



Appendix 15: Township of Scotch Plains

This appendix is part of the 2015 Union County Hazard Mitigation Plan (HMP) update, and only includes jurisdiction-specific information about the Township of Scotch Plains, which is one of the twenty (20) municipalities within Union County that is participating in the plan update.

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 Township 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 action, and informing community leaders about the status of the County mitigation plan update, including this appendix.

In order to complete the update process, Scotch Plains met with Princeton Hydro April 21st, 2015. Local ordinances, site plan requirements, emergency procedures and response plans, and stormwater management plans were reviewed for integration into this plan update. As the plan was developed, the Planning Committee reviewed all of the drafts and provided input on this individual appendix.

Table 15-1
Scotch Plains Planning Committee Members

Name	Title	Organization
Brian Mahoney	Chief	Scotch Plains Police Department
Robert Lynes		Engineering Department
Joe Timko	Assistant Engineering	Engineering Department
Ernie Hernandez	Sergeant	Scotch Plains Police Department
Alexander Mirabella	Township Manager	Township of Scotch Plains



Community Profile

The Township of Scotch Plains has a total area of 9.05 square miles and is located in the southern region of Union County, New Jersey.

As of 2010, the population was estimated at 23,510. This is a 3.42 percent increase from the 2000 population, which was estimated at 22,732. See Section 3 of the 2015 Plan update for a map of Union County.

The first record of settlement in Scotch Plains was in 1684. It developed as a stop on the line between New York and Philadelphia. At the time of incorporation, the present day Scotch Plains was part of Fanwood Township. The township was renamed on March 29, 1917.

The Township of Scotch Plains was formally incorporated on March 6th, 1978. The Township is governed by an elected mayor and four councilpersons.

Land Use and Development

Scotch Plains is a residential community, with 72 percent of its 9.05 square miles of area classified as urban/developed, and a large reservation to the north. Over 90 percent of the parcels within Scotch Plains are classified as residential, based on tax assessment data. Between 2004 and 2012, 882 building permits were issued for residential homes within the Township. This is 5.49 percent of the total building permits issued for Union County during this time period. Approximately 94 percent of these permits were for 1- and 2-family homes.

Scotch Plains has a population density of 2,598 people per square mile, Union County's third least-dense municipality, though it is still growing in population compared to other parts of the County. The 2010 census estimates that 79.2 percent of the housing within the Township was owner-occupied, higher than the County average of 68.5 percent owner-occupied properties.

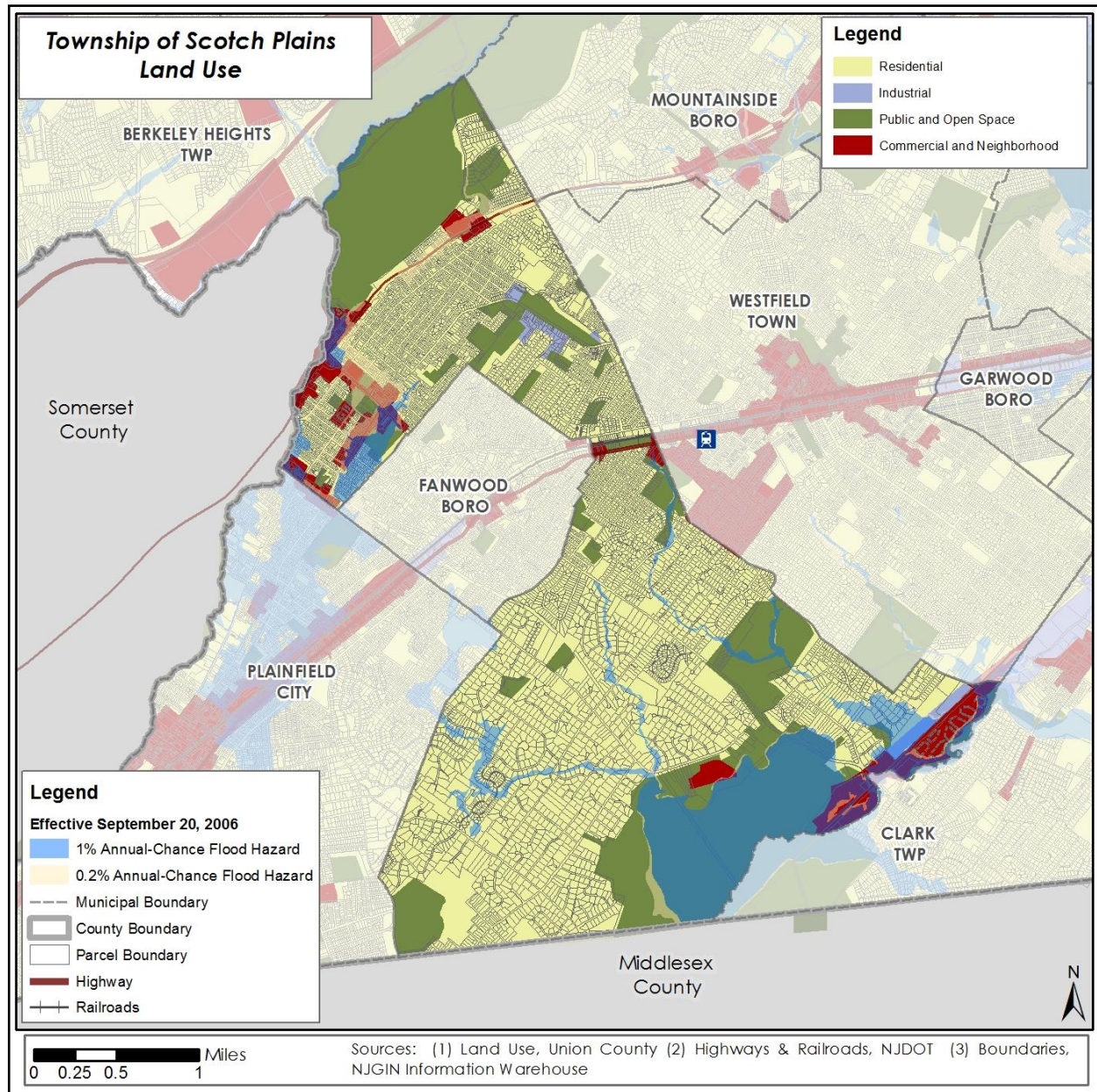
Table 15-2
Land Use Change in the Township of Scotch Plains

