Land Use/Land Cover Trends**  
(NJDEP GIS, 2007)

Land Cover Class	2002 (acres)	2007 (acres)	Percent Change	Percent of Total Land <sup>3</sup>
Agriculture	-	-	-	-
Barren Land	-	2.74	-	0.32%
Forest	25.05	25.05	0.00%	2.92%
Urban	830.61	827.87	-0.33%	96.56%
Water	-	-	-	0.00%
Wetlands	1.69	1.69	0.00%	0.20%

**Figure 4-1**  
**Land Use/Land Cover Map Borough of Fanwood**



<sup>3</sup> Uses the 2007 land cover values



### 3. Hazard Identification and Risk Assessment

This section of the Fanwood mitigation plan appendix describes the natural hazards and risks that can affect the community. It should be noted that -- in accordance with FEMA requirements -- only the hazards with aspects that are unique to the community (versus the County as a whole) are included in detail in this appendix.

#### 3.1 Background and Hazard Rankings

Like all the other jurisdictions in Union County, the Borough of Fanwood is potentially subject to the effects of all the hazards that are considered in this mitigation plan. However, the majority of these hazards have minimal impacts on the area, and are discussed in detail in the County part of the 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 Union County HMP update includes separate appendices for each jurisdiction, this requirement is met in the appendices, while risks that affect the entire County uniformly are discussed in the County part of the HMP.

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. Jurisdictions ranked the list of hazards as either high, medium, low, or no concern.

Table 4-3 shows Fanwood’s hazard rankings. The level of discussion and detail about specific hazards in this section are based on these rankings. Hazards that are ranked *high* include the most detail, and to the extent possible include probabilistic assessments of risk, i.e. likely future damages in the community based on the likelihood of occurrence. Hazards that are ranked *medium* have less detail and may in some cases refer to the main part of the county mitigation plan; they usually do not have probabilistic risk assessments, although potential future losses are discussed based on best available data. Hazards ranked *low*

**Table 4-2**  
**Borough of Fanwood Hazard**  
**Identification and Prioritization**

<b>Hazard</b>	<b>Priority</b>
Ice storm	High
Severe storm – winter weather	High
Straight-line winds	High
Flood	Med
Hail	Med
Hazmat release – transportation	Med
High wind – tornado	Med
Severe storm – lightning	Med
Dam failure	Low
Drought	Low
Earthquake / Geological	Low
Erosion	Low
Extreme temperature – cold	Low
Extreme temperature – heat	Low
Hazmat release – fixed site	Low
Landslide (non-seismic)	Low
Storm surge	Low
Wildfire	Low

*\*Only the hazards ranked high and medium are analyzed in this appendix*



and *none* are not addressed in this jurisdictional appendix because they are discussed in the County part of the HMP, and there are no significant differences in risk between the County and the municipality.

## 3.2 Winter Weather Hazard in the Community

### 3.2.1 Type, Location, and Extent

Because the hazards severe storm – winter weather, ice storms and extreme temperatures – cold are closely related, they are combined in this subsection of the appendix. Severe storms and winter weather risks are discussed in detail in Section 4 of the County portion of this mitigation plan. There are no significant differences in the type, location or extent of this hazard between the County and Fanwood Borough, and there are no aspects of the hazard that are unique to this jurisdiction.

### 3.2.2 Previous Occurrences and the Probability of Future Occurrences

Previous occurrences of the severe storm-winter weather/ice storm/extreme temperature - cold hazards are discussed in detail in the County portion of this hazard mitigation plan (see Section 4), and for reasons of brevity are not repeated here. There are no meaningful differences between the County as a whole versus Fanwood Borough with regard to occurrences or the future probability of these hazards.

### 3.2.3 Severe Storm – Winter Weather Impacts and Vulnerabilities to the Hazard

The impacts from these three hazards in Fanwood Borough are substantially similar to the County as a whole, and include lost productivity, traffic accidents, downed trees (and related power losses), medical events (such as heart attacks), and hypothermia (which rarely causes any significant or long-term problems). The community has no unique or pronounced vulnerabilities to these hazards. Like most established communities, over time Fanwood Borough has adapted its systems and infrastructure to minimize the effects of cold weather and associated meteorological effects. In rare cases, buildings may experience structural problems due to snow loads, and public or private infrastructure may fail due to freezing. However, these problems are usually minor and are addressed by private citizens (through their own work, or via insurance proceeds) or by the government in the case of infrastructure.

