

# **A Summary of FEMA Flood Insurance Studies in the Plan Area**

## **Municipalities with Flood Insurance Studies Published**

### **HUNTERDON COUNTY**

Alexandria, Township of  
Bethlehem, Township of  
Bloomsbury, Township of  
Delaware, Township of  
East Amwell, Township of  
Franklin, Township of  
Frenchtown, Borough of  
Hampton, Borough of  
Holland, Township of  
Kingwood, Township of  
Lambertville, City of  
Lebanon, Township of  
Milford, Borough of  
Raritan, Township of  
Stockton, Borough of  
West Amwell, Township of

### **MERCER COUNTY**

East Windsor, Township of  
Ewing, Township of  
Hamilton, Township of  
Hopewell, Township of  
Lawrence, Township of  
Washington, Township of  
Trenton, City of  
West Windsor, Township of

### **SUSSEX COUNTY**

Andover, Borough of  
Andover, Township of  
Byram, Township of  
Frankford, Township of  
Green, Township of  
Hampton, Township of  
Lafayette, Township of  
Newton, Town of  
Sandyston, Township of  
Sparta, Borough of  
Stanhope, Borough of  
Stillwater, Township of

### **WARREN COUNTY**

Allamuchy, Township of  
Belvidere, Town of  
Blairstown, Township of  
Franklin, Township of  
Greenwich, Township of  
Hackettstown, Town of  
Harmony, Township of  
Hope, Township of  
Knowlton, Township of  
Liberty, Township of  
Lopatcong, Township of

**WARREN COUNTY (cont.)**

Mansfield, Township of  
Phillipsburg, Town of  
Pohatcong, Township of  
Washington, Borough of  
Washington, Township of  
White, Township of

**Municipalities with no Flood Insurance Studies Published**

**MERCER COUNTY**

Pennington, Borough of

**SUSSEX COUNTY**

Branchville, Borough of  
Fredon, Township of  
Hopatcong, Borough of  
Montague, Township of  
Walpack, Township of

**WARREN COUNTY**

Alpha, Borough of  
Frelinghuysen, Township of  
Hardwick, Township of  
Independence, Township of  
Oxford, Township of

# Hunterdon County

# FLOOD INSURANCE STUDIES

## Hunterdon County

### Alexandria, Township of

**Location:**

The Township of Alexandria is located on the western border of central New Jersey in western Hunterdon County, approximately 30 miles northwest of Trenton, New Jersey. It is bordered by the Townships of Tinicum (PA) and Bridgeton (PA) to the southwest, the Township of Holland and Borough of Milford to the west, the Township of Bethlehem to the north and east, the Townships of Union and Franklin to the east, and the Township of Kingwood and Borough of Frenchtown to the south.

**Geology:**

Most of the township lies in the Piedmont Plateau, which is part of the Appalachian Province. This area is characterized by nearly level lowlands, occasional ridges and low hills, and is underlain by sedimentary rock. Some of the township is in the Highlands Division of the Appalachian Province, which is characterized by gently rolling to steep uplands underlain by gneiss, quartzite, and limestone rock. Elevations range from 93 feet at the Delaware River to 990 feet in the northern part of the township.

**Hydrology:**

The *Delaware River* flows along the western border of the township. The Township of Alexandria has sparse development along the river's flood plain.

The *Harihokake Creek's* headwaters are in the north-central part of the township. The creek flows generally southwest to its confluence with the Delaware River. The only extensive residential development along this creek is in Mount Pleasant, near the County Route 519 Bridge.

**Flood History:**

Due to the limited amount of development in the township's flood plains, flooding problems along the creek and river have not been too serious. Occasionally there will be some flash flooding in the Harihokake Creek that can result in some scouring and erosion of the creek banks.

*Last Updated: June 6, 2001 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Hunterdon County

### Bethlehem, Township of

**Location:**

The Township of Bethlehem is located in northwestern New Jersey in northern Hunterdon County, approximately 34 miles north of Trenton, New Jersey. It is bordered by Glen Gardner and Hampton Boroughs to the northeast, the Townships Union, Alexandria and Holland to the south, the Borough of Bloomsbury to the west, the townships of Franklin and Washington to the northwest.

**Geology:**

The township is located in the New England Uplands province (Highlands of New Jersey, locally known). The area is moderately rugged and characterized by approximately parallel, somewhat irregular ridges intervening valleys all trending northeast. The township is underlain by carbonates, shale and some glacial till. The soils in this area are deep and mostly well drained, moderate sloping and rocky. The ridges in the township rise 500 to 1,000 feet above the valley floor.

**Hydrology:**

The *Musconetcong River* originates at Lake Hopatcong and flows northwest. After flowing through Lake Musconetcong the river flows southwest forming the border of Hunterdon and Warren counties and joins the Delaware River in Reigelsville, New Jersey. This river also forms the southern border with the Borough of Bloomsbury.

**Flood History:**

Flooding along the Musconetcong River in Bethlehem Township is generally restricted to the "mucklands" which lie in the flood-plain area and are used for truck farming. Little damage to structures has been experienced.

*Last Updated: June 15, 1981 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Hunterdon County

### Bloomsbury, Borough of

**Location:**

The Borough of Bloomsbury is located in northwestern New Jersey in northwestern Hunterdon County, approximately 34 miles north of Trenton, New Jersey. It is bordered by Bethlehem Township to the south and east, and Greenwich and Franklin Townships to the north and west.

**Geology:**

The borough is located in the New England Uplands province (Highlands of New Jersey, locally known). The area is moderately rugged and characterized by approximately parallel, somewhat irregular ridges intervening valleys all trending northeast. The borough is located in the valley and underlain by carbonates and shale. The ridges around the borough rise 500 to 1,000 feet above the valley floor. The valley floor is around 297 feet at its lowest point.

**Hydrology:**

The *Musconetcong River* originates at Lake Hopatcong and flows northwest. After flowing through Lake Musconetcong the river flows southwest forming the border of Hunterdon and Warren counties and joins the Delaware River in Reigelsville, New Jersey. This river also forms the northwestern border of the borough.

**Flood History:**

Flooding can happen at any time of year. Flooding is more frequent during the late summer and fall, and is typically associated with tropical disturbances moving along the Atlantic Coast. Several major floods have occurred and minor floods have been a common occurrence along the Musconetcong.

*Last Updated: November 18, 1981 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Hunterdon County

### Delaware, Township of

**Location:**

The Township of Delaware is located on the western border of central New Jersey in southwestern Hunterdon County, approximately 19 miles northwest of Trenton, New Jersey. It is bordered by the Townships of Solebury (PA) and Plumstead (PA) to the west, the Townships of Kingwood and Franklin to the north, the Townships of Raritan and East Amwell to the east, and by the Township of West Amwell and City of Lambertville to the south.

**Geology:**

The township lies in the Piedmont Plateau, which is part of the Appalachian Province. This area is characterized by nearly level lowlands, occasional ridges and low hills, and is underlain by sedimentary rock. The relatively flat topography of a river terrace is found along the Delaware River. Elevations range from 43 feet at the Delaware River to 550 feet at the northern corner of the township.

**Hydrology:**

The *Delaware River* flows along the western border of the Township of Delaware. The Township of Delaware has highly developed the area along the river banks.

The *Alexauken Creek* has its headwaters in the central part of the Township of West Amwell and flows generally northwest to a point just south of the center of Delaware Township's southern boundary. From this point it flows southwest to its confluence with the Delaware River. From its mouth upstream to a Conrail bridge (1200 feet) the creek forms the boundary between the City of Lambertville and Delaware Township. The creek drains the southern part of Delaware Township.

The *Brookville Creek* begins in the southwestern part of the township and flows southwest to its confluence with the Delaware and Raritan Canal. The last 2,500 feet of the streams distance forms the southeastern corporate limits with the Borough of Stockton and the Township of Delaware.

The *Third Neshanic River* begins in the eastern part of the township and flows generally southeast. The Third Neshanic River becomes a major tributary to the Neshanic River, which eventually empties into the Raritan River.

The *Wickecheoke Creek* has its headwaters in the Township of Raritan and flows generally southwest. It enters Delaware Township near its northern corner and continues through the township to the Delaware River. The last 2,000 feet of the creek forms the northwestern corporate limit between the Borough of Stockton and the Township of Delaware.

The watersheds of Alexauken Creek, Brookville Creek, Third Neshanic River and Wickecheoke Creek consist mostly of open space, agricultural lands, and woodlands, with very little residential development. There is only significant development near the mouths of the Alexauken Creek near Lambertville, and Brookville Creek and Wickecheoke Creek near Stockton.

**Flood History:**

Flooding has been a continual problem for the Township of Delaware along the Delaware River since the settlement of the area. The worst of the floods have generally resulted from excessive



rainfall. Flooding in the early spring is usually even more severe because of snowmelt and moving ice.

Delaware Township's main source of flood damage is from the Delaware River. Major flooding near the mouths of the Alexauken Creek, Wickecheoke Creek, and Brookville Creek is primarily a result of backwater from the Delaware River. Due to limited development in their flood plains, flood problems in the upper parts of these creeks have not been extensive, although flash flooding, which causes high channel velocities and resultant scour and erosion, does occur occasionally.

*Last Updated: July 20, 1981 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Hunterdon County

### East Amwell, Township of

**Location:**

The Township of East Amwell is located in central New Jersey in southeastern Hunterdon County, approximately 20 miles west of New Brunswick, New Jersey. It is bordered by the Delaware Township to the west, by Hopewell Township to the southeast, West Amwell Township to the southwest, Raritan Township to the northwest, and Hillsborough Township to the northeast. The DRBC is mainly concerned with the extreme western part of this township.

**Geology:**

The township lies in the Piedmont Physiographic Province. The northern part of the township is in the Raritan Valley Lowland region with rolling plain, while the southern part of the township lies in the Sourland Mountain region with relatively flat mountaintops that are higher. The underlying rock is primarily Brunswick shale. The elevations range is 100 feet at the Neshanic River to 560 feet in the southeastern part of the township.

**Hydrology:**

The *Back Brook* is a tributary to the Neshanic River with its headwaters near Rocktown in eastern East Amwell Township.

The *Neshanic River* is a tributary to the southern branch of the Raritan River. It has a tributary, the Third Neshanic River with its headwaters in Delaware Township. It flows primarily northeast. This river is not a tributary to the Delaware River.

The *Stony Brook* is also located in the township, but outside of the DRBC's study area. This lies within the Stony Brook/Millstone Watershed.

**Flood History:**

Flooding has not been a major problem for East Amwell Township. Some floods have occurred, resulting from excessive rainfall. Flooding in the early spring is usually because of snowmelt and moving ice. The worst flooding in this area is usually caused by tropical storms moving northward along the Atlantic Coast. Locally, East Amwell has not experienced major damage due to flooding.

