



SECTION 4 COUNTY PROFILE

This profile describes the general information of the County (physical setting, population and demographics, general building stock, and land use and population trends) and critical facilities located in Warren County. In Section 5, specific profile information is presented and analyzed to develop an understanding of the study area, including the economic, structural, and population assets at risk and the particular concerns that may be present related to hazards analyzed (for example, a high percentage of vulnerable persons in an area).

2016 HMP Update Changes

- The County Profile is now located in Section 4; previously located in Section 3. It contains updated information regarding the County's physical setting, population and demographics and trends, general building stock, land use and trends, and critical facilities. Additionally, future development trends in the County are now included in Section 4.

4.1 GENERAL INFORMATION

Warren County is located in northwestern New Jersey, bordered to the northeast by Sussex County, to the east by Morris County, to the southwest by Hunterdon County, and to the west by the Delaware River and Pennsylvania. According to the 2010 Census, the total population of the County is 108,692 and has a total land area of 357 square miles. The County is 32 miles long and has an average width of 13 miles. Warren County ranks ninth in area and 19th in population among New Jersey's 19 counties. Figure 4-1 illustrates an overview of Warren County.

4.1.1 Physical Setting

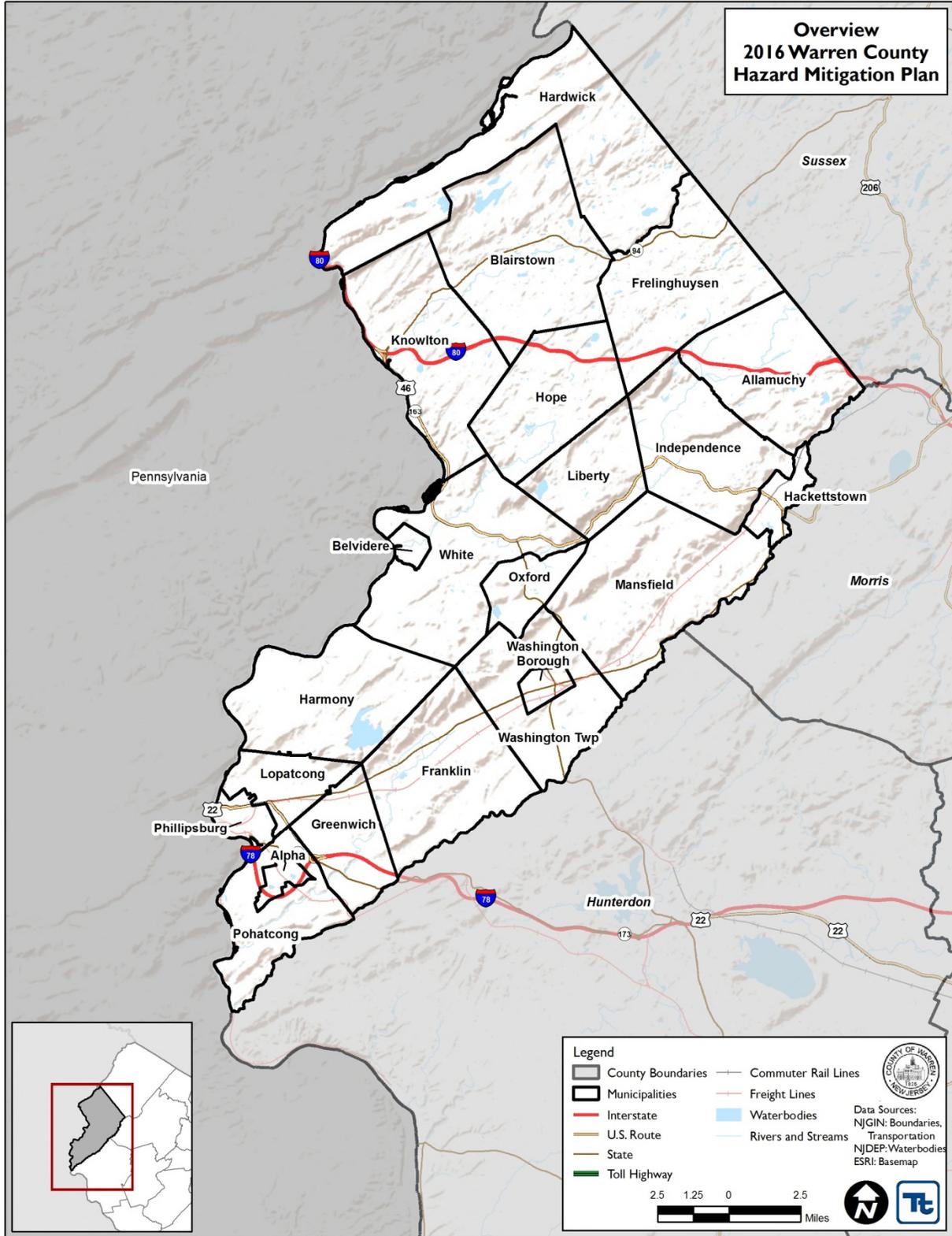
This section presents the physical setting of the County, including: hydrography and hydrology, topography and geology, and climate.