Land Cover Class	2002 (acres)	2007 (acres)	Percent Change	Percent of Total Land ¹
Agriculture	27.94	28.17	0.80%	0.49%
Barren Land	9.47	11.86	25.22%	0.21%
Forest	812.52	778.73	-4.16%	13.57%
Urban	4,100.62	4,147.11	1.13%	72.25%
Water	37.24	36.25	-2.64%	0.63%
Wetlands	809.27	794.94	-1.77%	13.85%

¹ Uses the 2007 land cover values



Figure 15-1
Map of Scotch Plains Land Use





3 Hazard Identification and Risk Assessment

This section of the Scotch Plains 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 are included in detail in this appendix.

3.1 Background and Hazard Rankings

Like all the other jurisdictions in Union County, the Township of Scotch Plains 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 are discussed in Section 4.

One of the first steps in developing this appendix was for the town 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 15-3 shows Scotch Plains’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. 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* and *none* are not addressed in this appendix because they are discussed in Section 4, and there are no significant differences in risk between the County and the municipality.

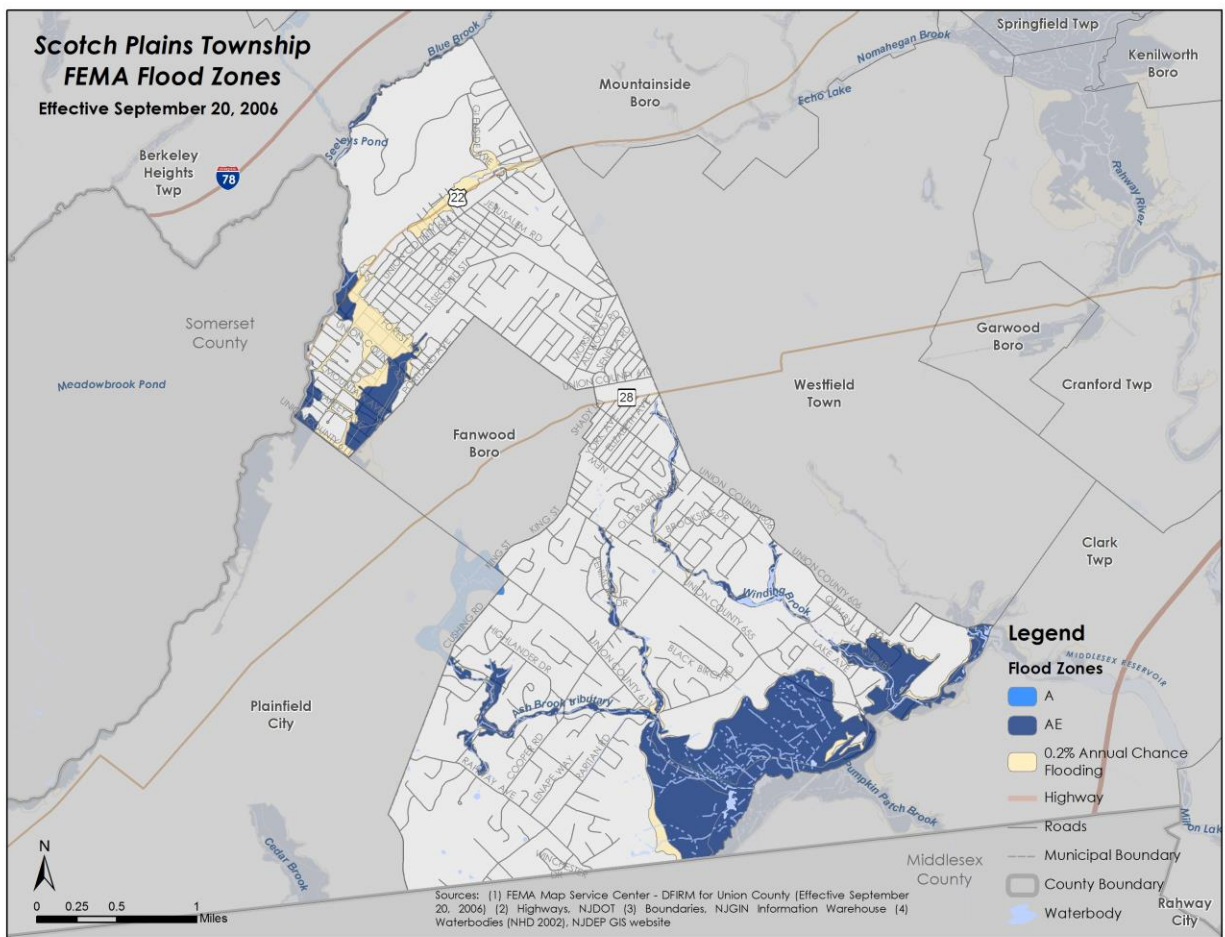
Table 15-3
Township of Scotch Plains Hazard
Identification and Prioritization

Hazard	Priority
High wind – straight-line winds	H
Severe storm – winter weather	H
Flood	H
Dam Failure	M
Hazmat release – transportation	M
Wildfire	M
Dam Failure	L
Drought	L
Earthquake / Geological	L
Erosion	L
Extreme temperature – cold	L
Extreme temperature – heat	L
Hail	L
Hazmat release – fixed site	L
High wind – tornado	L
Ice storm	L
Landslide (non-seismic)	L
Severe storm – lightning	L
Storm surge	N

**Only these hazards are included in this appendix*



Figure 15-2
Effective FIRM Scotch Plains Township



3.2 Flood Hazard

3.2.1 Type, Location, and Extent