Perhaps the most significant potential impacts of winter weather are traffic accidents (with related injuries and fatalities), and power losses from ice and downed trees. For the most part, damage to vehicles is addressed via private insurance, records of which are proprietary. However, there are national statistics regarding injuries and deaths related to such weather. Local values for injuries and deaths can be deduced from national statistics. Figures for Fanwood Borough are displayed in the table below. Refer to the County portion of this mitigation plan for source citations and an explanation of the methodology.



**Table 4-3:  
Storm-related Risks Horizons**

	Injuries (combined)	Deaths
Snow/sleet	\$1,005,096	\$114,140
Icy pavement	\$781,973	\$86,087
Snow/sleet	\$753,731	\$75,846
Total annual risk (all hazards)	\$2,540,800	\$276,074
50-year risk	\$35,063,044	\$3,809,817
100-year risk	\$36,257,220	\$3,939,571

An additional source of risk from cold and winter weather is hypothermia deaths. Although the risk from this hazard is relatively small, it can nevertheless be calculated by deduction from national statistics. Annual deaths nationwide were obtained from a U.S. Centers for Disease Control report (National Health Statistics Reports, Deaths Attributed to Heat, Cold and Other Weather Events in the United States, 2006-2010).

**Table 4-5  
Risks from Hypothermia Fanwood Borough**

2010 Population	% of US	Annual Death \$	50-year Horizon	100-year Horizon
7,318	0.0023%	\$197,467	\$2,725,043	\$2,817,853

### 3.3 Straight Line Wind Hazard

#### 3.3.1 Type, Location, and Extent

The high wind – straight-line wind hazard (including type, location and extent) is uniform across Union County, and is discussed in detail in the County portion of this mitigation plan (see Section 4). For reasons of brevity these details are not repeated here. There are no wind hazards that are unique to Fanwood Borough.

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

Previously occurrences and the probability of future events are the same for Fanwood Borough as for Union County. Refer to Section 4 for that information at a County level.

#### 3.3.3 Impacts and Vulnerabilities to the Hazard

Fanwood Borough is a typical residential community, predominated by balloon-frame and unreinforced masonry residential structures, the majority of which have gable or hip roofs. As discussed in the County part of the plan, wind profiles in this area of the country indicate a relatively low potential for severe events, and adequate construction techniques and building codes have generally sufficed to



keep risks low. There are two main sources of potential wind damage in such communities: (1) structural damage to residential and non-residential buildings, and (2) power losses, mainly due to trees falling on above-ground lines. There are established methodologies for completing general risk assessments for these hazards. These are explained in detail in Section 4.

**Table 4-6**  
**Straight-line Wind Risks for Range of Loss Types,**  
**Borough of Fanwood**  
**Annualized and 50- and 100-year Planning Horizons**

Occupancy Class	Total SF	Total Annualized Damages	50-year Risk	100-year Risk
Residential	4,059,973	\$93,033	\$1,283,942	\$1,327,481
Commercial	464,269	\$4,988	\$68,837	\$71,171
Industrial	126,871	\$1,254	\$17,308	\$17,895
Agricultural	26,249	\$270	\$3,722	\$3,848
Religious	48,096	\$521	\$7,192	\$7,436
Government	5,064	\$50	\$693	\$717
Education	16,229	\$142	\$1,956	\$2,022
<b>Total</b>	<b>4,746,751</b>	<b>\$100,257</b>	<b>\$1,383,650</b>	<b>\$1,430,570</b>

Table 4-6 above summarizes annual straight-line wind risks and cumulative risks over 50- and 100-year planning horizons in Fanwood Borough. Risks are in seven discreet categories: building damages, contents damages, inventory loss, relocation costs, business income lost, rental income lost and wages lost.

The next table shows power loss risks in Fanwood Borough, again annualized and for 50- and 100-year planning horizons. The methodology for these calculations (and additional jurisdiction-level data) can be found in Section 4 of the County plan.