Hydrography and Hydrology

Numerous ponds, lakes, creeks, and rivers make up the waterscape of Warren County. Streams and rivers that flow in the County include the Musconetcong, Paulinskill and Pequest rivers; Dunnfield, Lopatcong and Pohatcong creeks; and Van Campens Brook; all of which flow into the Delaware River (Warren County 2014). Larger lakes and reservoirs in the County include Merrill Creek Reservoir, Mountain Lake, and White Lake (FEMA FIS 2011). Warren County is located in the Delaware River Basin, which is described below. Figure 4-2 illustrates the bodies of water found in Warren County.



Figure 4-1. Overview Map of Warren County, New Jersey

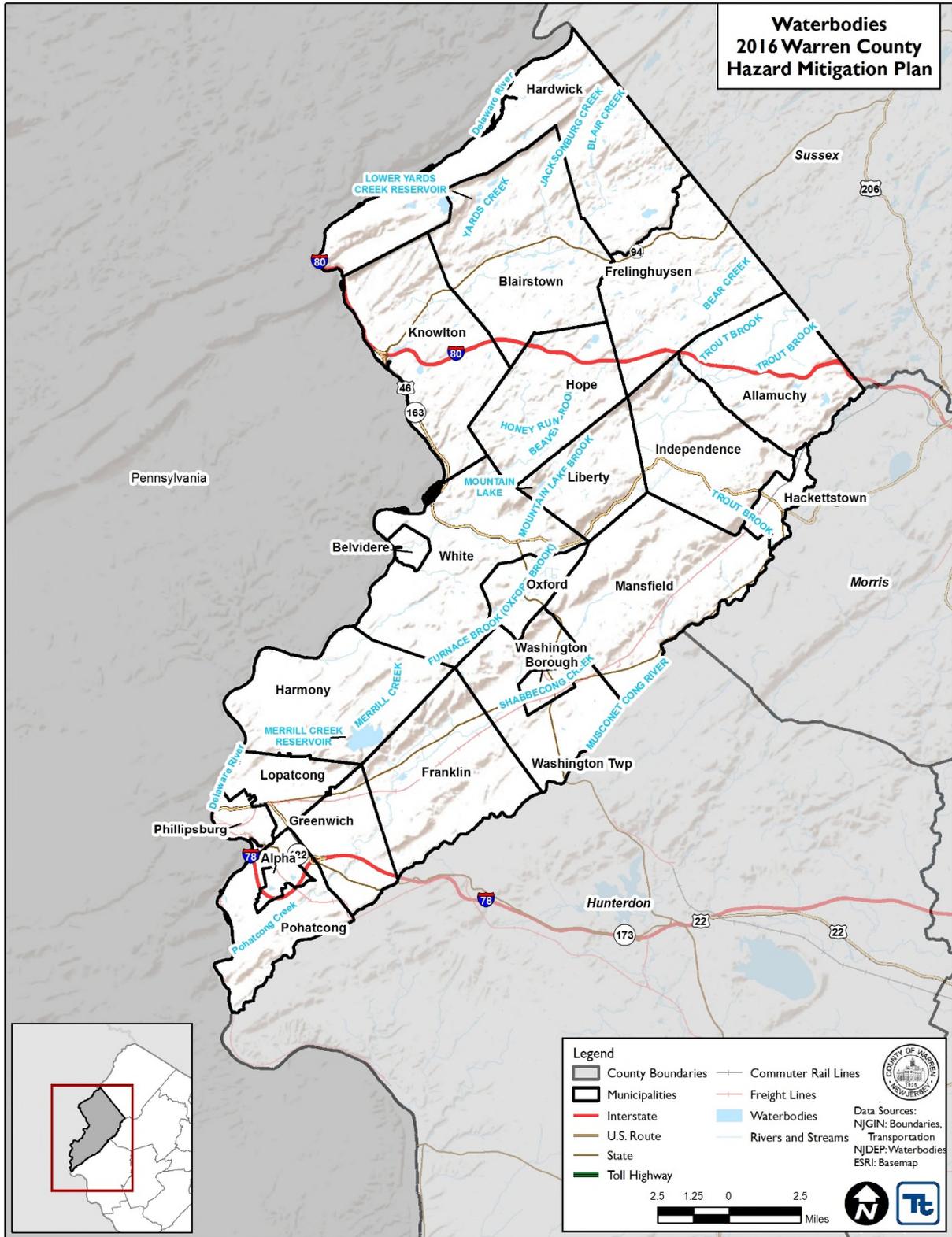


Source(s): NJGIN, Warren County





Figure 4-2. Bodies of Water in Warren County



Source(s): NJGIN, Warren County





Delaware River Basin

The Delaware River is the longest un-dammed river in the United States east of the Mississippi River. The Delaware extends 330 miles from the confluence of its East and West branches at Hancock, New York to the mouth of the Delaware Bay where it meets with the Atlantic Ocean. The Delaware River is fed by 216 tributaries, with the largest being the Schuylkill and Lehigh Rivers in Pennsylvania. Overall, the Delaware River