*Last Updated: May 4, 1981 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Hunterdon County

### Franklin, Township of

**Location:**

Franklin Township is located in the central part of Hunterdon County, approximately 9 miles north of Flemington, New Jersey. It is bordered by Alexandria Township to the west, Kingwood Township to the southwest, Delaware Township to the south, Raritan Township to the east, Clinton Township to the northeast, the Town of Clinton to the north, and Union Township to the northwest. Only the southern half of the township drains into the Delaware River.

**Geology:**

The township lies in the Piedmont Plateau, which is part of the Appalachian Province. This area is characterized by nearly level lowlands, occasional ridges and low hills, and is underlain by shale and sandstone. Elevations range from 140 feet in the eastern part of the township to 706 feet just southeast of Quakertown, New Jersey.

**Hydrology:**

There are no major water bodies that drain into the Delaware River situated in Franklin Township. More than half of this township is located in the Raritan River watershed. However there are several small tributaries that feed the Lockatong Creek and Muddy Run in Kingwood Township which drain into the Delaware River.

**Flood History:**

Franklin Township experiences flooding from a variety of origins throughout the year. Flooding is more frequent during the late summer and fall, and is typically associated with tropical disturbances moving along the Atlantic Coast. Due to the limited amount of development in flood plains, flooding problems along the tributaries in the township have not been extensive in the past.

*Last Updated: July 20, 1981 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Hunterdon County

### Frenchtown, Borough of

**Location:**

The Borough of Frenchtown is located on the western border of central New Jersey in southwestern Hunterdon County, approximately 26 miles northwest of Trenton, New Jersey. It is bordered by Tinicum Township (PA) to the west, Alexandria Township to the north, and Kingwood Township to the east and south.

**Geology:**

The borough lies in the Piedmont Plateau, which is part of the Appalachian Province. This area is characterized by nearly level lowlands, occasional ridges and low hills, and is underlain by sedimentary rocks. The elevations range from 94 feet at the Delaware River to 330 feet at the borough's eastern corporate limits.

**Hydrology:**

The *Delaware River* flows along the western border of the Borough of Frenchtown. The borough of Frenchtown has a highly developed area in the river's floodplain.

The *Little Nishisakawick Creek* has its headwaters in northwestern Kingwood township and flows generally southwest through the southern half of Frenchtown to its confluence with the Delaware River, approximately 200 feet downstream from the mouth of the Nishisakawick Creek.

The *Nishisakawick Creek* has its headwaters in the central part of the Township of Alexandria and flows generally southwest, entering Frenchtown at its northwestern corner. It flows southwest to its confluence with the Delaware River in the southwestern corner of the borough.

The Nishisakawick Creek and Little Nishisakawick Creek's floodplains occur near their mouths in Frenchtown. Development in the borough is heavy along the Delaware River north of the Nishisakawick Creek and consists of a mixture of residential, commercial and industrial development. In the area between the Nishisakawick Creek and Little Nishisakawick Creek there are scattered residential dwellings. South of the Little Nishisakawick Creek there are a few residential dwellings and commercial establishments, all of which are within 1,000 feet of the Delaware River.

**Flood History:**

Flooding has been a problem for the Borough of Frenchtown along the Delaware River since the settlement of the area. The worst of the floods have generally resulted from excessive rainfall. Flooding in the early spring is usually even more severe because of snowmelt and moving ice.

The Borough of Frenchtown's main source of flood damage is from the Delaware River which has caused major damage to homes and businesses especially in the area near Trenton Avenue. Major flooding of the Nishisakawick Creek and Little Nishisakawick Creek are primarily the result of backwater from the Delaware River.

*Last Updated: July 19, 2001 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Hunterdon County

### Hampton, Borough of

**Location:**

The Borough of Hampton is located on the western border of central New Jersey in southwestern Hunterdon County, approximately 35 miles north of Trenton, New Jersey. It is bordered by Lebanon Township to the north, Bethlehem Township and Borough of Glen Gardner to the south, and Washington Township to the west.

**Geology:**

The borough is located in the Reading Prong of the New England Uplands province (Highlands of New Jersey, locally known). The area is moderately rugged and characterized by approximately parallel, somewhat irregular ridges intervening valleys all trending northeast. The borough is located in the valley and underlain by marine sediments. The ridges around the borough rise 500 to 1,000 feet above the valley floor, which is around 350 feet at its lowest point.

**Hydrology:**

The *Musconetcong River* originates at Lake Hopatcong and flows northwest. After flowing through Lake Musconetcong the river flows southwest forming the border of Hunterdon and Warren counties and joins the Delaware River in Reigelsville, New Jersey. This river also forms the northern border of the borough.

**Flood History:**

Flooding can happen at any time of year. Flooding is more frequent during the late summer and fall, and is typically associated with tropical disturbances moving along the Atlantic Coast. Several major floods have occurred and minor floods have been a common occurrence along the Musconetcong. But most of the buildings in the borough are well above the river level resulting in minimal damage to structures.

*Last Updated: April 1, 1982 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Hunterdon County

### Holland, Township of

**Location:**

The Township of Holland is located on the western border of central New Jersey in northwestern Hunterdon County, approximately 32 miles northwest of Trenton, New Jersey. It is bordered to the west and south by the Townships of Bridgeton, Nockamixon, Durham and Riegelsville, the Townships of Bethlehem, and Pohatcong to the north, Alexandria Township to the south and east, and the Borough of Milford to the southeast.

**Geology:**

Most of the township lies in the Piedmont Plateau, which is part of the Appalachian Province. This area is characterized by nearly level lowlands, occasional ridges and low hills, and is underlain by sedimentary rock. Some of the township is in the Highlands Division of the Appalachian Province, which is characterized by gently rolling to steep uplands underlain by gneiss, quartzite, and limestone rock. Elevations range from 95 feet at the Delaware River to 960 feet in the northern part of the township.

**Hydrology:**

The *Delaware River* flows along the western border of the township. The Township of Holland has moderate development along the river's flood plain.

The *Milford Creek* and its tributary consist mainly of open land, agricultural land and wooded areas. However there is some development near the confluence of the Milford Creek and its tributary. This creek begins in the west central part of the township and flows south to its confluence with the Delaware River.

The *Musconetcong River* originates at Lake Hopatcong and flows northwest. After flowing through Lake Musconetcong the river flows southwest forming the border of Hunterdon and Warren counties and joins the Delaware River in Reigelsville. This river forms the northern border between Holland and Pohatcong Townships. There is moderate residential and light industrial development near the river's floodplain.

**Flood History:**

Major damage has occurred from flooding along the Delaware River in the township to roads, bridges and communities. The towns of Holland and Mt. Joy have suffered heavy residential losses. Flooding also closed the Holland Power Plant permanently. Flooding along the Musconetcong River has mainly been caused by backwater from the Delaware River. Although some minor flooding has occurred in the upper portion of the river with minimal damage due to the sparse residential development in the area.

*Last Updated: June 6, 2001 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Hunterdon County

### Kingwood, Township of

**Location:**

The Township of Kingwood is located on the western border of central New Jersey in west-central part of Hunterdon County, approximately 22 miles northwest of Trenton, New Jersey. It is bordered by Tinicum Township (PA) and Plumstead Township (PA) to the west, the Townships of Frenchtown and Alexandria to the north, the Franklin Township to the east, and Delaware Township to the south.

**Geology:**

The township lies in the Piedmont Plateau, which is part of the Appalachian Province. This area is characterized by nearly level lowlands, occasional ridges and low hills, and is underlain by sedimentary rock. The relatively flat topography of the river terrace is found along the Delaware River. Elevations range from 57 feet at the Delaware River to 570 feet in the south-central part of the township.

**Hydrology:**

The *Delaware River* flows along the western border of the Kingwood Township. Delaware Township has some developed areas along the river's floodplain.

The *Locketong Creek* has its headwaters in the southwestern part of the Franklin Township and flows generally southwest through the Kingwood Township, and into the Delaware Township. The Locketong Creek and its tributaries drain almost the entire township.

The *Muddy Run* has its headwaters in the east-central region of the township. It flows generally southwest to its confluence with the Locketong Creek.

*Tributary No. 1* begins in the southern part of the township and flows southwest to its confluence with the Locketong Creek.

*Tributary No. 2* begins in the western of the Franklin Township, flowing south to its confluence with the Locketong Creek. This tributary is responsible for draining the northeastern part of the township.

The watershed of Locketong Creek, Muddy Run, and Tributaries 1 and 2 consist primarily of open space, agricultural land, woodlands, and scattered residential areas, with very little development near the flood plains.

**Flood History:**

Due to the limited amount of development in their flood plains, flood problems along the creeks, rivers, and tributaries in the township have not been extensive in the past. Flooding problems along these waterways can be quite wide but usually very shallow and affects only a small amount of agricultural land.

*Last Updated: July 20, 1981 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Hunterdon County

### Lambertville, City of

**Location:**

The City of Lambertville is located on the western border of central New Jersey in southwestern Hunterdon County, approximately 14 miles northwest of Trenton, New Jersey. It is bordered by the Borough of New Hope (PA) and the Township of Solebury (PA) to the west, by the Township of Delaware to the north, and the Township of West Amwell on the east and south.

**Geology:**

The borough lies in the Piedmont Plateau, which is part of the Appalachian Province. This area is characterized by nearly level lowlands, low hills and is underlain by sedimentary rocks. The elevations range from 40 feet at the Delaware River to 340 feet in the extreme southeastern corner of the city.

**Hydrology:**

The *Delaware River* flows along the western border of the City of Lambertville. The City of Lambertville has highly developed the area in the river's floodplain.

The *Swan Creek* flows northwest as it enters the city and joins the Swan Creek Tributary about 1,000 feet inside the city limits then flows west into the Delaware River. Swan Creek drains the southern part of the city. Both portions of these streams have steep channels with high velocities. The watershed is highly developed near the creek in Lambertville.

The *Alexauken Creek* has its headwaters in the central part of West Amwell Township and flows generally west along the northern border of Lambertville to the Delaware River. From its mouth upstream to a Conrail bridge, 1200 feet, the creek forms the boundary between the City of Lambertville and Delaware Township.

Major flooding on the Alexauken Creek and Swan Creek in Lambertville results from backwater from the Delaware River causing overflow in their lower reaches. They also occasionally experience flash flooding, which causes high channel velocities and resultant scour and erosion.

**Flood History:**

Flooding has been a continual problem for Lambertville along the Delaware River since the settlement of the area. The worst of the floods have generally resulted from excessive rainfall. Flooding in the early spring is usually even more severe because of snowmelt and moving ice.

The City of Lambertville's main source of flood damage is from the Delaware River which inundates numerous commercial, industrial and resident structures with the worst being in the North Main Street Area. Flooding has also badly damaged the bridges crossing the Delaware River linking it with New Hope, PA.