Flooding in Scotch Plains Township 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 two typical modes of flooding – overbank floods from several culverts and stream channels that run generally north to south across the jurisdiction, and (to a lesser extent) sheet flow and ponding in very specific areas.

On the north-western border with Somerset County, the Township experiences flooding from the Green Brook. There have been some improvements in the last few years to improve conditions in this area, but when it overflows it often floods Route 22, which thus diverts traffic through local roads in the Township. Lamberts Mill floods when the dam is overtopped, Westfield road frequently will flood, as will West Broad Street.



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.² The effective FIRM date for Union County is September 20th, 2006 and is shown in Figure 15-2. The Preliminary FIRM for Union County was released on January 30th, 2015. Scotch Plains was not studied for this map update and has not changed since the Effective FIRM.

There are two small areas of Special Flood Hazard Area, as shown in Figure 15-2. The other area where there is some flood risk is in the east-central part of the Township, where there is some 100-year floodplain and a minor history of flood insurance claims (see map). Again, the flooding is associated with extreme rain events, and is caused by a combination of modes – overbank from culverts, as well as sheet flow and ponding. The flooding can be exacerbated by narrower downstream channels, but these are gradually being corrected through civil works projects and improved maintenance. Over time, the Township has tried successfully to reduce flooding in this area by carefully maintaining (and occasionally widening) culverts and channels. Although this area appears to be flood-prone based on the map, in fact there has not been any significant flooding there in some time, in large measure because of the jurisdiction's commitment to maintenance.

Table 15-4 shows the number of parcels in Scotch Plains Township 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.