Basin contains over 13,000 square miles and drains portions of Pennsylvania, New York State, New Jersey, and Delaware. Over 15 million people rely on the waters of the Delaware River Basin for drinking, agricultural use and industrial use. New York City gets roughly half its water from three large reservoirs located on tributaries to the Delaware River (Delaware River Basin Commission 2013).

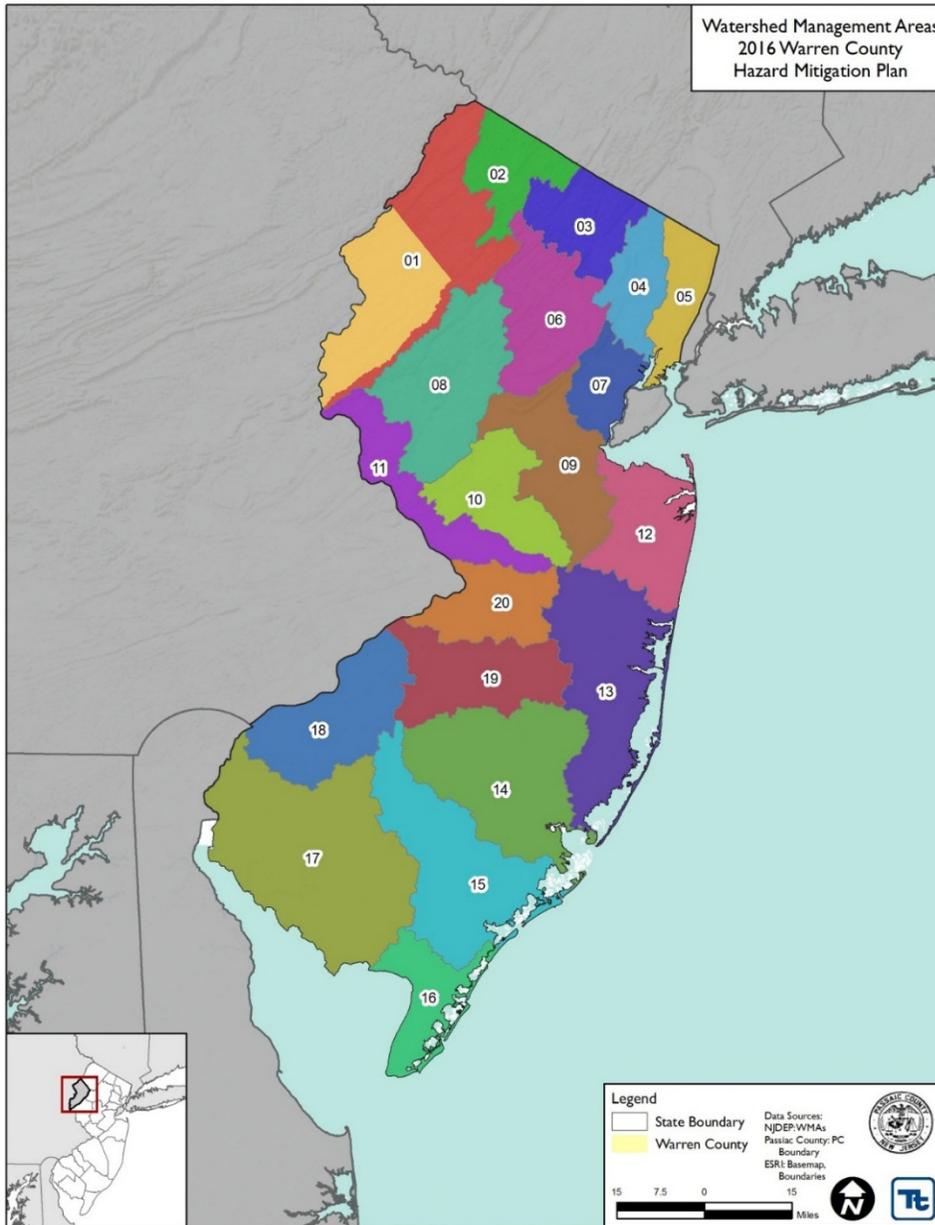
Three reaches of the Delaware River are included in the National Wild and Scenic Rivers System. One section extends 73 miles from the confluence of the River's East and West branches at Hancock, New York downstream to Millrift, Pennsylvania; the second stretches 40 miles just south of Port Jervis, New York downstream to the Delaware Water Gap near Stroudsburg, Pennsylvania. The Lower Delaware Wild and Scenic Rivers Act, signed into law on November 1, 2000, added a 38.9-mile section of the main stem Delaware (and about 28 miles of selected tributaries) to the national system, linking the Delaware Water Gap and Washington Crossing, Pennsylvania, just upstream of Trenton, New Jersey. Three-quarters of the non-tidal Delaware River is now included in the National Wild and Scenic Rivers System (Delaware River Basin Commission 2013).