**Table 4-7**  
**Power Loss Horizons**

Period	Risk Value
Annual	\$56,533
50-year planning horizon	\$780,198
100-year planning horizon	\$806,684



## 3.4 Flood Hazard

### 3.4.1 Type, Location and Extent

Flooding in Fanwood Borough most often occurs during extreme rain events. These can be simply intense inland storms, tropical cyclones (including hurricanes and their remnants), and sometimes nor'easters. There are no distinct SFHA (Special Flood Hazard Areas) in Fanwood, with exception of its extreme south-western and south-eastern corners, where there is a slight overlap with 100-year and 500-year floodplains of Cedar Brook and Branch 22 of Robinsons Branch, respectively. With an exception of a few NFIP claims in the above mentioned floodplains, all other reported NFIP claims seem to be a result of inadequate interior drainage and localized flooding on individual structures. (need to discuss this with local floodplain POC)

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. The effective FIRM date for Union County is September 20th, 2006, which is shown in Figure 4-2. The Preliminary FIRM was released for Union County on January 30th, 2015. The area within Fanwood was not studied during this plan update. There are no changes between the Effective FIRM and the Preliminary FIRM for this jurisdiction.

Current FEMA guidance uses the term extent as analogous to potential severity. Compared to most other jurisdictions in Union County, Fanwood has a relatively very small area of floodplain, but numerous and undefined localized flooding sources. Although it is difficult to deduce potential severity accurately, it is safe to assume that the extent of flooding in Fanwood is low; in more severe events such as tropical cyclones and nor'easters some areas along the southern Borough boundary can expect to have more severe flooding, but that would be predominantly in function of the afore mentioned streams.

Table 4-8 shows the number of parcels in Fanwood Borough with at least 60% of their area in the 100-year (1% annual) and 500-year (0.2% annual) floodplain. Although these figures offer some insight into the flood hazard in this jurisdiction, they are not particularly reliable as a risk indicator because in many cases structures and infrastructure (where the risk-producing impacts occur) are not located in the specific areas that are in the floodplain.

**Table 4-8**  
**Flood-prone Properties**

Flood hazard area	Number of Parcels
100-year (1%) floodplain	34
500-year (0.2%) floodplain	42