3.2.2 Previous Occurrences and the Probability of Future Floods

Minor flooding occurs in Scotch Plains 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 Township 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. Section 4 of the HMP discusses past occurrences in detail, and that history and statistics are generally the same as for Scotch Plains.

Table 15-4
Flood-prone Properties

Flood hazard area	Number of Parcels
100-year (1%) floodplain	434
500-year (0.2%) floodplain	345

² FEMA online - Floodplain Management. Flood Insurance Rate Map (FIRM) definition



Table 15-5
NFIP Policies and Claims

Number of Parcels:

Scotch Plains:	8,069
Union County:	199,489

Number of Policies In-Force:

Scotch Plains:	386
Union County:	6,055

Number of Claims:

Scotch Plains:	212
Union County:	5,560

Total Paid Claims

Scotch Plains:	\$1,147,319
Union County:	\$96,782,279

Repetitive Loss Properties:

Scotch Plains:	18
Union County:	707

Total Building

Scotch Plains:	\$426,309
Union County:	\$16,597,500

Total Contents

Scotch Plains:	\$31,309
Union County:	\$3,787,671

Number of Claims

Scotch Plains:	44
Union County:	2,115

Average Claim

Scotch Plains:	\$10,415
Union County:	\$9,891

3.2.3 Flood Impacts and Vulnerabilities to Flooding

As discussed elsewhere, flood impacts in Scotch Plains Township are moderate based on various metrics such as NFIP claims, FEMA PA Program Project Worksheets, and the known history of flooding.

The Township floods from

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). 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. Scotch Plains Township has been a member of the NFIP since 1977.

FEMA NFIP statistics indicate that as of February 2014, federal flood insurance policies were in-force on 336 buildings in Scotch Plains Township. This represents a dollar value of property and contents coverage totaling \$86,530,800. Between 1977 and 2014, there have been a total of 212 NFIP insurance claims in Scotch Plains with a total claims value of \$1,147,319.³ Table 15-2 compares the number of policies in-force and paid claims in the Township. The table shows that Scotch Plains comprises 5.59% of the NFIP policies in-force in Union County.

(CRS) is 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

³ FEMA – Policy and Claim Statistics for Flood Insurance



discounted in increments of 5% based on creditable activities.⁴ CRS communities are ranked between 1 and 10, with Class 1 communities receiving a 45% premium discount. Scotch Plains was accepted into the Community Rating System (CRS) in 1994, but its status has since been rescinded.

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.

FEMA requires a discussion of NFIP Repetitive Loss and Severe Repetitive flood loss statistics in hazard mitigation plans. 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. Of this total, 18 repetitive loss properties were located within Scotch Plains; this comprises less than one percent of the County total. Table 15-5 provides a comparison of the residential repetitive loss claims for Union County and Scotch Plains. The repetitive loss areas include: Farley Ave, Saint Ann St., Myrtle Ave,

3.2.5 Flood Risk to Repetitive Loss Properties in Scotch Plains

Residential flood risk is calculated by a simple methodology that uses the FEMA default present-value coefficients from the benefit-cost analysis software modules. To perform this calculation, the flood insurance claims data were reviewed to determine an approximate period over which the claims occurred. This method should be used only for very general estimates of flood risk because the NFIP data represents only part of the flood losses in any jurisdiction. This is because there are always properties that are uninsured or under-insured. Most of the flood claims in the most recent query occurred between 1977 and the present, a period of 38 years.

⁴ FEMA – Community Rating System (CRS).



As shown in Table 15-6, there have been 212 NFIP insurance claims in the 38-year period, for an average number of claims per year of 5.6. Based on a 100-year horizon and a present value coefficient of 14.27 (the coefficient for 100 years using the mandatory OMB discount rate of 7.0 percent), the projected flood risk to these properties is \$172,096. It must be understood that individuals can obtain and cancel flood insurance policies, and the flood hazard depends on many variables, including the weather, so this projection is simply an estimate of potential damages. Nevertheless, it offers a useful metric that can be used in assessing the potential cost effectiveness of mitigation actions, although in this case, site-specific loss estimates are fairly small, meaning that the amount of grant funds that could be expended on projects will probably be limited.

**Table 15-6: Projected 100-year Flood,
Based on Past Flood Insurance Claims**

Data	Value
Period in years	38
Number of claims	212
Average claims per year	5.6
Total value of claims	\$458,268
Average value of claims per year	\$12,060
Projected risk, 100-year horizon	\$172,096

3.2.6 Flood Risk to Severe Repetitive Loss Properties in Scotch Plains

The definition of Severe Repetitive Flood Loss is included in the County portion of this mitigation plan. As of February 2014, Scotch Plains had no NFIP severe repetitive flood loss properties.