Watersheds

A watershed is the area of land that drains into a body of water such as a river, lake, stream, or bay. It is separated from other systems by high points in the area such as hills or slopes. It includes not only the waterway itself but also the entire land area that drains to it. Drainage basins generally refer to large watersheds that encompass the watersheds of many smaller rivers and streams.

In New Jersey, the State is divided into 20 Watershed Management Areas (WMA), which are made up of smaller watersheds. Warren County is located in one of the 20 WMAs: Upper Delaware (WMA 1). Figure 4-3 illustrates the WMAs and watersheds of New Jersey, with Warren County highlighted.

Figure 4-3. Watersheds of New Jersey.



Source: NJDEP

Note:

- | | |
|---|---------------------------------|
| 1 Upper Delaware | 11 Central Delaware |
| 2 Walkill | 12 Monmouth |
| 3 Pompton, Pequanoek, Wanaque, Ramapo | 13 Barnegat Bay |
| 4 Lower Passaic, Saddle | 14 Mullica |
| 5 Hackensack, Hudson, Pascack | 15 Great Egg Harbor |
| 6 Upper and Mid Passaic, Whippany, Rockaway | 16 Cape May |
| 7 Arthur Kill | 17 Maurice, Salem, Cohansey |
| 8 North and South Branch Raritan | 18 Lower Delaware |
| 9 Lower Raritan, South River, Lawrence | 19 Rancocas |
| 10 Millstone | 20 Assisunk, Crosswick, Doctors |



Watershed Management Area 1: Upper Delaware

Watershed Management Area 1 includes portions of Sussex, Morris, Hunterdon, and all of Warren counties. It contains 54 Municipalities. This area, also known as the Upper Delaware River Watershed encompasses 746 square miles in the mountainous northwestern corner of the state, within the Valley and Ridge and Highlands physiographic provinces (NJDEP 2012).

Within Area 1 there are six major drainage basins: Delaware River, Flat Brook, Paulins Kill, Pequest River, Lopatcong and Pohatcong River Drainage, and the Musconetcong River. These drainage basins flow in a southeasterly direction to the Delaware River, providing an outstanding recreational resource for trout production and maintenance, as well as habitat for an abundance of wildlife including threatened and endangered species (NJDEP 2012).