### **3.4.2 Previous Occurrences and the Probability of Future Floods**

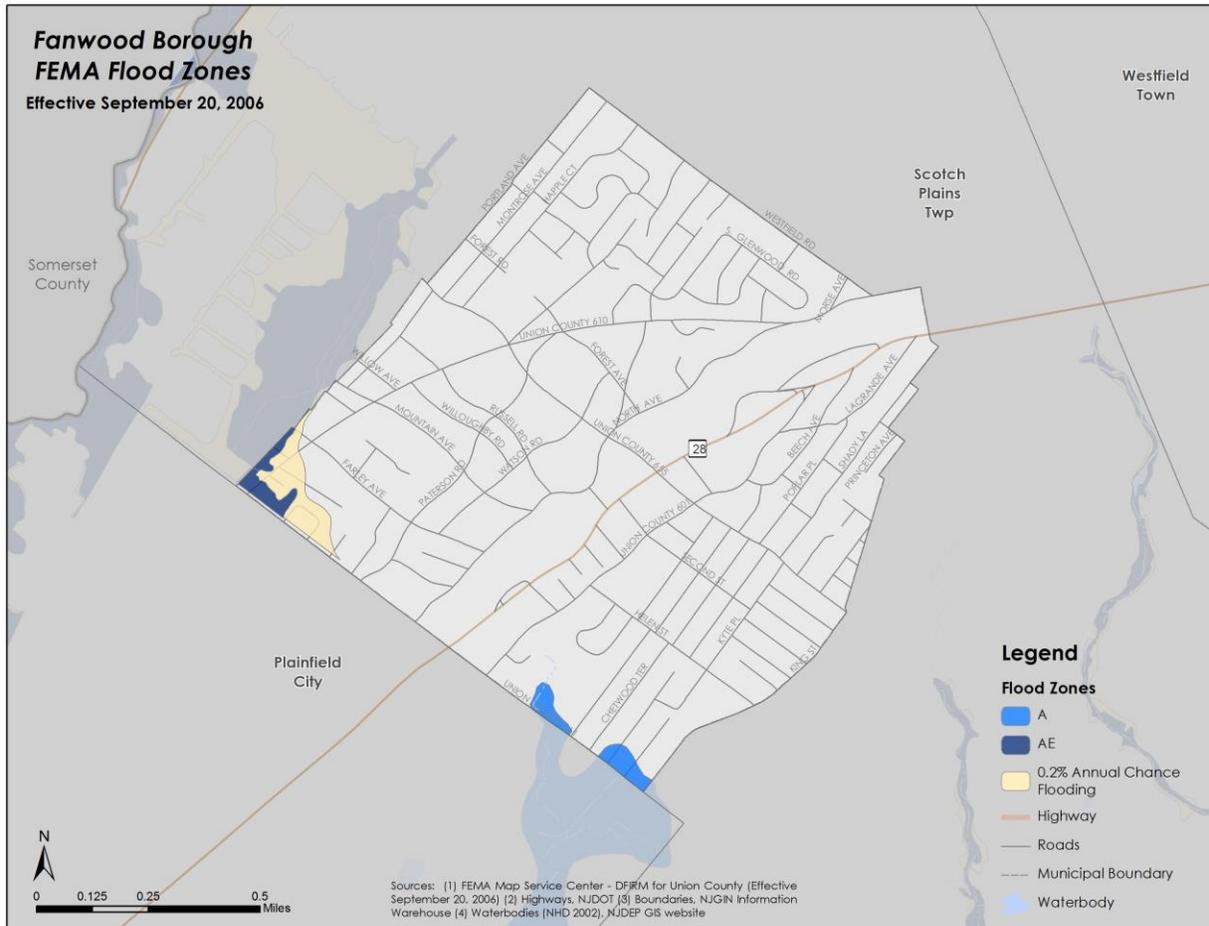
Minor flooding occurs in Fanwood Borough at least annually, although the severity of these frequent events is minimal. As discussed in the main (County) section of the mitigation plan, more significant events like tropical cyclones and nor'easters occur every few years (section citation to main plan), and can result in significant flooding. Notwithstanding the potential effects of climate change on weather patterns, the Borough can probably expect to experience some level of flooding every year or two, with more significant events happening every five to ten years on average. The main (County) part of this HMP discusses past occurrences in detail, and that history and statistics are generally the same as for Fanwood.

### **3.4.3 Flood Impacts and Vulnerability to Flooding**

As discussed elsewhere, flood impacts in Fanwood Borough are not significant compared to other jurisdictions in Union County. Usually these impacts are limited to flooding of structures (especially basements) and roads. There is no significant history of flood damage to critical facilities or populations in the jurisdiction. As expected, the most frequent and serious damages appear to be related to structures that are well within the boundaries of the floodplain, i.e. close to the stream or river center line. The main County HMP includes more information about events that have impacted this area.



**Figure 4-2**  
**Effective FIRM**  
**Fanwood Borough**





### 3.4.4 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). The U.S. Congress established the NFIP with the passage of the National Flood Insurance Act of 1968. The NFIP is a Federal program enabling property owners in participating communities to purchase insurance as a protection against flood losses in exchange for State and community floodplain management regulations that reduce future flood damages. Participation in the NFIP is based on an agreement between communities and the Federal Government. If a community adopts and enforces a floodplain management ordinance to reduce future flood risk to new construction in floodplains, the federal government will make flood insurance available within the community as a financial protection against flood losses. Fanwood Borough has been a member of the NFIP since 1977.

**Table 4-9  
NFIP Policies and Claims**

**Number of Parcels:**

Fanwood:	2,663
Union County:	199,489

**Number of Policies In-Force:**

Fanwood:	38
Union County:	6,055

**Number of Claims:**

Fanwood:	9
Union County:	5,560

**Total Paid Claims**

Fanwood:	\$23,996
Union County:	\$96,782,279

**Repetitive Loss Properties:**

Fanwood:	0
Union County:	729

**Total Building**

Fanwood:	0
Union County:	\$46,560,646

**Total Contents**

Fanwood:	0
Union County:	\$46,560,646

**Number of Claims**

Fanwood:	0
Union County:	2,115

**Average Claim**

Fanwood:	0
Union County:	\$18,759,126

FEMA NFIP statistics indicate that as of February 2014, federal flood insurance policies were in-force on 38 properties in Fanwood Borough. This represents a dollar value of property and contents coverage totaling \$39,311,900. Between 1978 and 2014, there have been a total of nine (9) NFIP insurance claims in Fanwood Borough with a total claims value of \$23,966. Table 4-9 compares the number of policies in-force and paid claims in the jurisdiction. The Table shows that Fanwood comprises 0.6% of the NFIP policies in-force in Union County.