3.3 Straight Line Wind Hazard

3.3.1 Type, Location and Extent

The high wind – straight line wind hazard 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 Scotch Plains.

3.3.2 Previous Occurrences and the Probability of Future Occurrences

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



3.3.3 Straight Line Wind Impacts and Vulnerabilities to the Hazard

Scotch Plains 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 the County portion of the plan (see Section 4). Table 15-7 below summarizes annual straight-line wind risks and cumulative risks over 50- and 100-year planning horizons in Scotch Plains. Risks are in seven discreet categories: building damages, contents damages, inventory loss, relocation costs, business income lost, rental income lost and wages lost.

**Table 15-7: Straight-line Wind Risks for Range of Loss Types, Township of Scotch Plains
Annualized and 50- and 100-year Planning Horizons**

Occupancy Class	Total SF	Total Annualized Damages	50-year Risk	100-year Risk
Residential	12,540,151	\$263,222	\$3,632,730	\$3,755,918
Commercial	1,901,757	\$18,978	\$261,916	\$270,798
Industrial	388,696	\$2,765	\$38,153	\$39,447
Agricultural	343,942	\$2,944	\$40,630	\$42,008
Religious	280,534	\$2,700	\$37,256	\$38,520
Government	20,509	\$195	\$2,686	\$2,777
Education	186,269	\$1,441	\$19,888	\$20,562
Total	15,661,859	\$292,244	\$4,033,260	\$4,170,031

The next table shows power loss risks in Scotch Plains, 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 15-8: Power Loss Horizons

Period	Risk Value
Annual	\$216,024
50-year planning horizon	\$2,981,292
100-year planning horizon	\$3,082,501

*Source: Scotch Plains, Annualized and 50- and 100-year
Planning Horizons*



3.4 Winter Weather Hazard in the Community

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 Scotch Plains, and there are no aspects of the hazard that are unique to this jurisdiction.

3.4.1 Previous Occurrences and the Probability of Future Occurrences

Previous occurrences of the severe storm-winter weather 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 Scotch Plains with regard to occurrences or the future probability of this hazard.

3.4.2 Severe Storm – Winter Weather Impacts and Vulnerabilities to the Hazard

Winter weather impacts in Scotch Plains are substantially similar to the County as a whole, and include lost productivity, traffic accidents, downed trees, 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 this hazard. Like most established communities, over time Scotch Plains 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.

Table 15-9 Horizons

	Injuries (combined)	Deaths
Snow/sleet	\$3,228,999	\$366,690
Icy pavement	\$2,512,186	\$276,567
Snow/sleet	\$2,421,457	\$243,665
Total annual risk (all hazards)	\$8,162,642	\$886,922
50-year risk	\$112,644,460	\$12,239,518
100-year risk	\$116,480,901	\$12,656,371



Perhaps the most significant potential impact of winter weather is traffic accidents and related injuries and fatalities. 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 Scotch Plains 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 15-10
Risks from Hypothermia Scotch Plains Township
Annually and 50- and 100-year Planning Horizons

2010 Population	% of US	Annual Death \$	50-year Horizon	100-year Horizon
23,510	0.0074%	\$634,387	\$8,754,546	\$9,052,708

3.7 Wildfire

3.6.1 Type, Location, and Extent

Wildfire risks are discussed in detail in Section 4 of the County portion of this mitigation plan Scotch Plains is predominantly suburban in nature, with medium-size residential lots over much of the area, with a normal density of trees interspersed with structures, creating some wildland-urban intermix. Passaic River Park also makes up part of the northwest border of the jurisdiction, meaning that there is some wildland-urban interface area as well. One means of characterizing the wildfire hazard at the local level is to review *wildfire fuel hazard* statistics. Fuel hazard refers to the risks associated with the amount of biomass that will burn under a given set of conditions. Moisture content and fuel size are the primary determinants of availability. Arrangement and compactness of fuel may also determine availability.⁵ The data was obtained from the New Jersey Forest Fire Service (NJFFS) a division of the New Jersey Department of Environmental Protection (NJDEP) website. The NJFFS developed the Wildfire Fuel Hazard data based upon NJDEP's 2002 Land Use/Land Cover (LU/LC) datasets and NJDEP's 2002 10-meter Digital Elevation Grid datasets (considering both land use and slope to determine rankings).