Topography and Geology

Within Warren County is some of the most rugged and scenic terrain found in the State of New Jersey. The landscape of the County is characterized by a series of ridges and valleys in a northeasterly/southwesterly direction. Elevations range from 125 feet to 1,600 feet above sea level. Mountain ranges and ridges that divide the County include Kittatinny Mountain, Jenny Jump Mountain, Scott's Mountain, and Pohatcong Mountain (Warren County 2014).

Warren County is located in two valleys of the Great Appalachian Valley – the Kittatinny Valley and the Lehigh Valley. The Kittatinny Valley is located in the northern part of the County and runs north of Belvidere, to south of Great Meadows then east to the north of Hackettstown. The municipalities of Blairstown, Johnsonburg, Hope and Allamuchy are all located within the Kittatinny Valley. The Lehigh Valley is located in the southern part of the County and extends from the Delaware River south to where the Musconetcong River enters the Delaware, northeast to Jenny Jump Mountains and then along Interstate 80 to the Allamuchy Mountains to the terminal moraine near Hackettstown.

Climate

The State of New Jersey is located approximately halfway between the equator and the North Pole, resulting in a climate that is influenced by wet, dry, hot and cold airstreams, making a highly variable environment. The southern portion of New Jersey tends to be more temperate than the north. The dominant feature of the atmospheric circulation over North America, including New Jersey, is the broad, undulating flow from west to east across the middle latitudes of the continent. This pattern exerts a major influence on the weather throughout the State (Office of the New Jersey State Climatologist [ONJSC], Date Unknown).

Average annual precipitation ranges from approximately 40 inches along the southeast coast to 51 inches in the north-central portion of the State. Most areas in New Jersey average between 43 and 47 inches of precipitation annually. Snow typically falls from about October 15 to April 30 in the Highlands and from around November 15 to April 15 in the southern counties. Most locations in New Jersey receive between 25 and 30 thunderstorms each year, with fewer storms near the coast than inland. New Jersey experiences measurable precipitation about 120 days each year. The fall months are typically the driest, with an average of eight days of measureable precipitation. Other seasons average between nine and twelve days each month with measurable precipitation. New Jersey also has approximately five tornadoes each year, which generally tend to be weak (ONJSC Date Unknown).

The State of New Jersey is divided into five distinct climate zones. Distinct variations in the day-to-day weather between each of the climate zones is due to the geology distance from the Atlantic Ocean, and prevailing atmospheric flow patterns. The five climate zones in New Jersey are: Northern, Central, Pine Barrens,



Southwest, and Coastal (ONJSC Date Unknown). Warren County is located in the Northern Zone, which is described below.

The Northern Climate Zone covers approximately one-quarter of New Jersey and consists mainly of elevated highlands and valleys which are part of the Appalachian Uplands. This zone can be characterized by having a continental type of climate with minimal influence from the Atlantic Ocean, except when the winds contain an easterly component. Annual snowfall averages 40 to 50 inches. During the warmer months, thunderstorms are responsible for most of the rainfall. The climate zone has the shortest growing season, about 155 days (ONJSC Date Unknown).

Warren County has a temperate climate with warm summers and cold winters. The annual average temperature in the County is 47.2°F, with a January average of 23.6°F and 69.1°F in July. The average annual precipitation in the County is 47.91 inches, with the spring months receiving the most (March through June). Additionally, the County sees an average of 48.5 inches of snow each, with January typically seeing the greatest amount of snow.

Land Use and Land Cover

Land in Warren County is broken down into six categories: agriculture, barren land, forest, urban, water, and wetlands. In 2007, the majority or 46.6 percent of the land in Warren County was designated as forested land. The 2012 figures show that there was a slight increase in forested land, indicating that approximately 47.3 percent of the County was forested. In 2007, 17.3 percent was urban land; 9.3 percent was wetlands land; 0.7 percent was barren land; and 24.0 percent was agricultural lands. When compared with the land use land cover data set from 2012, there has been an increase in urban land (2.1%), while there has been a slight decrease in wetlands (-0.1 percent) and agriculture (-3.0%) and a substantial decrease in barren land (-15.2%). Refer to Table 4-1 and Figure 4-4 below.