Fanwood Borough is not a member of FEMA's Community Rating System (CRS), a voluntary program for communities participating in the NFIP. The CRS is an 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. 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



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Public Assistance Program.

FEMA requires a discussion of NFIP Repetitive Loss and Severe Repetitive flood loss statistics in hazard mitigation plans. The NFIP defines repetitive loss properties as those with two or more claims of more than \$1,000 each during any rolling ten-year period.

The flood risk assessment method is based on analysis of NFIP data on repetitive flood loss properties. The NFIP defines repetitive loss (RL) properties as those that have received at least two NFIP insurance payments of more than \$1,000 each in any rolling ten-year period. As of February 2014, Union County had 707 such properties based on a query of the FEMA BureauNet NFIP interface. The same records show that there are presently no RL properties in Fanwood Borough. Consequently, no flood risk analyses can be performed for Fanwood Borough at this time.



## 3.5 Hail

### 3.5.1 Type, Location, and Extent

Hail risks are discussed in detail in Section 4 of the County portion of this mitigation plan. There are no significant differences in the type, location or extent of this hazard between the County and Fanwood Borough, and there are no aspects of hail hazard that are unique to this jurisdiction. The entire planning area is exposed to hail hazard.

### 3.5.2 Previous Occurrences and Future Probability

Previous occurrences of hail hazard are discussed in detail in the County portion of this hazard mitigation plan (see Section 4), and for reasons of brevity are not repeated here. Based on SHELDUS and NCDC historic database, between 1950 and 2013 there were three recorded occurrences of hail in Fanwood Borough (two in 2008 and one in 2010), with hail diameter reported between 0.68 and 0.88 inches. There are no meaningful differences between the County as a whole versus the Borough with regard to occurrences or the future probability of hail hazard.

### 3.5.3 Impacts and Vulnerabilities to the Hazard

The community has no unique or pronounced vulnerabilities to this hazard. Based on the historic records, the reported hail size might have caused light material damage, but it was most likely handled by insurance companies or citizens. This is typical of such relatively minor hazards. There is no particular community vulnerability to the hail hazard, with exception of potential light damage to vehicles and roof covers.

## 3.6 Hazardous Materials Releases – Fixed Sites and Transportation

The main section of this hazard mitigation plan includes more details about the hazardous materials hazards in the County as a whole, although by their nature such events are non-probabilistic. As such, it is impossible to estimate risk with any accuracy whatsoever. Hazardous materials releases are included in this appendix because the County required that it remain on the list of hazards, and Fanwood indicated it has a hazard of high or medium concern. However, for reasons of security and a lack of open-source information, this subsection is necessarily short and very general.

This mitigation plan is a public document, and as such does not include any descriptions specific enough that they could be used for malicious purposes. As part of this HMP update, the planning team queried the New Jersey Department of Environmental Protection Right to Know database. The database includes reports of hazardous materials spills, listing their location, date of occurrence and the type of material. The database was queried from January, 2000 to the present day. Results are a combination of occurrences on fixed sites and those related to transportation. For Fanwood, these tended to be in five categories: Soil contamination, Underground tanks (presumably leakage), Illegal dumping, Improper storage/disposal, and Abandoned containers.



### 3.6.2 Transportation

Because of the large presence of the chemical and oil industries in eastern New Jersey, many major transportation routes and rail lines carry a high volume of hazardous materials, many of which could cause damage, death and injury to Union County under some circumstances. As noted, there are few open sources of information about the materials that are transported on these routes, the routes themselves, or the carriers' schedules. For more information, contact the New Jersey State Department of Environmental Protection or local Emergency Management offices.

## 3.7 Tornado

### 3.7.1 Type, Location, and Extent

Tornado risks are discussed in detail in Section 4 of the County portion of this mitigation plan. There are no significant differences in the type, location or extent of this hazard between the County and Fanwood Borough, and there are no aspects of the hazard that are unique to this jurisdiction.