*Last Updated: April 1, 1981 (Fema.gov)*



# FLOOD INSURANCE STUDIES

## Hunterdon County

### Lebanon, Township of

**Location:**

The Township of Lebanon is located in northwestern New Jersey in northern Hunterdon County, approximately 35 miles north of Trenton, New Jersey. It is bordered by Morris Township to the northeast, Tewksbury Township and the Borough of Califon to the southeast, Clinton Township and the Borough of High Bridge to the south, Union and Bethlehem Townships to the southwest, the Boroughs of Glen Gardner and Hampton to the west, and the Townships of Mansfield and Washington to the northwest.

**Geology:**

The township is located in the New England Uplands province (Highlands of New Jersey, locally known). The area is moderately rugged and characterized by approximately parallel, somewhat irregular ridges intervening valleys all trending northeast. The township is underlain by carbonates, shale and some glacial till. The soils in this area are deep and mostly well drained, moderate sloping and rocky. The ridges in the township rise 500 to 1,000 feet above the valley floor.

**Hydrology:**

The *Musconetcong River* originates at Lake Hopatcong and flows northwest. After flowing through Lake Musconetcong the river flows southwest forming the border of Hunterdon and Warren counties and joins the Delaware River in Reigelsville, New Jersey. This river flows through the northern and eastern portions of the township.

The *Rocky Run* begins near the State Sanatorium and has its confluence with the Spruce Run.

The *Spruce Run* begins in the north central part of the township and flows southwest to its confluence with the Spruce Run Reservoir.

**Flood History:**

Flooding in Lebanon Township is of varied origin and may be experienced any time of year. Flooding during the winter is less frequent, but flooding compounded by snowmelt and ice has occurred on the smaller tributaries. The most extensive flooding has occurred in the late summer and fall when tropical systems move north along the Atlantic Coast. Several major floods have occurred from these tropical systems in the township.

*Last Updated: July 5, 1983 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Hunterdon County

### Milford, Borough of

**Location:**

The Borough of Milford is located on the western border of central New Jersey in northwestern Hunterdon County, approximately 30 miles northwest of Trenton, New Jersey. It is bordered by Bridgeton Township (PA) to the west, Alexandria Township to the south, and Holland Township to the north and east.

**Geology:**

The borough lies in the Piedmont Plateau, which is part of the Appalachian Province. This area is characterized by nearly level lowlands, occasional ridges and low hills, and is underlain by sedimentary rock. Elevations range from 95 feet at the Delaware River to 440 feet in the northwestern part of the borough.

**Hydrology:**

The *Delaware River* flows along the western border of the Borough of Milford. The borough of Milford has highly developed the area along the river.

The *Milford Creek* has its headwaters in Central Holland Township and flows generally southeast into the Borough of Milford, where it empties into the Delaware River.

The *Quequacommissacong Creek* begins in Eastern Holland Township and flows southward into the Borough and empties into the Milford Creek. Most of the borough is situated in this creek's watershed except for the southeast corner.

Along the Milford Creek and Quequacommissacong Creek development is heavy, especially along Bridge Street and Water Street. There is a little less development in the other flood plains that are in Milford. There is also quite a bit of development along the Delaware River.

**Flood History:**

Flooding has been a continual problem for the Borough of Milford along the Delaware River since the settlement of the area. The worst of the floods have generally resulted from excessive rainfall. Flooding in the early spring is usually even more severe because of snowmelt and moving ice.

The Borough of Milford's main source of flood damage is from the Delaware River which has damaged many homes and businesses in the Borough, especially near the joining of the two creeks in the center of the borough. Major flooding of the Milford and Quequacommissacong Creek's are primarily the result of backwater from the Delaware River.

*Last Updated: November 18, 1981 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Hunterdon County

### Raritan, Township of

**Location:**

The Township of Raritan is located in west-central New Jersey in central Hunterdon County. It is bordered by the Township of Clinton to the north, the Townships of Readington and Hillsborough to the east, the Township of East Amwell to the south, and the Townships of Franklin and Delaware to the west. Only the northwestern portion of this township is drained by the Delaware River.

**Geology:**

The township lies in the Piedmont Physiographic Province. The underlying rock is primarily Brunswick shale. The elevations range is 100 feet at its eastern border to 625 feet in the northern part of the township.

**Hydrology:**

There are no major waterways that drain into the Delaware River.

**Flood History:**

Flooding in Raritan Township is mainly fluvial with only minimal damage.

*Last Updated: November 15, 1985 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Hunterdon County

### Stockton, Borough of

**Location:**

The Borough of Stockton is located on the western border of central New Jersey in southwestern Hunterdon County, approximately 20 miles northwest of Trenton, New Jersey. It is bordered by Solebury Township (PA) to the west and Delaware Township to the north, east, and south.

**Geology:**

The borough lies in the Piedmont Plateau, which is part of the Appalachian Province. This area is characterized by nearly level lowlands, occasional ridges and low hills, and is underlain by shale. The relatively flat topography of the river terrace is found in the southern portion of the borough and adjacent to the Delaware River.

**Hydrology:**

The *Delaware River* flows along the southern border of the Borough of Stockton. The Borough of Stockton has highly developed the area along the river banks.

The *Brookville Creek* is located in the southwestern part of the township and flows southwest to its confluence with the Delaware and Raritan Canal. The last 2,500 feet of the streams distance forms the southeastern corporate limits with the Borough of Stockton and the Township of Delaware.

The *Wickecheoke Creek* has its headwaters in the Township of Raritan and flows generally southwest. The last 2,000 feet of the creek forms the northwestern corporate limit between the Borough of Stockton and the Township of Delaware.

The watersheds of Brookville Creek and Wickecheoke Creek consist mostly of open space, agricultural lands, and woodlands, with little residential development. There is only significant development near the confluences of both of these creeks.

**Flood History:**

Flooding has been a continual problem for the Borough of Stockton along the Delaware River since the settlement of the area. The worst of the floods have generally resulted from excessive rainfall. Flooding in the early spring is usually even more severe because of snowmelt and moving ice.

The Borough of Stockton's main source of flood damage is from the Delaware River which inundates numerous commercial structures and residences in the Bridge and Mill Street areas. Major flooding of the Wickecheoke Creek and Brookville Creek area's are primarily the result of backwater from the Delaware River.

*Last Updated: June 6, 2001 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Hunterdon County

### West Amwell, Township of

**Location:**

The Township of West Amwell is located on the western border of central New Jersey in southwestern Hunterdon County, approximately 10 miles northwest of Trenton, New Jersey. It is bordered by Solebury Township (PA) and New Hope (PA) to the west, Delaware Township and Lambertville to the north, East Amwell Township to the north and east, and Hopewell Township to the south and east.

**Geology:**

The township lies in the Piedmont Plateau, which is part of the Appalachian Province. This area is characterized by nearly level lowlands, occasional ridges and low hills, and is underlain by sedimentary rock. The relatively flat topography of the river terrace is found along the Delaware River. Elevations range from 28 feet at the Delaware River to 475 feet in the northeast part of the township.

**Hydrology:**

The *Delaware River* flows along the western border of West Amwell Township. West Amwell Township some development along the river banks.

The *Alexauken Creek* has its headwaters in the central part of the township of West Amwell and flows generally northwest to a point just south of the center of the townships northern boundary. From this point it flows southwest to its confluence with the Delaware River. The creek also forms part of the border between West Amwell Township and Lambertville. This creek drains the northwestern portion of West Amwell Township.

**Flood History:**

Flooding has been a continual problem for the West Amwell Township along the Delaware River since the settlement of the area. The worst of the floods have generally resulted from excessive rainfall. Flooding in the early spring is usually even more severe because of snowmelt and moving ice.

West Amwell Township's main source of flood damage is from the Delaware River. Major flooding near the mouth of the Alexauken Creek is primarily a result of backwater from the Delaware River. Due to limited development in their flood plains, flood problems in the upper parts of these creeks has not been extensive, although flash flooding, which causes high channel velocities and resultant scour and erosion, does occur occasionally.

*Last Updated: July 20, 1981 (Fema.gov)*

# **Mercer County**

# FLOOD INSURANCE STUDIES

## Mercer County

### East Windsor, Township of

**Location:**

East Windsor Township is located in central New Jersey's Mercer County. It is bordered by Cranbury Township to the north, West Windsor Township to the west, the Millstone Township to the south, and the Townships of Washington and Monroe to the southeast. Only the southwest corner of the township drains into the Delaware River.

**Geology:**

East Windsor Township is located on the Atlantic Coastal Plain. Its topography is gently rolling. Marsh areas in the township are confined to the southern areas, which is near the Assunpink Creek. Pleistocene sands and gravels overlie all of the older formations except in deeper stream valleys where there may be silt, sand and gravel.

**Hydrology:**

The *Assunpink Creek* flows through the southwest part of West Windsor in a westward direction. It drains the southern part of the township. Along the creek are ponds and small lakes but these do little to prevent major flooding from occurring.

**Flood History:**

East Windsor Township does have some flooding problems in low lying areas along streams, creeks and rivers. The township can experience major flooding from the Assunpink Creek and Millstone River. But these areas inside the flood plain are primarily agricultural lands.

**Flood Mitigation:**

The Assunpink Creek Watershed Work Plan was created in 1964 to help mitigate flooding problems along the creek. This included the construction of 10 flood water retarding structures (4 of them upstream from East Windsor Township in Monmouth County) and 2.4 miles of flood control channel. Also the culverts under the Delaware and Raritan Canal have been reconstructed to increase flow capacities and lower flood stages west of the canal. But there are still flooding events that occur in the township when there is a very heavy rainfall.

Also zoning restrictions limit construction in flood plain areas by setting minimum standards, rules and regulations.

*Last Updated: June 6, 2001 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Mercer County

### Ewing, Township of

**Location:**

Ewing Township is located on the western border of central New Jersey in Mercer County. It is bordered by Lawrence Townships to the east, Hopewell Township to the north, Upper Makefield (PA) and Lower Makefield (PA) Townships to the west, and the City of Trenton to the south.

**Geology:**

The township lies in the Piedmont Plateau, which is part of the Appalachian Province. This area is characterized by rolling hills with elevations ranging from 20 feet near the Delaware River to 200 feet near the northwestern boundary of the township.

**Hydrology:**

The *Delaware River* flows along the western border of Ewing Township. Ewing Township has dense development along the river banks including major roadways that become impassable during severe flooding events.

The *Jacobs Creek* flows southwestward from Hopewell Township to its confluence, the Delaware River. It drains the northwest part of Ewing Township.

The *Ewing Creek* flows westward and originates in the southern part of Hopewell Township and drains the northern part of Ewing Township. Its confluence is the Jacobs Creek.