Table 4-1. Land Use Summary for Warren County, 2007 & 2012

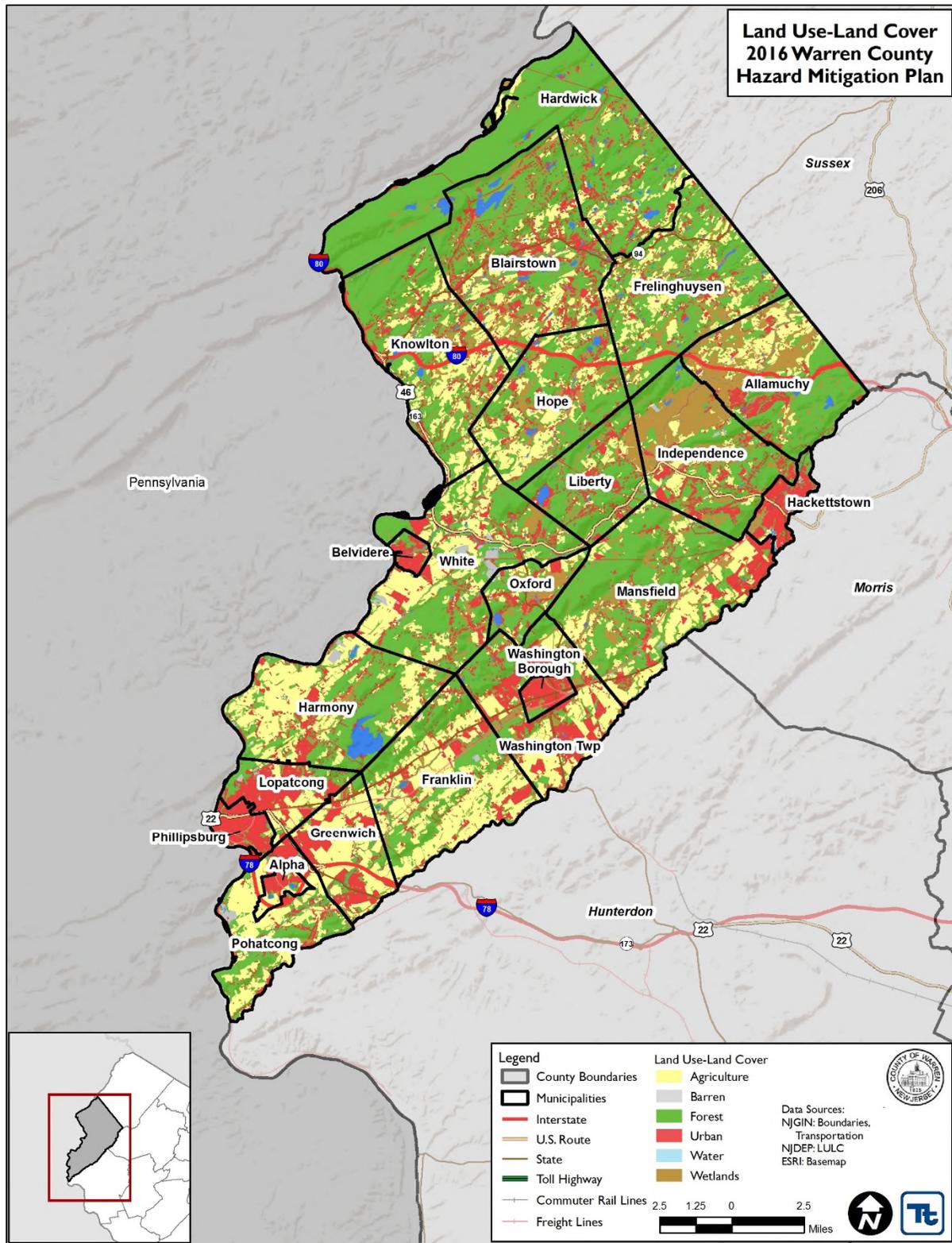
Land Use Category	2007 Data		2012 Data	
	Acreage	Percent of Warren County	Acreage	Percent of Warren County
Agriculture	55,324.6	24.0%	53,674.9	23.3%
Barren	1,525.1	0.7%	1,293.1	0.6%
Forest	108,009.5	46.9%	109,010.6	47.3 %
Urban	39,822.5	17.3%	40,665.4	17.7%
Wetlands	21,463.1	9.3%	21,441.1	9.3%

Source: NJDEP (2007, 2012 LULC)

Note: Urban land includes residential, industrial, transportation, and recreational land. Water is excluded from the table above.