### 3.7.2 Previous Occurrences and the Probability of Future Occurrences

Previous occurrences of the tornado hazard are discussed in detail in the County portion of this hazard mitigation plan (see Section 4), and for reasons of brevity are not repeated here. There are no meaningful differences between the County as a whole versus Fanwood Borough with regard to occurrences or the future probability of this hazard.

### 3.7.3 Impacts and Vulnerabilities to Hazard

Because of the size of the sample area and the nature of the built environment, tornado impacts in Fanwood Borough are substantially similar to the County as a whole. The most significant potential impacts from this hazard are damage to structures (and to a lesser degree, infrastructure), injuries and deaths. The results of the risk assessment are shown in Table 4-10 below. The figures were calculated using the FEMA Benefit-Cost Analysis software Version 5.0, which incorporates statistical probabilities of tornadoes in by State and County, and uses historical data and algorithms to calculate direct damages, injuries and deaths expected from tornadoes in this area.

**Table 4-10**  
**Tornado Risks, Fanwood Borough**  
**Annual, 50- and 100-year Planning Horizons**

Horizon	Direct Damage	Injuries	Deaths
Annual risk	\$57,057	\$55,503	\$179,824
50-year risk	\$787,381	\$765,938	\$2,481,567
100-year risk	\$814,197	\$792,024	\$2,566,084



## 3.8 Lightning

### 3.8.1 Type, Location and Extent of the Lightning Hazard in the Community

Lightning weather risks are discussed in detail in Section 4 of the County portion of this mitigation plan. There are no significant differences in the type, location or extent of this hazard between the County and Fanwood Borough, and there are no aspects of the hazard that are unique to this jurisdiction.

### 3.8.2 Previous Lightning Occurrences and the Probability of Future Occurrences

Previous occurrences of the lightning hazard are discussed in detail in the County portion of this hazard mitigation plan (see Section 4), and for reasons of brevity are not repeated here. There are no meaningful differences between the County as a whole versus Fanwood Borough with regard to occurrences or the future probability of this hazard.

### 3.8.3 Lightning Impacts on the Community, and Community Vulnerabilities to the Hazard

Lightning impacts in Fanwood Borough are substantially similar to the County as a whole. These include occasional impacts on electrical systems, and (very infrequently) damage to structures. The most common impact is damage to trees. The community has no unique or pronounced vulnerabilities to lightning, but it is possible to complete a basic quantitative estimate of potential risks from lightning deaths and damages based on open source information found in a publication entitled *Lightning Fires and Lightning Strikes* (Marty Ahrens, June 2013; National Fire Protection Association, Fire Analysis and Research Division). The County portion of this hazard mitigation plan includes citations and further discussion of the methodology and figures (See Section 4). The table below provides estimated risks in Fanwood Borough from lightning deaths and damages based on statistics described in this publication.

**Table 4-11**  
**Lightning-related Risks, Fanwood Borough**  
**Annual, 50- and 100-year Planning Horizons**

Horizon	Deaths	Damages
Annual risk	\$4,052	\$2,610
50-year risk	\$55,913	\$36,016
100-year risk	\$57,818	\$37,243



### 3.7 Critical and Public Facilities

Facility Name	Street Address
Borough Hall	75 Martine Ave.
Police Department	75 Martine Ave.
Fire Department	75 Martine Ave.
Rescue Squad	75 Martine Ave.
Chelsea Assisted Living	295 South Avenue
Fanwood DPW	1 Manfra Way



## 4. Borough of Fanwood Mitigation Strategy

This section contains hazard mitigation goals, objectives, and action items for the Borough of Fanwood. The goals are similar to the goals outlined in the County plan, but the objectives are adjusted for the jurisdiction. The definitions for these terms can be found in Section 7.2.