The wildfire fuel hazard data was released for the State of New Jersey in May, 2009. It includes five fuel related categories and several other non-fuel related categories such as urban and agricultural lands. The five fuel hazard categories include

- Extreme
- Very High
- High
- Moderate
- Low

⁵ National Park Service. Fire and Fuel Management: Definitions, ambiguous terminology and references.



Table 15-11 summarizes the fuel hazard for the Township of Berkeley Heights. The data cannot be directly translated to risk, but instead provides some insight into the relative amounts of fuel at the time of the study. The high and medium fuel hazard areas are located in the Watchung Reservation and the Ash Brook Golf Course.

Table 15-11
Wildfire-related Fuel Hazards in Berkeley Heights
(Source: NJDEP (GIS), New Jersey Forest Fire Service)

Fuel Hazard	Square Miles	Acres
Extreme	0.02	13.77
Very high	0.05	30.56
High	4.88	3122.49
Medium	1.64	1049.31
Low	0.01	9.00
Total	6.60	4225.13

Because of the relatively flat topography, normal antecedent conditions (the area has not been prone to extended drought), and the fuel present, the extent (potential severity) of the wildfire hazard here is relatively low.

3.6.2 Previous Occurrences and the Probability of Future Occurrences

A review of open data sources (including NOAA's National Climatic Data Center, and the New Jersey Forest Fire Service) shows no evidence of any previous wildfire occurrences in Scotch Plains. This is a densely developed area with a professional fire department, and there are many citizens present at most times who would presumably notice a fire and notify authorities, so the probability of future occurrences is considered very low.

3.6.3 Wildfire Impacts and Vulnerabilities to the Hazard

There have been no wildfire impacts in the past in this jurisdiction. Although there are many areas where structures and vegetation are in close proximity, for the reasons noted in the subsection above, vulnerabilities to wildfire are low or very low.

3.7 Dam Failure

3.7.1 Type, Location, and Extent

There is one high-hazard dam within the Township, the Shackamaxon dam. There is also one dam of Significant Hazard, the Seeley's Pond Dam, which is owned by the County. The Township considers Dam Failure to be a low risk hazard due to the unlikely probability that it will ever occur. There are regulations regarding the maintenance and monitoring of the dam in place to minimize the probability of this hazard. However, dam failure has been included in this appendix because of its high risk and potential impacts to the community if it were to occur.



3.7.2 Previous Occurrences and the Probability of Future Occurrences

According to the NJDEP Bureau of Dam Safety and Flood Control, Hurricane Floyd caused a partial failure of the Shackamaxon Dam. The NJDEP has record of erosion of the discharge channel and the left abutment from Hurricane Floyd. The dam has since been repaired and is inspected regularly per State requirements. The Township also reports that Seeley's Pond Dam has had partial failures and overtopping in the past. It is not possible to quantify the probability of future occurrences of failure within the Township, though the Township does take precautions to minimize the risk of this hazard.

3.7.3 Impacts and Vulnerabilities to the Hazard

Figure 15-4 is a map of Shackamaxon Dam located along Lambert's Run in Scotch Plains Township. As indicated in the County Section of the Plan, Shackamaxon Dam is listed as one of the three high hazard dams. The map identifies the land use/land cover for the census blocks within 500 feet of the stream.

Table 15-12 identifies the population and housing units for each of the 14 census blocks included on the Shackamaxon Dam map (Figure 15-4). There are a total of 1,812 residents and 987 housing units within the selected census blocks located along the 500-foot-wide stream buffer downstream of Shackamaxon Dam.

Table 15-12
Population and Housing Units for Selected Census Blocks Intersecting the 500-Foot-
Wide Stream Buffer Downstream of Shackamaxon Dam
(Source: US Census Bureau – 2000 Population)

Map ID	Block Number	Population	Housing Units
1	1998	0	0
2	1007	61	22
3	1009	99	36
4	1001	804	388
5	1034	87	53
6	1035	131	103
7	1036	0	0
8	1043	0	0
9	1037	42	19
10	1044	6	4
11	1042	0	0
12	1041	0	0
13	5000	550	351
14	5005	32	11
Total	-----	1,812	987



Figure 15-3
Shackamaxon Dam Land Use/Land Cover
for Census Blocks Intersecting a 500-Foot-Wide Buffer (Source: NJDEP)