The *Shabakunk Creek* is located in the eastern part of Ewing Township and is a tributary for the Assunpink Creek. It drains the eastern part of Ewing Township.

**Flood History:**

Ewing Township has had many major floods caused by tropical storms, thunderstorms and high runoff in the spring from cyclonic storms and snow melt. Because the township is underlain by shales, it has very little precipitation retention capacity causing rapid runoff with peak discharges of short duration. There are also major floods of longer duration that occur along the Delaware River.

*Last Updated: June 6, 2001 (Fema.gov)*



# FLOOD INSURANCE STUDIES

## Mercer County

### Hamilton, Township of

**Location:**

Hamilton Township is located in the south-central portion of Mercer County in west-central New Jersey. It is bordered by the City of Bordentown and Townships of Bordentown, Chesterfield, and North Hanover to the south; Upper Freehold Township to the southeast, Washington and West Windsor Townships to the east and northeast, Lawrence Township to the north, and the City of Trenton to the west.

**Geology:**

Hamilton Township is located on the Atlantic Coastal Plain. Its topography is gently rolling. Marsh areas in the township are confined to the Great Bear Swamp, which covers the northern northernmost portion, including the Assunpink Creek and Miry Run Flood Plains. Pleistocene sands and gravels overlie all of the older formations except in deeper stream valleys where there may be silt, sand and gravel.

**Hydrology:**

The Assunpink Creek flows through the northern portion of Hamilton Township. The creek flows westward and turns southwest as it approaches the City of Trenton with its confluence at the Delaware River. The Assunpink drains the northern half of the township. Along the creek are ponds and small lakes but these do little to prevent flooding from occurring.

The *Crosswicks Creek* drains the southern portion of Hamilton Township. The creek drains into the Delaware River at the southwestern corporate limits.

The *Delaware River* is located in the southwestern part of this township.

The *Shabakunk Creek* is not located in Hamilton Township but it is a tributary for the Assunpink Creek. The creek flows in an easterly direction and drains some of western Hamilton Township.

The *Shady Brook* drains a few square miles of the west central portion of the township. This waterway enters sewers in the township and is discharged into the Delaware River.

**Flood History:**

Hamilton Township has had a long history of suffering significant flood damage from storms whether they be thunderstorms or longer duration rainfalls. The Assunpink Creek is responsible for the worst of the flooding in the township. Part of the problem is how the transportation network is set up. Many roads and railroads cross these creeks which slow the discharge, pooling water up behind these structures which cross the floodplain. This results in significant flooding damage to certain areas of the township. The Crosswicks Creek overflows most frequently in the early fall. However there is not much development along this creek's floodplain so there is not much damage.

**Flood Mitigation:**

The Assunpink Creek Watershed Work Plan was created in 1964 to help mitigate flooding problems along the creek. This included the construction of 10 flood water retarding structures and 2.4 miles of flood control channel. Also the culverts under the Delaware and Raritan Canal have been reconstructed to increase flow capacities and lower flood stages west of the canal.

But there are still a few flooding events that occur in the township when there is a very heavy rainfall.

Also there is a storm water diversion dam at Shady Brook. When water levels are high the excess can be redirected through a second spillway and collected in a diversion chamber, which feeds a 72 inch storm sewer. These flows are eventually released into the Crosswicks Creek.

*Last Updated: June 6, 2001 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Mercer County

### Hopewell, Township of

**Location:**

Hopewell Township is located on the western border of central New Jersey in Mercer County, 6 miles north of Trenton, New Jersey. It is bordered by Ewing and Lawrence Townships to the south, Montgomery Township to the east, East Amwell Township to the north, and Upper Makefield Township (PA) to the west.

**Geology:**

The township lies in the Piedmont Plateau, which is part of the Appalachian Province. This area is characterized by nearly level lowlands, occasional ridges and low hills, and is underlain by shales. The relatively flat topography of the river terrace is found right along the Delaware River.

**Hydrology:**

The *Beden Brook* is a tributary of the Millstone River and does not drain into the Delaware River.

The *Delaware River* flows along the western border of Hopewell Township. Hopewell Township has some development along the river banks.

The *Jacobs Creek* flows southwestward in western Hopewell Township to its confluence, the Delaware River.

The *Ewing Creek* is flows westward and is located in the southern part of Hopewell Township. Its confluence is the Jacobs Creek.

The *Stony Brook* is located in northern Hopewell Township and flows eastward. This waterway does not empty into the Delaware River.

**Flood History:**

Hopewell Township has had many major floods caused by tropical storms, thunderstorms and high runoff in the spring from cyclonic storms and snow melt. Because the township is underlain by shales, it has very little precipitation retention capacity causing rapid runoff with peak discharges of short duration. There are also major floods of longer duration that occur along the Delaware River.

*Last Updated: June 6, 2001 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Mercer County

### Lawrence, Township of

**Location:**

Lawrence Township is located in central New Jersey's Mercer County. It is bordered by Hopewell Township to the north, Ewing Township and the City of Trenton to the west, Princeton and West Windsor Township's to the east, and Hamilton Township to the south.

**Geology:**

The northern and western parts of the township lie within the Piedmont region. This area consists of gently undulating and moderately sloping uplands with relatively narrow floodplains. The eastern portion of the township is located on the coastal plain. This area is fairly flat with wide flood plains. The dividing line between these two regions lies near and along Princeton Pike.

**Hydrology:**

The Assunpink Creek forms much of the southern corporate limits of Lawrence Township. The creek flows westward and turns southwest as it approaches the City of Trenton. Along the creek are ponds and small lakes but these do little to prevent major flooding from occurring.

The *Shabakunk Creek* is located in the western part of Lawrence Township and is a tributary for the Assunpink Creek. The creek flows in an easterly direction and drains much of Lawrence Township.

The *Shipetaukin Creek* originates in the west-central portion of Lawrence Township and merges with several small tributaries as it flows northeast and then southeast to its confluence, the Assunpink Creek.

**Flood History:**

Lawrence Township has had a long history of suffering significant flood damage from storms whether they be thunderstorms or longer duration rainfalls. The Assunpink Creek is responsible for the worst of the flooding in the township. Part of the problem is how the transportation network is set up. Many roads and railroads cross these creeks which slow the discharge, pooling water up behind these structures which cross the floodplain. This results in significant flooding damage to certain areas of the township.

**Flood Mitigation:**

The Assunpink Creek Watershed Work Plan was created in 1964 to help mitigate flooding problems along the creek. This included the construction of 10 flood water retarding structures and 2.4 miles of flood control channel. Also the culverts under the Delaware and Raritan Canal have been reconstructed to increase flow capacities and lower flood stages west of the canal. But there are still a few flooding events that occur in the township when there is a very heavy rainfall.

*Last Updated: June 6, 2001 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Mercer County

### Trenton, City of

**Location:**

The City of Trenton is located in central New Jersey's Mercer County. Trenton is 35 miles northeast of Philadelphia. It is bordered to the north by Ewing and Lawrence Townships, Hamilton Township to the east, the Townships of Lower Makefield (PA), Falls (PA) and Borough of Morrisville to the west.

**Geology:**

Trenton lies within the Piedmont and Coastal Plain regions. The division of these two regions occurs along the Assunpink Creek. Elevations range from 15 feet at the Delaware River to 110 feet along the northern border with West Trenton.

**Hydrology:**

The *Assunpink Creek* flows right through the center of Trenton. The creek flows through a rock bottom channel with a top width of 70 feet. There are several closed culverts going under streets, parking lots, buildings and long railroads. From Stockton Street to Pond Run there is a natural channel that is 50 feet wide, except where bridges and buildings form a side wall. The flood plain in this area is occupied by a railroad, associated freight handling yard and industrial development.

The *Delaware and Raritan Canal* also passes through Trenton. From the northwest part of the city the canal flows southeast, paralleling the Delaware River. It then makes a 90 degree turn and heads northeast paralleling the Assunpink Creek. The canal was designed with spillways to discharge excess flows

The *Delaware River* creates the western border of Trenton. A medium to high residential area occupies the flood plain in northwestern Trenton. The remainder of the flood plain is primarily undeveloped public land separated from the rest of the community by State Route 29.

**Flood History:**

Trenton has had many major floods caused by tropical storms, thunderstorms and high runoff in the spring from cyclonic storms and snow melt. The major floods occur along the Assunpink Creek and Delaware River. The Assunpink Creek is more likely to flood for more acute precipitation events. Also because there are many culverts in the city water can get backed up causing more flooding. It can also be backed up when the Delaware River is above flood stage.

**Flood Mitigation:**

The Assunpink Creek Watershed Work Plan was created in 1964 to help mitigate flooding problems along the creek. This included the construction of 10 flood water retarding structures and 2.4 miles of flood control channel. Also the culverts under the Delaware and Raritan Canal have been reconstructed to increase flow capacities and lower flood stages west of the canal. There has been the proposal of dams along the main stem of the Delaware River but have not been built due to environmental concerns.

*Last Updated: February 2, 1990 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Mercer County

### Washington, Township of

**Location:**

Washington Township is located in central New Jersey's Mercer County. It is 6 miles east of Trenton, New Jersey. It is bordered by the Townships of East Windsor and West Windsor to the north, the Township of Upper Freehold and Borough of Allentown to the south and east, and Hamilton Township to the west.

**Geology:**

Washington Township is located on the coastal plain and is basically flat. Large streams flow at a nearly level grade with wide flood plains and associated marshes adjacent to main channels. The northwestern part of the township lies on thin veneer of Pleistocene sand and gravel. Pleistocene sands and gravels overlie the Merchantville and Woodbury clays throughout the rest of the township as well. The soils seem to be better drained in the upland areas and poorly drained in the flood plains.

**Hydrology:**

The *Assunpink Creek* flows through the southern and western part of East Windsor Township in a northwestward direction. It drains the southern and western part of the township. There are also ponds and small lakes that help aid in draining the area. The northern half of the township drains into the Millstone River, which drains into the Raritan River.

**Flood History:**

Washington Township has experienced flooding in the past. The Assunpink Creek typically floods from heavy thunderstorms or other longer duration rainfalls. Many of the roads and railroads have bridges or culverts that are inadequate for discharges during times of heavy precipitation. This is because of development in the township that has taxed the streams ability to allow free movement of storm flows without flooding.

**Flood Mitigation:**

The Assunpink Creek Watershed Work Plan was created in 1964 to help mitigate flooding problems along the creek. This included the construction of 10 flood water retarding structures and 2.4 miles of flood control channel. However most of this plan was constructed to help the townships downstream of Washington Township, but they still reap some benefits from the plan.