### 4.1 Goals

- Goal 1: Improve **LOCAL KNOWLEDGE** about the potential impacts of hazards, and the identification of specific measures that can be taken to reduce their impacts
- Goal 2: Improve **DATA COLLECTION, USE, AND SHARING** to reduce the impacts of hazards
- Goal 3: Improve **CAPABILITIES, COORDINATION, AND OPPORTUNITIES** to plan and implement risk reduction projects, programs, and activities
- Goal 4: Pursue a range of **MITIGATION OPPORTUNITIES**, including addressing NFIP repetitive and severe repetitive loss properties, and reducing risk to public properties and infrastructure

### 4.2 Objectives

- Objective 1.A: Increase risk awareness among officials and citizens.
- Objective 1.B: Maintain and improve jurisdiction-level awareness regarding funding opportunities for mitigation, including that provided by FEMA and other federal and State agencies.
- Objective 2.A: Improve the availability and accuracy of risk- and mitigation-related data at the local level, as the basis for planning and development of risk-reduction activities.
- Objective 2.B: Ensure that government officials and local practitioners have accurate and current information about best practices for hazard mitigation planning, project identification, and implementation.
- Objective 2.C: Develop and maintain detailed data about critical facilities, as the basis for risk assessment and development of mitigation options.
- Objective 3.A: Continue support of hazard mitigation planning, project identification, and implementation at the municipal level.
- Objective 3.B: Continue close coordination with the County in a range of risk-related areas, such as FEMA programs, mitigation planning, development of hazard mitigation projects, etc.
- Objective 3.C: Increase property owner participation in the National Flood Insurance Program.
- Objective 3.D: Implement activities to improve the community's CRS rating.
- Objective 3.E: Work towards increasing the integration of mitigation principles and activities in a range of local regulations, plans, ordinances and activities.
- Objective 3.F: Maintain and improve coordination with surrounding communities with regard to understanding and reducing risks.
- Objective 4.A: Facilitate development and timely submittal of project applications meeting state and federal guidelines for funding (1) for RL and SRL properties and (2) for hardening/retrofitting infrastructure that is at the highest risk.
- Objective 4.B: Maintain and enhance local planning and regulatory standards related to future development and investments.



## 4.3 Mitigation Strategy

### 4.3.1 Existing Actions

The table below lists prioritized mitigation projects and actions identified by the Borough of Fanwood.

Mitigation Action, Program, or Project	Hazard	Priority	Implementation Mechanism	Responsible Party	Target Start Date	Project Duration	Estimated Cost	Current Status
Conduct all-hazards public education and outreach program for hazard mitigation and preparedness.	All	High	Emergency Management	OEM Coordinator, in coordination with County		One Year	Staff Time	Ongoing

### 4.3.2 New Actions

Mitigation Action, Program, or Project	Hazard	Priority	Implementation Mechanism	Responsible Party	Target Start Date	Project Duration	Estimated Cost
Borough Hall/Police HQ/Fire HQ Generator	All	High	Grants/Capital funds	Borough	5/1/15	6 months	\$110,000
Portable Generator	All	High	Grants/Capital funds	Borough	Funding dependent		\$25,000
Variable Message Board	All	High	Grants/Capital funds	Borough	Funding dependent		\$12,000
3 Portable Generators and transfer switches for 3 Traffic Signals on Martine Avenue	All	High	Grants/Capital funds	Borough	Funding dependent		\$18,000
6 Portable Light Towers	All	Medium	Grants/Capital funds	Borough	Funding dependent		\$72,000
Generator for LaGrande Park (Warming station)	All	High	Grants/Capital funds	Borough	Funding dependent		\$75,000
Generator for Forest Road Park (Warming station)	All	High	Grants/Capital funds	Borough	Funding dependent		\$75,000
Generator for Public Works gas pumps	All	High	Grants/Capital funds	Borough	Funding dependent		\$75,000



## 4.4 Capability Assessment

As part of this plan update each town self-assessed their existing planning and regulatory tools, communication and emergency response capabilities, staff and personnel, and their capabilities to leverage municipal funds to achieve hazard mitigation planning objectives. This capability assessment should be updated as part of the ongoing maintenance process.