Figure 4-4. 2012 Land Use Land Cover for Warren County



Source: NJDEP 2012





Agriculture

Agricultural land in Warren County consists of cropland, pasture land, orchards, vineyards, nurseries, horticultural areas, confined feeding operations, specialized livestock operations, poultry production enterprises, and other specialty farms. The cropland category includes agricultural lands for the production of both row and field crops. Row crops are harvested crops, such as corn, soybean, cabbage, and potatoes. Field crops are predominantly for use as forage, such as hay or alfalfa. Pasture land is used to graze livestock and may include tillable cropland being used as pasture at the time aerial photos were taken to identify land uses. Orchards, vineyards, nurseries, and horticultural areas are used for the production of fruit, trees, ornamental plants, and vegetable seedlings. This category also includes retail greenhouses (Warren County Environmental Commission 2015).

Warren's largest agricultural area is located in the southern part of the County along the watersheds of the Delaware and Musconetcong Rivers and the Pohatcong and Lopatcong Creeks in the Townships of Franklin, Greenwich, Harmony, Pohatcong, Washington, White, and part of Mansfield. In the northern section of the County, agricultural land is more scattered but is spread throughout the area (Warren County Environmental Commission 2015).

According to the 2012 Census of Agriculture for Warren County, there were 784 farms covering a total area of 72,250 acres. However, this number is higher than what was reported above. The Census definition of farm is any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year. According to the 2012 Census, Warren County ranks first in the State for the value of livestock, poultry and their products (\$36.5 million) and eighth for the value of crops including nursery and greenhouse (\$54.7 million). Overall, Warren County ranks fifth in the State for total value of agricultural products sold (\$91.2 million) (USDA 2012).

Barren Land

Barren land is composed of rock or rock faces or lacks vegetation for other reasons. This land use category includes exposed rock and rock slides, altered lands, landfills, and extractive mining operations. Extractive mining includes both surface and subsurface mining, such as stone or limestone quarries, and gravel, sand, or clay pits (Warren County Environmental Commission 2015).

Barren lands are spread throughout Warren County. In Harmony, Pohatcong, and White Townships, there are several sand, gravel, and stone quarries. Other barren lands include the County garbage incinerator, auto salvage yards, and any large development projects taking place at the time of the mapping, such as the construction of Merrill Creek Reservoir (Warren County Environmental Commission 2015).

Forest

Forest land consists of deciduous and coniferous (evergreen) trees and brushland or shrubland. To be classified as deciduous forest, an area must have at least 75 percent canopy coverage from deciduous trees with an average height of at least 20 feet. To be classified as coniferous, a forest must consist of at least 75 percent coniferous species (Warren County Environmental Commission 2015).

The largest forested area is in the northern part of the County in the Delaware Water Gap National Recreation Area and Worthington State Forest. Other large forest areas are found in the Pohatcong and Pequest watersheds at Jenny Jump State Forest and the Pequest Fish Hatchery. Forests are also spread throughout the Paulinskill watershed in the northern part of the County and the Musconetcong watershed in the east and southeast. Other areas with significant forest cover include Allamuchy Mountain State Park and the Musconetcong, Pohatcong, and Scotts Mountain Ranges (Warren County Environmental Commission 2015).



Urban

Urban land is comprised of all built-up lands with impervious coverage, including residential, commercial, and industrial developments, and all buildings, parking lots, and roads. The greatest concentration of urban lands are in the five major municipalities: the Boroughs of Alpha and Washington and the Towns of Belvidere, Hackettstown, and Phillipsburg. Smaller notable urban areas are Buttzville (in White Township), Mountain Lake (in Liberty Township), Panther Valley (in Allamuchy Township), Harmony, and Oxford. Urban land use also includes the many large development tracts spread throughout the County (Warren County Environmental Commission 2015).

Water

Water areas are canals, lakes, ponds, reservoirs, and rivers. The major rivers, streams, and creeks are the Musconetcong, Pohatcong, Pequest, Paulinskill, Delaware, and Lopatcong. The several lakes, ponds, and reservoirs include Catfish Pond, Deer Park Pond, Furnace Lake, Locust Lake, Mountain Lake, Silver Lake, Sunfish Pond, White Lake, Merrill Creek Reservoir, and Yards Creek Reservoir (Warren County Environmental Commission 2015). For more information regarding the hydrology of Warren County, refer to Section 4.1.1 (Physical Setting) discussed earlier in this profile.