*Last Updated: September 29, 1978 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Mercer County

### West Windsor, Township of

**Location:**

West Windsor Township is located in west-central New Jersey's, Mercer County. It is bordered by the Townships of Plainsboro and Princeton to the north, East Windsor Township to the east, the Townships of Washington and Hamilton to the south, and Lawrence Township to the west. Only the southwest corner of the township drains into the Delaware River.

**Geology:**

The northern and western portion of the township is in the Piedmont region. This area consists of gently undulating and moderately sloping uplands with relatively narrow floodplains. Most of the township is located on the coastal plain. This area is fairly flat with wide flood plains. The dividing line between these two regions is near US 1 (Brunswick Pike).

**Hydrology:**

The *Assunpink Creek* flows through the southwest part of West Windsor in a westward direction. It drains the southern part of the township. Along the creek are ponds and small lakes but these do little to prevent major flooding from occurring.

**Flood History:**

West Windsor Township does have some flooding problems in low lying areas along streams, creeks and rivers. The township can experience major flooding from the Assunpink Creek and Millstone River.

**Flood Mitigation:**

The Assunpink Creek Watershed Work Plan was created in 1964 to help mitigate flooding problems along the creek. This included the construction of 10 flood water retarding structures (4 of them upstream from West Windsor Township) and 2.4 miles of flood control channel. Also the culverts under the Delaware and Raritan Canal have been reconstructed to increase flow capacities and lower flood stages west of the canal. But there are still a few flooding events that occur in the township when there is a very heavy rainfall.

*Last Updated: June 6, 2001 (Fema.gov)*

# Sussex County



# FLOOD INSURANCE STUDIES

## Sussex County

### Andover, Borough of

**Location:**

The Borough of Andover is located in south-central portion of Sussex County, in northern New Jersey. It is bordered by Andover Township to the north, east and west. Green Township to the southwest, and Bryam Township to the southeast.

**Geology:**

The township lies in the Valley and Ridge Province and composed of Paleozoic sedimentary rocks. The soil composition of the area is greatly influenced by the ice invasion during the Wisconsin Glaciation. 55 percent of the township is woodlands, 30 percent is pasturelands, 14 percent is croplands, and 1 percent is urban.

**Hydrology:**

*Kymers Brook* is located in the borough and is a tributary to the Pequest River.

**Flood History:**

No flooding history is provided in the Flood Insurance Study.

*Last Updated: February 2, 1990 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Sussex County

### Andover, Township of

**Location:**

The Township of Andover is located in southwestern Sussex County, in northwestern New Jersey. It is bordered by Sparta Township to the northeast, Byram Township to the east, Green Township and the Town of Andover to the south, the Township of Fredon to the southwest, the Town of Newton to the west, Hampton Township to the northwest, and Lafayette Township to the northwest.

**Geology:**

The township lies in the Valley and Ridge Province and composed of Paleozoic sedimentary rocks. The soil composition of the area is greatly influenced by the ice invasion during the Wisconsin Glaciation. 55 percent of the township is woodlands, 24 percent is pasturelands, 15 percent is croplands, 11 percent is residential, and 5 percent is water surface composed mainly of lakes and swamps.

**Hydrology:**

The upper part of *Paulins Kill* is located in the northern part of the township and is the main drainage source for the northern part of the township. It is a tributary to the Delaware River. It has repeatedly been dredged and straightened over the years to control water levels in the muck area.

The *Pequest River* is a tributary to the Delaware River and flows from northeast to southwest. It flows through the southwestern part of the township and drains most of the southern areas in the township.

**Flood History:**

In 1955 Paulins Kill suffered from a severe flood with a reoccurrence interval of approximately 400 years. This is because two hurricanes traversed northeastern New Jersey within a week. In addition a timber crib utility dam on Culvers Creek in Branchville breached, flooding Branchville and overwhelming Paulins Kill. This was on top of nearly 8 inches of rain falling in the Paulins Kill watershed. There have also been many other less severe floods along this water body.

*Last Updated: February 2, 1990 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Sussex County

### Byram, Township of

**Location:**

Byram Township is located in southern Sussex County, in northwestern New Jersey. It is bordered by Sparta and Andover Townships to the north, Allamuchy Township to the southwest, Mount Olive Township and the Borough of Stanhope to the south, and the Borough of Hopatcong to the east.

**Geology:**

The township lies in the Valley and Ridge Province and composed of Paleozoic sedimentary rocks. The soil composition of the area is greatly influenced by the ice invasion during the Wisconsin Glaciation. There are 24 lakes in the township.

**Hydrology:**

The *Musconetcong River* is the main waterway in Byram Township. It originates at Lake Hopatcong, it then loops to the northwest after flowing through Lake Musconetcong. The river then flows southwest forming the border of Warren County until it gets to the Delaware River.

*Lubbers Run* is a tributary to the Musconetcong River. It is located in the southeastern part of the township.

**Flood History:**

Several major floods have occurred and minor flooding is a common occurrence along the Musconetcong River. No reports on flooding damage are included in the report.

*Last Updated: April 16, 1984 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Sussex County

### Frankford, Township of

**Location:**

Frankford Township is located in northern Sussex County in northwest New Jersey. It is bordered by Wantage Township to the northeast, Sandyston Township to the northwest, Hampton Township to the south, and Lafayette Township to the southeast. Only the western half of this township drains into the Delaware River.

**Geology:**

The Flood Insurance Study does not provide information on the geological features for Hampton Township. However, it does state that 45 percent of the township is woodlands, 24 percent is pasturelands, 15 percent is croplands, 11 percent is residential, and 5 percent is water-surface composed mainly of lakes and swamps.

**Hydrology:**

*Culvers Creek* drains into two large lakes (Lake Owassa and Culvers Lake). There is also a large swamp connecting the two. Lake Owassa drains through a 2.5 foot weir. This creek also has three dams near US Route 206, County Route 630, and just downstream of Longridge Road.

*Dry Brook* is a small tributary to Paulins Kill and has a very steep slope as it drains off of Kittatinny Mountain.

*Paulins Kill* is a tributary to the Delaware River located in the central part of the township. There is some light residential and agricultural development along the waterway.

**Flood History:**

In 1955 Paulins Kill suffered from a severe flood with a reoccurrence interval of approximately 400 years. This is because two hurricanes traversed northeastern New Jersey within a week. In addition a timber crib utility dam on Culvers Creek in Branchville breached flooding Branchville and overwhelming Paulins Kill. This was on top of nearly 8 inches of rain falling in the Paulins Kill watershed.

*Last Updated: June 6, 2001 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Sussex County

### Green, Township of

**Location:**

Green Township is located in southern Sussex County in Northwest New Jersey. It is bordered by Fredon Township to the north, Frelinghuysen Township to the west, Allamuchy Township to the southwest, Bryam Township to the southeast, the Borough of Andover to the east, and Andover Township to the northeast.

**Geology:**

The township lies in the Valley and Ridge Province and composed of Paleozoic sedimentary rocks. The soil composition of the area is greatly influenced by the ice invasion during the Wisconsin Glaciation. 55 percent of the township is woodlands, 30 percent is pasturelands, 14 percent is croplands, and 1 percent is urban.

**Hydrology:**

The *Pequest River* is a tributary to the Delaware River and flows from northeast to southwest. It flows right through the center of Green Township.

**Flood History:**

There have been many floods on the Pequest River; however, there was no major damage due to there not being many structures in the floodplain.

*Last Updated: February 2, 1990 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Sussex County

### Hampton, Township of

**Location:**

Hampton Township is located in southwestern Sussex County in Northwest New Jersey. It is bordered by Frankford Township to the north, Stillwater Township to the west, Fredon Township and the Town of Newton to the south, and the Townships of Lafayette and Andover to the east.

**Geology:**

The Flood Insurance Study does not provide information on the geological features for Hampton Township. However, it does state that 45 percent of the township is woodlands, 24 percent is pasturelands, 15 percent is croplands, 11 percent is residential, and 5 percent is water-surface composed mainly of lakes and swamps.

**Hydrology:**

*Bear Swamp Creek* is located in an area with low development potential and minimal flood hazard.

*Dry Brook* is a small tributary to Paulins Kill.

*Paulins Kill* is a tributary to the Delaware River located in the central part of the township. There is some light residential and agricultural development along the waterway. There is also a small dam located near County Route 626.

**Flood History:**

In 1955 Paulins Kill suffered from a severe flood with a reoccurrence interval of approximately 400 years. This is because two hurricanes traversed northeastern New Jersey within a week. In addition a timber crib utility dam on Culvers Creek in Branchville breached flooding Branchville and overwhelming Paulins Kill. This was on top of nearly 8 inches of rain falling in the Paulins Kill watershed.

*Last Updated: June 6, 2001 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Sussex County

### Lafayette, Township of

**Location:**

Lafayette Township is located in central Sussex County, in northwestern New Jersey. It is bordered by Wantage to the north, the Frankford Township to the west, Andover Township to the south, and the Townships of Sparta and Hardyston to the east.

**Geology:**

The township lies in the Valley and Ridge Province and composed of Paleozoic sedimentary rocks. The soil composition of the area is greatly influenced by the ice invasion during the Wisconsin Glaciation. 45 percent of the township is woodlands, 24 percent is pasturelands, 15 percent is croplands, 11 percent is residential, and 5 percent is water surface composed mainly of lakes and swamps.

**Hydrology:**

The upper part of *Paulins Kill* is located in the western part of the township and is the main drainage source for the township. It is a tributary to the Delaware River. It has repeatedly been dredged and straightened over the years to control water levels in the muck areas.

The *Lafayette Township Tributary* is a tributary for the Paulins Kill.

**Flood History:**

In 1955 Paulins Kill suffered from a severe flood with a reoccurrence interval of approximately 400 years. This is because two hurricanes traversed northeastern New Jersey within a week. In addition a timber crib utility dam on Culvers Creek in Branchville breached, flooding Branchville and overwhelming Paulins Kill. This was on top of nearly 8 inches of rain falling in the Paulins Kill watershed. There have also been many other less severe floods along this tributary.

*Last Updated: March 5, 1990 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Sussex County

### Newton, Town of

**Location:**

The Town of Newton is located in the southern portion of Sussex County, in the northwest corner of New Jersey.

**Geology:**

The terrain of Newton varies from level ground in the eastern and southern sections to hilly in the northern and western sections. Elevation ranges from 560 feet on the eastern edge to 917 feet near the western edge. The soils in the southern section of the town are mostly Hazen-Palmyra-Fredon association which is deep and varies from poorly drained in the southeast to well drained in the southwest. The eastern portion of the town consists mostly of the Carlisle association of organic and mineral soils. These soils are deep and very poorly drained. The soils in the remainder of Newton are mostly of the Nassau-Bath-Norwich association ranging from shallow to deep and from well drained to poorly drained. They consist of silt and shaly loam with a number of rock and gravel outcroppings.