### 4.4.1 Planning and Regulatory

Tool	Borough Has (y/n)
Zoning Ordinance	Y
Subdivision Ordinance	Y
Flood Damage Prevention Ordinance (per NFIP)	Y
Special Purpose Ordinances (e.g. wetlands, critical or sensitive areas)	Y
Stormwater Management Plan/Ordinance	Y
Comprehensive Plan / Master Plan	Y
Capital Improvements Plan	Y
Site Plan Review Requirements	Y
Habitat Conservation Plan	
Economic Development Plan	
Local EOP	Y
Continuity of Operations Plan	Y
Post Disaster Recovery Plan or Ordinance	Y
Wildfire Protection Plan	Y
Real Estate Disclosure req.	Y
Other (e.g. steep slope ordinance, local waterfront revitalization plan)	N
Freeboard	N
Cumulative Substantial Damages	Y
Shoreline Management Plan	N

### 4.4.2 Communication and Emergency Response

	Does the Borough have this (y/n)
Outdoor warning system	Y
Nixle	N
Auto-Dialer/Reverse 911/Emailer	Y
Social Media	Y
Website Updates	Y
Other Emergency Communications	Y
Mutual Aid Agreements	Y
Emergency Operations Center	Y
Evacuation Vehicles	Y
Swift-water rescue	N
Shallow water boats	N



#### 4.4.4 Staff/Personnel

	Does this Borough have this expertise on staff?
Staff with expertise or training in benefit/cost analysis	Y
Grant Writer(s)	Y
Emergency Manager	Y
Professionals trained in conducting damage assessments	Y
Scientist familiar with natural hazards in the municipality.	Y
Personnel skilled or trained in "GIS" applications	Y
Surveyor(s)	Y
NFIP Floodplain Administrator	Y
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Y
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Y

#### 4.4.5 Fiscal Capabilities

Fiscal Mechanism	Does the Borough have this capability?
Community development Block Grants (CDBG)	Y
Capital Improvements Project Funding	Y
Authority to Levy Taxes for specific purposes	Y
User fees for water, sewer, gas or electric service	Y
Impact Fees for homebuyers or developers of new development/homes	Y
Incur debt through general obligation bonds	Y
Incur debt through special tax bonds	Y
Incur debt through private activity bonds	N
Withhold public expenditures in hazard-prone areas mitigation grant programs	N



## 5. Plan Maintenance and Adoption

### 5.1 Plan Maintenance

The Borough of Fanwood 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 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 G. 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 Borough retains the discretion to implement minor changes to the document without formal procedures involving the Borough Council subject to local policies and regulations.

In addition to the annual progress report, the Borough of Fanwood will provide Union County with a copy of the written notice of any changes to the jurisdictional appendix at the time such changes are implemented.

The LPC shall document, as needed and appropriate:

- Hazard events and losses in Fanwood 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,
- Any changes to local capabilities,
- Efforts to integrate the information included in this plan into other local planning mechanisms including, but not limited to, the comprehensive plan, capital improvement planning, budgeting, zoning amendments, and variance approvals,
- All public and stakeholder input and comment on the Plan that has been received by the Borough.
- Copies of any grant applications filed on behalf of the Borough



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### 5.1.2 Continued Public Input

The Borough of Fanwood 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. The Borough will place a link to the Plan on its website.

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: Union County Office of Emergency Management c/o All Hazards Pre-disaster Mitigation Plan Coordinator 300 North Ave East, Westfield, NJ 07090.

The Borough of Fanwood's LPC shall ensure that:

- Copies of the latest approved Plan are available for review at Borough 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 Borough of Fanwood will post a notice on the Borough's website and invite the public to review and comment.
- For major changes involving Borough Council approval, the Borough will use its standard public notice procedures inviting the public to review the document and provide feedback.

## 5.2 Plan Integration

The Hazard Mitigation Plan is a critical tool to help identify vulnerabilities and develop specific projects to reduce studied risk within the jurisdiction. However, it is not the only tool that may help minimize the impact of future hazard events on the people, infrastructure, and economy in the community. Using the data included in this Plan update to inform future updates of its Comprehensive Plan, Capital Improvement Planning and annual budget, stormwater management, zoning and code updates, and variance and subdivision applications will improve the resiliency of the community and reduce future risk to persons and property. All efforts to integrate the plan into other local mechanisms can be reported to the Plan Coordinator at each annual update.

## 5.3 Plan Adoption

On [insert date] Union County submitted the initial draft of the 2016 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 Union County Board of Chosen Freeholders for adoption, which occurred on [insert date].



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The Borough Council approved the plan on [insert date]. The Borough's resolution for adoption and the County's adoption resolution are provided as Appendix E of the 2016 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 D.