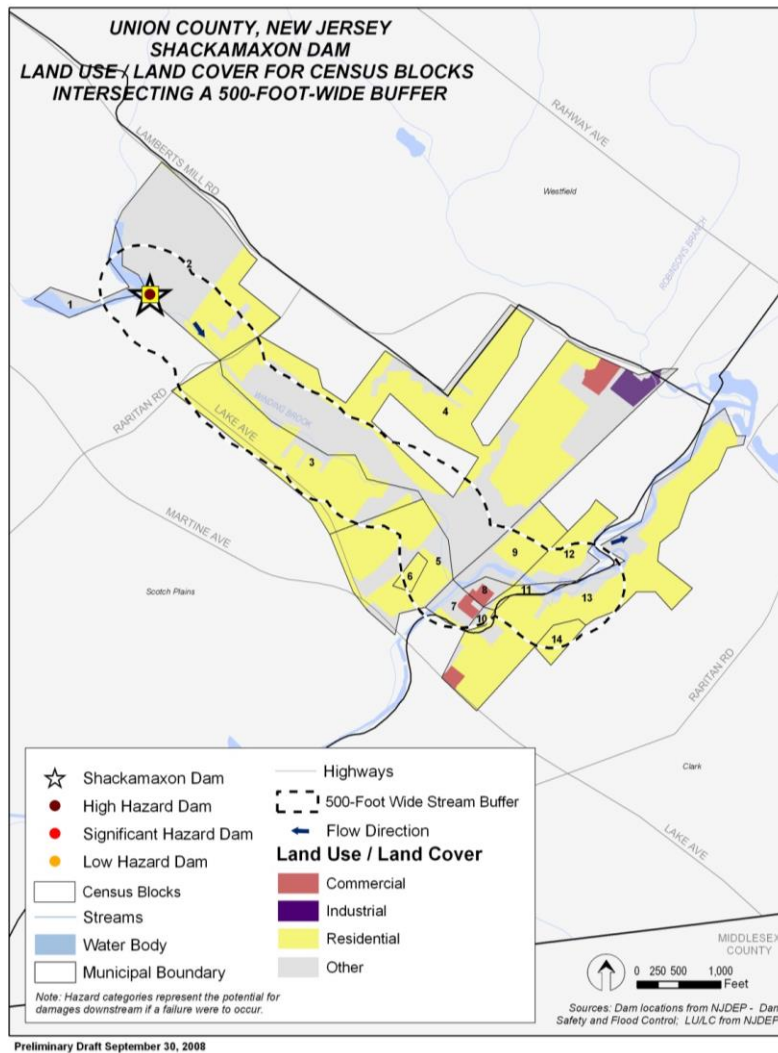


Table 15-13 identifies the number of acres within each of the 14 census blocks for the four land use categories identified on the Shackamaxon Dam map (Figure 15-3). The table shows that the residential land use category has the highest acreage within the selected census blocks.



Table 15-13
**Land Use/Land Cover (in acres) for Selected Census Blocks Intersecting the 500-Foot-
Wide Stream Buffer Downstream of Shackamaxon Dam**
(Source: NJDEP – Land Use Land Cover)

Map ID	Block Number	Commercial (Acres)	Industrial (Acres)	Other (Acres)	Residential (Acres)	Grand Total
1	1998	0	0	6.57	0	6.57
2	1007	0	0	39.89	14.94	54.83
3	1009	0	0	5.16	32.98	38.14
4	1001	2.48	3.34	60.12	70.09	136.03
5	1034	0	0.03	8.46	22.19	30.68
6	1035	0	0	0.04	1.95	1.98
7	1036	0.92	0	3.36	0.72	5.00
8	1043	0.97	0	1.50	0.08	2.54
9	1037	0	0	5.31	8.28	13.59
10	1044	0	0	0.55	0.43	0.99
11	1042	0	0	1.26	1.16	2.42
12	1041	0	0	3.26	7.81	11.07
13	5000	0.92	0	11.71	45.31	57.93
14	5005	0	0	0	3.56	3.56
Total	-----	5.29	3.37	147.18	209.49	365.34



3.5 Critical Facilities

Building	Address
Evergreen School (K – 4)	2280 Evergreen Ave.
Public Library	1927 Bartle Ave.
Municipal Building & Police Headquarters	430 Park Ave.
Muir School	
J. A. Coles School (K -4)	16 Kevin Road
H.B. Brunner School (K-5)	721 Scotch Plains Rd
Park Middle School (5-8)	580 Park Ave.
Fire Station #1	430 Senger Pl.
St. Bartholomew Interparochial School (PreK – 8)	2032 Scotch Plains Ave.
Scotch Plains-Fanwood High School (9-12)	667 Scotch Plains Rd.
W. J. McGinn School (K- 4)	1100 Roosevelt Ave.
Fire Station	1910 Raritan Road
School One (K-5)	10 Williwow Ave.
Union Catholic High School (9-12)	1600 Martine Ave.
Terrill Middle School (5-8)	1301 Terrill Road
John H. Stamler Police Academy	1776 Raritan Road.
U. C. Vocational -Technical School	1776 Raritan Road
U.C. College/UMDNJ	1700 Raritan Road
U. C. Eng. & P.W.	2371 South Ave
Oakridge Golf Course	
Ashbrook Golf Course	
Union County Vocational - Technical High School (9-12)	1776 Raritan Rd.
Educational Technology Training Center	1776 Raritan Rd.