**Hydrology:**

*The Moore's Brook* flows east through the northern section of Newton's commercial and residential areas.

*The Mill Street Tributary* and *Don Bosco Tributary* flow south, emptying into Moore's Brook.

*The Gravel Run* flows through the eastern and most agricultural section of Newton.

The undeveloped northeastern and southeastern sections of Newton are marsh lands, and the northwestern section includes steep slopes.

**Flood History:**

Most flood damage that occurs in Newton's residential and commercial areas is adjacent to Moore's Brook and the Mill Street Tributary in the northern section of town. There is a very extensive flood plain in the undeveloped northeastern section of Newton along Moore's Brook.

**Flood Mitigation:**

Flood protection measures within the Town of Newton consist of a number of U.S. Department of Agriculture Soil Conservation Service Dams and a series of concrete flumes in the downtown area. The dams control the runoff from the small watersheds and provide protection for the streams immediately downstream from the structures.

*Last Updated: October 18, 1982 (Fema.gov)*



# FLOOD INSURANCE STUDIES

## Sussex County

### Sandyston, Township of

**Location:**

Sandyston Township is located in northwestern Sussex County in Northwest New Jersey. It is bordered by Frankford Township to the southeast, Walpack Township to the southwest, the Delaware River to the west, and Montague Township to the north.

**Geology:**

Sandyston Township is highly forested and has many rolling hills and valleys. The elevation ranges from 420 feet in the southwest corner to 1,650 feet in the northeastern section of the township. Soils in the township have been formed primarily from shale, and don't drain very well.

**Hydrology:**

The *Flat Brook* runs through the entire township from northeast to southwest. And is a tributary to the Delaware River.

The *Delaware River* creates the western boundary for the township and flows south. There is a little bit of development in the flood plains.

**Flood History:**

Some flood damage occurs in Layton area along the Flat Brook, and the Delaware River. This is due to very heavy rainfalls from tropical systems or thunderstorms.

*Last Updated: December 17, 1991 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Sussex County

### Sparta, Borough of

**Location:**

Sparta Township is located on the eastern border of Sussex County, in northwestern New Jersey. It is bordered by Jefferson Township to the east, Borough of Hopatcong and Byram Township to the south, the Borough of Andover and Lafayette to the west, and the Boroughs of Franklin and Ogdensburg and Hardyston Township to the north.

**Geology:**

Sparta Township is hilly with two relatively flat river valleys that run in a northeast/southwest direction. Elevation ranges from 520 feet in the deepest river valley to 1360 feet in the mountains in the northern part of the township. Soils in the township are classified as alluvial land, which is very poorly drained fine sand or silty clay loam with the water table at or near the surface.

**Hydrology:**

*Paulins Kill* is a tributary to the Delaware River. There is some light residential and agricultural development along the waterway.

The *Pequest River* is a tributary to the Delaware River and flows for northeast to southwest. It drains the western part of the township.

The *Wallkill River* is located in the northern section of the township and is surrounded by moderate residential and commercial development. But only a few of these structures are located in the flood plain.

**Flood History:**

Typically flooding occurs along the Wallkill River in the northern section of the township, but only a few structures are affected.

*Last Updated: April 16, 1984 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Sussex County

### Stanhope, Borough of

**Location:**

Stanhope Borough is located in southern Sussex County, in northwestern New Jersey. It is 50 miles north of Trenton, New Jersey. It is bordered by Hopatcong Township to the northeast, the townships of Roxbury, Mt. Olive and the Borough of Netcong on the south, and Byram Township on the northwest.

**Geology:**

The borough lies in the Highlands of New Jersey. The topographic relief of the borough is moderate and characterized by parallel, irregular ridges and intervening valleys trending northeast. The ridges, which rise about 500 – 1000 feet above the valleys are composed of gneiss and other hard crystalline rocks. The valleys are mainly composed of carbonate rocks and shale.

**Hydrology:**

The *Musconetcong River and Lake* is the main waterway in Stanhope Borough. It originates at Lake Hopatcong, it then loops to the northwest after flowing through Lake Musconetcong, at the southern border of Stanhope. The river then flows southwest, forming the border of Warren County until it ends at the Delaware River. There are many structures along the lake and river.

**Flood History:**

Several major floods have occurred and minor flooding is a common occurrence along the Musconetcong River. No reports on flooding damage are included in the report.

**Flood Mitigation:**

Flood plain regulations were adopted on May 31, 1979 in an effort to minimize flooding damages.

*Last Updated: May 17, 1982 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Sussex County

### Stillwater, Township of

**Location:**

Stillwater Township is located in southwestern Sussex County in Northwest New Jersey. It is bordered by Walpak Township to the northwest, Sandyston Township to the north, Hampton Township to the northeast, Fredon Township to the southeast, Frelinghuysen Township to the south, and Hardwick Township to the southwest.

**Geology:**

The Flood Insurance Study does not provide information on the Geological features for Stillwater Township. However, it does state that 45 percent of the township is woodlands, 24 percent is pasturelands, 15 percent is croplands, 11 percent is residential, and 5 percent is water-surface composed mainly of lakes and swamps.

**Hydrology:**

*Paulins Kill* is a tributary to the Delaware River located in the central part of the township. There is some light residential and agricultural development along the waterway. There is also a small dam located near West End Drive creating Paulins Kill Lake.

**Flood History:**

In 1955 Paulins Kill suffered from a severe flood with a reoccurrence interval of approximately 400 years. This is because two hurricanes traversed northeastern New Jersey within a week. In addition a timber crib utility dam on Culvers Creek in Branchville breached flooding Branchville and overwhelming Paulins Kill. This was on top of nearly 8 inches of rain falling in the Paulins Kill watershed.

*Last Updated: February 2, 1990 (Fema.gov)*

# Warren County

# FLOOD INSURANCE STUDIES

## Warren County

### Allamuchy, Township of

**Location:**

Allamuchy Township is located in eastern Warren County in Northwest New Jersey. It is bordered by The Townships of Green and Byram to the northeast, the Townships of Mount Olive, Independence and Hackettstown to the southeast, and Frelinghuysen Township to the northwest.

**Geology:**

The township lies in the Highlands of New Jersey. The topographic relief of the township is moderate and characterized by parallel, irregular ridges and intervening valleys trending northeast. The ridges, which rise about 500 – 1000 feet above the valleys are composed of gneiss and other hard crystalline rocks. The valleys are mainly composed of carbonate rocks and shale.

**Hydrology:**

The *Musconetcong River* is the main waterway in Allamuchy Township. It originates at Lake Hopatcong, it then loops to the northwest after flowing through Lake Musconetcong. The river then flows southwest, forming the border of Warren County until it gets to the Delaware River. There is only some light development due to some steep hills right at the river bank.

The *Pequest River* is a tributary to the Delaware River and flows from northeast to southwest. It flows right through the northern and western parts of Allamuchy Township.

**Flood History:**

There have been many floods on the Pequest River, however there was no major damage due to there not being any structures in the floodplain. Several major floods have occurred and minor flooding is a common occurrence along the Musconetcong River but with the area sparsely developed there is not usually any extensive damage.

*Last Updated: February 15, 1983 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Warren County

### Belvidere, Town of

**Location:**

The Town of Belvidere is located in west-central Warren County in northwestern New Jersey along the Delaware River. It borders Oxford Township to the north, south and east and the Delaware River to its west.

**Geology:**

The Town of Belvidere is influenced by flood plain shapes, with the physiography becoming steeper as it approaches Scotts and Jenny Jump Mountains. The soils consist of glacial sands, gravels, and till deposits of the Wisconsin age. Granular limestone and dolomite are located in exposed areas of the flood plain.

**Hydrology:**

The *Delaware River* flows south along the western border of the township alongside a residential area. Most of the floodplain along the river is developed by residential and commercial structures.

The *Pequest River* drains into the Delaware River and flows from northeast to southwest. Most of the floodplain is developed by residential and commercial structures.

The *Pophandusing Creek* is located in the southern portion of town and is more reactive to shorter duration, high intensity events.

**Flood History:**

Flooding in Belvidere is of varied origin and may be experienced any time of year. Flooding during the winter is less frequent, but flooding compounded by snowmelt and ice has occurred on the smaller tributaries. The most extensive flooding has occurred in the late summer and fall when tropical systems move north along the Atlantic Coast. Several major floods have occurred from these tropical systems in the town and have caused major damage. Flooding on the Delaware River also causes backwater along the Pequest River and Pophandusing Creek.

*Last Updated: June 18, 1979 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Warren County

### Blairstown, Township of

**Location:**

Blairstown Township is located in north-central Warren County in Northwest New Jersey. It is bordered by Hardwick Township to the northeast, Frelinghuysen Township to the east, Hope Township to the southeast, Knowlton Township to the southwest, and Phahquarry Township to the northwest.

**Geology:**

The topography of the area is hilly terrain, with the steepest slopes along the Kittatinny Mountains and the mildest terrain in the area surrounding the Paulins Kill. Elevations range from 320 feet near Paulins Kill to over 1,500 feet in the Kittatinny Mountains. There is a shaly soil over limestone bedrock which produces high runoff and low groundwater volatility.

**Hydrology:**

The *Blair Creek* is a tributary to Paulins Kill and is located in the eastern part of the township and drains most of it.

The *Jacksonburg Creek* is a tributary to Paulins Kill and drains a large part of the northern part of the township.

*Paulins Kill* is a tributary to the Delaware River located in the central part of the township. There is some light residential and agricultural development along the waterway. Most of the population is in the eastern end of the township.

The *Stony Brook* is a tributary to Paulins Kill. It drains the center and northwestern parts of the township.

**Flood History:**

Flooding from severe storms has caused substantial flooding within the township. One of the more significant storms occurred in 1955 and caused flooding throughout Blairstown. Paulins Kill and Blair Creek overtopped their banks and inundated the downtown area as water ran down Main Street. Major damage occurred as a result of this flood.

**Flood Mitigation:**

There are 6 dams in the township. Three of them are located on Paulins Kill. This is used to control the flow that is released into Paulins Run and its tributaries. This has helped to reduce the severity of flooding in the towns downstream.

*Last Updated: May 2, 1991 (Fema.gov)*



# FLOOD INSURANCE STUDIES

## Warren County

### Franklin, Township of

**Location:**

Franklin Township is located in southern Warren County in Northwest New Jersey. The township is located 35 miles north of Trenton, New Jersey and 50 miles west of New York, New York. It is bordered by Washington Township on the northeast, Oxford Township to the north, Harmony Township to the northwest, Lopatcong Township to the west, Greenwich Township to the southwest, and the Borough of Bloomsbury and Bethlehem Township to the south and southeast.

**Geology:**

The township lies in the Highlands of New Jersey. The topographic relief of the township is moderate and characterized by parallel, irregular ridges and intervening valleys trending northeast. The ridges, which rise about 500 – 1000 feet above the valleys are composed of gneiss and other hard crystalline rocks. The valleys are mainly composed of carbonate rocks and shale.

**Hydrology:**

The *Musconetcong River* is the major waterway in Franklin Township. It originates at Lake Hopatcong; it then loops to the northwest after flowing through Lake Musconetcong. The river then flows southwest, forming the border of Warren County until it gets to the Delaware River.

The *Pohatcong River* is a tributary to the Delaware River and flows from northeast to southwest. It flows through the central part of the township and drains the largest portion of the township.

**Flood History:**

Flooding along the Musconetcong River is generally restricted to the “mucklands” which lie in the flood plain area and are used for truck farming. Little damage to structures has been experienced. Flooding along the Pohatcong Creek has occurred near the village of Broadway.

*Last Updated: March 2, 1982 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Warren County

### Greenwich, Township of

**Location:**

Greenwich Township is located in southern Warren County in Northwest New Jersey. The township is located 35 miles north of Trenton, New Jersey and 50 miles west of New York, New York. It is bordered by Franklin Township to the northeast, Harmony Township to the north, Lopatcong Township to the northwest, Phillipsburg to the west, Pohatcong Township to the southwest, and the Townships of Bethlehem and Holland to the southeast

**Geology:**

The township lies in the Highlands of New Jersey. The topographic relief of the township is moderate and characterized by parallel, irregular ridges and intervening valleys trending northeast. The ridges, which rise about 500 – 1000 feet above the valleys are composed of gneiss and other hard crystalline rocks. The valleys are mainly composed of carbonate rocks and shale.

**Hydrology:**

The *Merrill Creek* originates in Harmony Township and flows southwest to its confluence with the Pohatcong Creek. It drains most of the northwestern part of the township.

The *Musconetcong River* is the major waterway in Franklin Township. It originates at Lake Hopatcong; it then loops to the northwest after flowing through Lake Musconetcong. The river then flows southwest, forming the border of Warren County until it gets to the Delaware River.

The *Pohatcong River* is a tributary to the Delaware River and flows from northeast to southwest. It flows through the central part of the township and drains most of the central and northern portion of the township.

**Flood History:**

Flooding along the Musconetcong River can be experienced during any time of the year. Several major floods have occurred and minor floods are a common occurrence. Flooding is typically more common in the spring with snow and ice melt, and in the late summer and fall with tropical systems passing by the area.

*Last Updated: August 2, 1982 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Warren County

### Hackettstown, Town of

**Location:**

The Town of Hackettstown is located in eastern Warren County in Northwestern New Jersey. It is approximately 45 miles north of Trenton. The township is bordered by Allamuchy Township to the north, Mount Olive Township to the northeast, the Township of Washington to the southeast, the Township of Mansfield to the southwest, and the Township of Independence to the northwest.

**Geology:**

The borough lies in the Highlands of New Jersey. The topographic relief of the borough is moderate and characterized by parallel, irregular ridges and intervening valleys trending northeast. The ridges, which rise about 500 – 1000 feet above the valleys are composed of gneiss and other hard crystalline rocks. The valleys are mainly composed of carbonate rocks and shale.

**Hydrology:**

The *Musconetcong River* is the main waterway in the borough. It originates at Lake Hopatcong, it then loops to the northwest after flowing through Lake Musconetcong. The river then flows southwest, forming the border of Warren County until it gets to the Delaware River. There is some development along at the river.

The *Hackettstown Brook* is a tributary to the Musconetcong River.

**Flood History:**

There have been several major floods near Hackettstown and minor floods are a common occurrence. The study does not disclose any information about damages to the town.

*Last Updated: February 15, 1983 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Warren County

### Harmony, Township of

**Location:**

Harmony Township is along the western border of central New Jersey in western Warren County. It is approximately 45 miles north of Trenton, New Jersey. It is bordered by the communities of Forks and Lower Mount Bethel on the west, the community of White to the north, Washington and Franklin to the east, and Greenwich and Lopatcong to the south.

**Geology:**

The township lies in the Highlands of New Jersey. The topographic relief of the township is moderate and characterized by parallel, irregular ridges and intervening valleys trending northeast. The ridges, which rise about 500 – 1000 feet above the valleys are composed of gneiss and other hard crystalline rocks. The valleys are mainly composed of limestone and shale. Elevations range from 155 feet at the Delaware River to 1,245 feet in the eastern part of the township.

**Hydrology:**

The *Buckhorn Creek* begins in the southwestern portion of White township and flows southwest to its mouth on the Delaware River. This creek drains most of southwestern White Township and north-central Harmony Township.

The *Delaware River* forms the western border of the township. It flows south and is the largest body of water flowing through the township.

The *Lopatcong Creek* has its headwaters in northeastern Harmony and flows generally southwest through the townships of Harmony, Lopatcong, Greenwich, Pohatcong, and Phillipsburg where it empties into the Delaware River.

**Flood History:**

Flooding has been a continual problem for Harmony Township along the Delaware River since the settlement of the area. The worst of the floods have generally resulted from excessive rainfall. Flooding in the early spring is usually even more severe because of snowmelt and moving ice. Flooding along the Buckhorn Creek is primarily a result of backwater from the Delaware River. Flooding in the upper parts of this creek is largely due to development near and on the flood plain.

*Last Updated: June 6, 2001 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Warren County

### Hope, Township of

**Location:**

Hope Township is located in central Warren County in Northwest New Jersey. It is bordered by Blairstown Township to the north, Independence Township to the east, Frelinghuysen Township to the northeast, Liberty Township to the southeast, White Township to the southwest, and Knowlton Township to the west.

**Geology:**

The topography of the area is hilly terrain with the mildest terrain in the area surrounding the Pequest River. There is a shaly soil over limestone bedrock which produces high runoff and low groundwater volatility.

**Hydrology:**

The *Beaver Brook* is a tributary to the Pequest River. And flows in a northwest to southeast direction. There are two dams located on Beaver Brook for flood protection.

The *Honey Run* is a tributary to the Pequest River. And flows in a northwest to southeast direction. There is one dam located on Honey Run for flood protection.

**Flood History:**

Flooding from severe storms has caused flooding within the township. Because these are smaller tributaries the flooding is not as severe as it would be on a larger creek or river.

*Last Updated: August 19, 1981 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Warren County

### Knowlton, Township of

**Location:**

Knowlton Township is located in west-central Warren County in Northwest New Jersey. It is bordered by Blairstown Township to the east, the Townships of White and Hope to the south, the Delaware River to the west, and Phahquarry Township to the north.

**Geology:**

The topography of the area is hilly terrain, with the steepest slopes along the Kittatinny Mountains and the mildest terrain in the area surrounding the Paulins Kill. Elevations range from 280 feet near Paulins Kill to over 1,400 feet in the Kittatinny Mountains. There is a shaly soil over limestone bedrock which produces high runoff and low groundwater volatility.

**Hydrology:**

The *Delaware River* flows south along the Pennsylvania / New Jersey border and makes the southwest boundary for Knowlton Township.

*Paulins Kill* is a tributary to the Delaware River flows across the township from northeast to southwest.

*Yards Creek* flows southwest and empties into Paulins Kill.

*Valley Road Branch* flows southwest and empties into the Delaware River.

**Flood History:**

Flooding from severe storms has causes substantial flooding within the township. Flooding has been a continual problem for Knowlton Township along the Delaware River since the settlement of the area. The worst of the floods have generally resulted from excessive rainfall. Flooding is usually even more severe in the early spring because of snowmelt and moving ice and in the late summer and fall from tropical systems.

*Last Updated: July 6, 1982 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Warren County

### Liberty, Township of

**Location:**

Liberty Township is located in the central portion of Warren County in Northwestern New Jersey. It is bordered by Hope Township to the north, Mansfield Township to the south, Independence Township to the east, and White Township to the west.

**Geology:**

The township lies in the Highlands of New Jersey. The topographic relief of the township is moderate and characterized by parallel, irregular ridges and intervening valleys trending northeast. The ridges, which rise about 500 – 1000 feet above the valleys are composed of gneiss and other hard crystalline rocks. The valleys are mainly composed of limestone and shale.

**Hydrology:**

The *Pequest River* is a tributary to the Delaware River and flows from northeast to southwest. The river creates the border between Liberty and Mansfield Townships. Its watershed consists mainly of woodland, pastureland, and cropland. Only 1 percent is urban.

**Flood History:**

There have been many floods on the Pequest River, however there was no major damage due to there not being any structures in the floodplain. An ice jam near the Riverside Restaurant produced backwater, flooding Route 46 and a few basements of buildings nearby. Also it has been documented that many floods have been alleviated due to the storage of water in the meadowlands upstream in Independence Township.

*Last Updated: February 15, 1983 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Warren County

### Lopatcong, Township of

**Location:**

Lopatcong Township is along the western border of central New Jersey in western Warren County. It is approximately 42 miles northwest of Trenton, New Jersey. It is bordered by the communities of Forks and Easton on the west, the Town of Philipsburg to the southwest, the Townships of Pohatcong and Greenwich to the south and southeast, Harmony Township to the north, and Franklin Township to the east.

**Geology:**

The township lies in the Highlands of New Jersey. The topographic relief of the township is moderate and characterized by parallel, irregular ridges and intervening valleys trending northeast. The ridges, which rise about 500 – 750 feet above the valleys are composed of gneiss and other hard crystalline rocks. The valleys are mainly composed of limestone and shale. Elevations range from 152 feet at the Delaware River to 970 feet in the eastern part of the township.

**Hydrology:**

The *Delaware River* forms the western border of the township. It flows south and is the largest body of water flowing through the township.

The *Lopatcong Creek* has its headwaters in northeastern Harmony and flows generally southwest through the townships of Harmony, Lopatcong, Greenwich, Pohatcong, and Phillipsburg where it empties into the Delaware River. The creek drains most of the township except for areas very close to the Delaware River. There is very little development along the creek until you get closer Phillipsburg where it is primarily residential.

**Flood History:**

Flooding has been a continual problem for Lopatcong Township along the Delaware River since the settlement of the area. The worst of the floods have generally resulted from excessive rainfall. Flooding in the early spring is usually even more severe because of snowmelt and moving ice. Flooding along the Lopatcong Creek is primarily the result of debris blockage behind bridges and other obstructions in the flood plain. During flooding, ponding areas are created behind these obstructions, and the floodwaters (generally shallow) can affect areas not usually subject to flooding. This results in minor to moderate flooding of property and basements. This type of flooding is most likely near the downstream township boundary (southwest part of the township) because of more development near the flood plain.