4 Township of Scotch Plains Mitigation Strategy

This section contains goals, objectives, and action items for the Township of Scotch Plains, as part of the Union County Plan Update. 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 5 of the Union County Plan Update.

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

The table below lists prioritized mitigation projects and actions identified by the Township of Scotch Plains. This is the Township's first mitigation strategy, thus all actions reflect current priorities and capabilities.

Mitigation Action, Program, or Project	Hazard	Priority	Implementation Mechanism	Responsible Party	Project Duration	Estimated Cost	Current Status
Install generator at Department of Public Works	Severe Storms/Wind	High	Capital Improvement	OEM	1-2 years	250,000	<i>Designed, in progress</i>
Install generator at library	Severe Storms/Wind	Med	Capital Improvement	OEM	1-2 years	200,000-600,000	New
Install generator at municipal building	Severe Storms/Wind	High	Capital Improvement	OEM	1-2 years	200,000-600,000	New
Restore eroded streambanks upstream of pump station	Flood/Erosion	Med	Capital Improvement	Engineering	5 years	Tbd	New
Address repetitive loss properties by increasing drainage under bridge on Carriage Drive/Seller Avenue (i.e. sediment removal)	Flood	High	Grants	Engineering/ Union County	5 years	500,000	New
Address repetitive loss properties by enlarging culvert/drainage improvements to Green Brook & tributary under Meadow Street	Flood	High	Grants	Engineering/ Union County	5 years	750,000	New
Work with YMCA and/or JCC to expand community shelter options	All	Medium	Staff capabilities	OEM	2-3 years	Staff resources	New
Upgrade EOC	All	High	Capital Improvement	OEM	1 year	800,000	In process



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Mitigation Action, Program, or Project	Hazard	Priority	Implementation Mechanism	Responsible Party	Project Duration	Estimated Cost	Current Status
Elevation or acquisitions of repetitive loss properties not addressed through drainage improvements	Flood	Medium	Grants	OEM	Ongoing	Varies	New
Support the Green Brook Flood Control Project from USACE	Flood	High	Green Brook Flood Control Commission	Administration	Ongoing	-	Ongoing



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	Township 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 review in 2016
Capital Improvements Plan	Y
Site Plan Review Requirements	Y
Habitat Conservation Plan	N
Economic Development Plan	Y
Local EOP	Y
Continuity of Operations Plan	N
Post Disaster Recovery Plan or Ordinance	N – SOP
Wildfire Protection Plan	Y – County Plan
Real Estate Disclosure req.	Y – State requirement
Other (e.g. steep slope ordinance, local waterfront revitalization plan)	N
Freeboard	N
Cumulative Substantial Damages	N
Shoreline Management Plan	NA

4.4.2 Communication and Emergency Response

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



4.4.4 Staff/Personnel

	Does this Township have this expertise on staff?
Staff with expertise or training in benefit/cost analysis	N
Grant Writer(s)	N
Emergency Manager	Y
Professionals trained in conducting damage assessments	Y – Code Official
Scientist familiar with natural hazards in the municipality.	N
Personnel skilled or trained in “GIS” applications	N
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 Township 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	N
Impact Fees for homebuyers or developers of new development/homes	N
Incur debt through general obligation bonds	Y
Incur debt through special tax bonds	N
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 Township of Scotch Plains 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 Township retains the discretion to implement minor changes to the document without formal procedures involving the Town Council subject to local policies and regulations.

In addition to the annual progress report, the Township of Scotch Plains 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 Scotch Plains 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 Township.
- Copies of any grant applications filed on behalf of the Township



5.1.2 Continued Public Input

The Township of Scotch Plains 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 Township will post a link to the plan on its municipal 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 Township of Scotch Plains's LPC shall ensure that:

- Copies of the latest approved Plan are available for review at Town 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 Scotch Plains will post a notice on the Township's website and invite the public to review and comment.
- For major changes involving Town Council approval, the Township 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 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 Union County Board of Chosen Freeholders for adoption, which occurred on [insert date].



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