*Last Updated: September 15, 1981 (Fema.gov)*



# FLOOD INSURANCE STUDIES

## Warren County

### Mansfield, Township of

**Location:**

Mansfield Township is located in central Warren County in Northwest New Jersey. The township is located 40 miles north of Trenton, New Jersey and 45 miles west of New York, New York. It is bordered by the Townships of Independence and Liberty to the north, White Township to the west, Washington Township to the southwest, the Townships of Washington and Lebanon to the east, and the Town of Hackettstown to the northeast.

**Geology:**

The township lies in the Highlands of New Jersey. The topographic relief of the township is moderate and characterized by parallel, irregular ridges and intervening valleys trending northeast. The ridges, which rise about 500 – 1000 feet above the valleys are composed of gneiss and other hard crystalline rocks. The valleys are mainly composed of carbonate rocks and shale.

**Hydrology:**

The *Musconetcong River* is a major waterway in Mansfield Township. It originates at Lake Hopatcong, it then loops to the northwest after flowing through Lake Musconetcong. The river then flows southwest, forming the border of Warren County until it gets to the Delaware River.

The *Pequest River* is a tributary to the Delaware River and flows from northeast to southwest. It flows right along the northwestern boundary of Mansfield Township.

The *Pohatcong River* is a tributary to the Delaware River and flows from northeast to southwest. It flows through the central part of the township and drains the largest portion of the township.

**Flood History:**

There have been many floods on the Pequest River; however there was no major damage due to there not being many structures in the floodplain. Several major floods have occurred and minor flooding is a common occurrence along the Musconetcong and Pohatcong River's but with the area sparsely developed there is not usually any extensive damage.

*Last Updated: February 15, 1983 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Warren County

### Phillipsburg, Town of

**Location:**

The Town of Phillipsburg is located along the western border of central New Jersey in southwestern Warren County. It is approximately 40 miles northwest of Trenton, New Jersey. It is bordered Williams Township and the City of Easton to the west, Lopatcong Township to the north and east, and Pohatcong Township to the south.

**Geology:**

The township lies in the Highlands of New Jersey. The area is characterized by gently rolling to steep uplands underlain by gneiss, quartzite and limestone. Elevations range from 133 feet at the Delaware River to 405 feet in the north-central part of town.

**Hydrology:**

The *Delaware River* forms the western border of the town. It flows south and is the largest body of water flowing through the township. There is heavy development along the river which is primarily commercial and industrial.

The *Lopatcong Creek* has its headwaters in northeastern Harmony and flows generally southwest through the townships of Harmony, Lopatcong, Greenwich, Pohatcong, and Phillipsburg where it empties into the Delaware River. The creek drains most of the town except for areas very close to the Delaware River. There is heavy development along the creek which is primarily residential.

**Flood History:**

Flooding has been a continual problem for Phillipsburg along the Delaware River since the settlement of the area. The worst of the floods have generally resulted from excessive rainfall. Flooding in the early spring is usually even more severe because of snowmelt and moving ice. Flooding along the Lopatcong Creek is primarily the result of debris blockage behind bridges and other obstructions in the flood plain. During flooding, ponding areas are created behind these obstructions, and the floodwaters (generally shallow) can affect areas not usually subject to flooding.

The flood of August 1955 was the most devastating event along the Delaware River. The Phillipsburg-Easton area was the worst hit along the entire river. Flood waters rose an unprecedented 43 feet above the normal level. Most of the damage in town occurred next to the Conrail tracks and the mouth of the Lopatcong Creek where damage to personal property was very heavy.

*Last Updated: September 15, 1981 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Warren County

### Pohatcong, Township of

**Location:**

Pohatcong Township is located in southern Warren County in Northwest New Jersey. The township is located 36 miles northwest of Trenton, New Jersey. It is bordered by Riegelsville and Williams to the west, the communities of Philipsburg and Lopatcong to the north, Greenwich to the north and east, Bloomsbury to the east, and Holland and Bethlehem to the south. The township also surrounds the Borough of Alpha.

**Geology:**

The township lies in the Highlands of New Jersey. The topographic relief of the township is moderate and characterized rolling steep uplands. The hills, which rise about 500 feet above the valleys are composed of gneiss and other hard crystalline rocks. The valleys are mainly composed of carbonate rocks and shale. Elevations range from 116 feet at the Delaware River to 725 feet in the southeastern corner of the township.

**Hydrology:**

The *Delaware River* flows along the western boundary of the township and is the largest waterway in the township. There is some light to moderate development along the floodplain.

The *Lopatcong Creek* has its headwaters in northeastern Harmony and flows generally southwest through the townships of Harmony, Lopatcong, Greenwich, Pohatcong, and Phillipsburg where it empties into the Delaware River. The creek loops into the township for a distance of only 2,400 feet. The creek drains a small area in the northern part of the township. The watershed in this area is highly developed due to its proximity to Phillipsburg.

The *Musconetcong River* is the major waterway in Pohatcong Township. It originates at Lake Hopatcong; it then loops to the northwest after flowing through Lake Musconetcong. The river then flows southwest, forming the border of Warren County until it gets to the Delaware River. There is some moderate residential and light industrial development near the flood plain.

The *Pohatcong River* is a tributary to the Delaware River and flows from northeast to southwest. It flows through the central part of the township and drains most of the central and northern portion of the township. There is some limited development near the floodplain that consists of mainly residential areas especially in Springtown.

**Flood History:**

Flooding has been a continual problem for Pohatcong Township along the Delaware River since the settlement of the area. The worst of the floods have generally resulted from excessive rainfall. Flooding in the early spring is usually even more severe because of snowmelt and moving ice. Flooding along the Lopatcong Creek is primarily the result of debris blockage behind bridges and other obstructions in the flood plain. During flooding, ponding areas are created behind these obstructions, and the floodwaters (generally shallow) can affect areas not usually subject to flooding. This results in minor to moderate flooding of property and basements. This type of flooding is most likely near the downstream township boundary (southwest part of the township) because of more development near the flood plain.

Flooding along the Musconetcong River can be experienced during any time of the year. Several major floods have occurred and minor floods are a common occurrence. Flooding is typically

more common in the spring with snow and ice melt, and in the late summer and fall with tropical systems passing by the area.

*Last Updated: March 30, 1981 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Warren County

### Washington, Borough of

**Location:**

The Borough of Washington is located in eastern Warren County in Northwest New Jersey. It is surrounded by Washington Township. The borough is 39 miles north of Trenton, New Jersey.

**Geology:**

The Borough of Washington is situated on rolling hills with moderately steep slopes. The soil is comprised of glacial till derived by underlying rock shale, slate, and limestone.

**Hydrology:**

The *Shabbecong Creek* is the main stream in the borough. The stream flows in the southwest direction, then turns north to its confluence with the Pohatcong Creek. The central portion of the creek is extensively developed and comprises the commercial district of the Borough. Upstream and downstream from this point, the creek flows through rural and residential areas.

**Flood History:**

There is no reported history of significant flooding along the Shabbecong Creek. Sometimes there will be some minor flooding after an extremely heavy rainfall, but nothing too serious.

*Last Updated: February 15, 1983 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Warren County

### Washington, Township of

**Location:**

Washington Township is located in southeastern Warren County in Northwest New Jersey. The township is located 35 miles north of Trenton, New Jersey and 50 miles west of New York, New York. It is bordered by Mansfield Township on the northeast, the Townships of White and Oxford to the north, Franklin Township to the southwest, and the Township of Lebanon and the Borough of Hampton to the southeast.

**Geology:**

The township lies in the Highlands of New Jersey. The topographic relief of the township is moderate and characterized by parallel, irregular ridges and intervening valleys trending northeast. The ridges, which rise about 500 – 1000 feet above the valleys are composed of gneiss and other hard crystalline rocks. The valleys are mainly composed of carbonate rocks and shale.

**Hydrology:**

The *Musconetcong River* is the major waterway in Washington Township. It originates at Lake Hopatcong; it then loops to the northwest after flowing through Lake Musconetcong. The river then flows southwest forming the border of Warren County until it gets to the Delaware River.

The *Pohatcong River* is a tributary to the Delaware River and flows from northeast to southwest. It flows through the central part of the township and drains the largest portion of the township.

The *Shabbecong Creek* flows in the southwest direction, and then turns north to its confluence with the Pohatcong Creek. The central portion of the creek is extensively developed and comprises the commercial district with the border of Washington Borough. Upstream and downstream from this developed area near the Borough, the creek flows thru rural and residential areas.

**Flood History:**

Several major floods have occurred and minor flooding is a common occurrence along the Musconetcong River's but with the area sparsely developed there is not usually any extensive damage. There are no reports in the Flood Insurance Study of significant flooding along the Pohatcong Creek in the township.

*Last Updated: March 2, 1982 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## Warren County

### White, Township of

**Location:**

White Township is located in the west-central portion of Warren County in Northwestern New Jersey. It is bordered by the Townships of Knowlton and White to the north, the Townships of Liberty and Oxford to the east, the Township's of Harmony and Washington to the south, and the Delaware River to the west.

**Geology:**

White Township has mostly hilly terrain with some flatter areas near the Delaware River. It is more hilly and mountainous in the eastern and northern part of the township with elevations exceeding 1,200 feet. Most of the township is characterized by well drained soil overlying limestone or gneissic bedrock.

**Hydrology:**

The *Beaver Brook* flows south and empties into the Pequest River in White Township.

The *Delaware River* flows south along the western border of the township alongside a residential area.

The *Pequest River* drains into the Delaware River in White Township and flows from northeast to southwest. Its watershed consists mainly of woodland, pastureland, and cropland.

**Flood History:**

Flooding in White Township is of varied origin and may be experienced any time of year. Flooding during the winter is less frequent, but flooding compounded by snowmelt and ice has occurred on the smaller tributaries. The most extensive flooding has occurred in the late summer and fall when tropical systems move north along the Atlantic Coast. Several major floods have occurred from these tropical systems in the township. There have been many floods on the Pequest River, however there was no major damage due to there not being many structures in the floodplain.

*Last Updated: November 15, 1983 (Fema.gov)*

# FLOOD INSURANCE STUDIES

## No Flood Insurance Studies Available:

### **Mercer County:**

Pennington Borough

### **Sussex County:**

Branchville Borough

Fredon Township

Hopatcong Borough

Montague Township

Walpack Township

### **Warren County:**

Alpha Borough

Frelinghuysen Township

Hardwick Township

Independence Township

Oxford Township



## **DELAWARE RIVER FLOODING HISTORY**

Major floods have occurred in October 1903, August 1955, May 1972, October 2004, April 2005, and June 2006. The flood of August 1955 was the worst flood recorded on the Delaware River. This flood, which had an approximately 150 year recurrence interval, was the result of excessive rainfall from three separate storms which hit the area in early August. The period from August 1 to August 15 resulted in 15.2 inches of rain falling at the nearest recording station. Major damage was done to communities, roads, and bridges along the Delaware River.