Wetlands

In classifying land cover, wetlands are defined as all freshwater wetlands larger than one acre and all linear freshwater wetlands wider than 10 feet. Wetlands are lands that are inundated or saturated by surface or ground waters at a frequency and duration sufficient to support vegetation. Included in this category are natural vegetation swamps, marshes, bogs, and savannas. Warren County's wetlands are concentrated in the central and northern parts of the County. The largest contiguous area of wetlands are found in Oxford Township and in the Great Meadows area of Independence and Allamuchy Townships (Warren County Environmental Commission 2015).

Open Space and Parkland

Working with the Warren County Agricultural Development Board (CADB), the Warren County Board of Recreation Commissioners (BORC), and the Warren County Municipal and Charitable Conservancy Trust Fund Committee (MCCT), the Land Preservation Department is responsible for administering Warren County's Farmland, Historic, and Open Space Preservation Programs. Over the past 20 years, County residents have shown their commitment to preservation by voting in support of the dedicated Open Space Trust Fund (Warren County Department of Land Preservation 2015).

The Open Space Trust Fund, which currently collects 4.5 cents per \$100 of assessed property value, has enabled Warren County to preserve over 20,000 acres of farmland, 1,700 acres of county parkland, and participate in numerous historical and open space preservation efforts with local non-profits and municipalities throughout the County (Warren County Department of Land Preservation 2015). To balance the needs of farmland, open space and historic preservation, the Board of Chosen Freeholders allocates the trust funds as follows:

- 55% to the County Agriculture Development Board (CADB) for farmland preservation;
- 25% to the Municipal and Charitable Conservancy Trust Fund Committee (MCCT) for non-profit and municipal sponsored open space and historic preservation projects; and
- 20% to the Board of Recreation Commissioners (BORC) for acquisition of county parkland (Warren County Department of Land Preservation 2015)



Within Warren County, public open space is owned by various federal, state, county and municipal organizations. The following table identifies the open space in Warren County, the size (in acres) and ownership.

Table 4-2. Open Space in Warren County

Public Open Space	Acreage	Ownership
Delaware Water Gap National Recreation Area	9,984	Federal
Finesville State Park	3	State
Stephens State Park	133	State
Jenny Jump Forest	967	State
Worthington State Forest	5,824	State
Burch Sugar Maple	25	State
Johnsonburg Natural Area	11	State
Osman Forest	10	State
Oxford Furnace Historic Site	1	State
Allamuchy Mountain State Park	3,390	State
Delaware River Access Areas	190	State
Hackettstown Fish Hatchery	340	State
Hackettstown State Game Farm (Rockport)	440	State
Pequest Fish & Wildlife Area	1,574	State
Dept. of Transportation Scenic Easement Area	53	State
Mud Pond	143	State
Paulinskill State Park	92	State
White Lake	269	State
Garrett D. Wall Park	4	County
Morris Canal	38	County
Oxford Mountain	170	County
White Lake	385	County
Hamlin	60	County
Allamuchy	44	Municipal
Alpha	58	Municipal
Belvidere	39	Municipal
Blairstown	15	Municipal
Franklin	10	Municipal
Frelinghuysen	3	Municipal
Hackettstown	33	Municipal
Harmony	14	Municipal
Hope	17	Municipal
Independence	79	Municipal
Lopatcong	25	Municipal
Oxford	137	Municipal
Phillipsburg	43	Municipal
Pohatcong	182	Municipal
Washington Borough	39	Municipal



Public Open Space	Acreage	Ownership
Washington Township	29	Municipal
White	65	Municipal

Source: Warren County Environmental Commission 2015 (<http://www.co.warren.nj.us/Environment/openspace.html>)

The Highlands Region

On August 10, 2004, the Highlands Water Protection and Planning Act (HWPPA) was signed into law. This legislation institutes protective environmental standards on a 1,250-square-mile area in northern New Jersey, covering portions of seven counties and 88 municipalities, known as the Highlands region. The region stretches from Phillipsburg in the southwest to Ringwood in the northeast and lies within portions of seven counties (Hunterdon, Somerset, Sussex, Warren, Morris, Passaic, and Bergen).

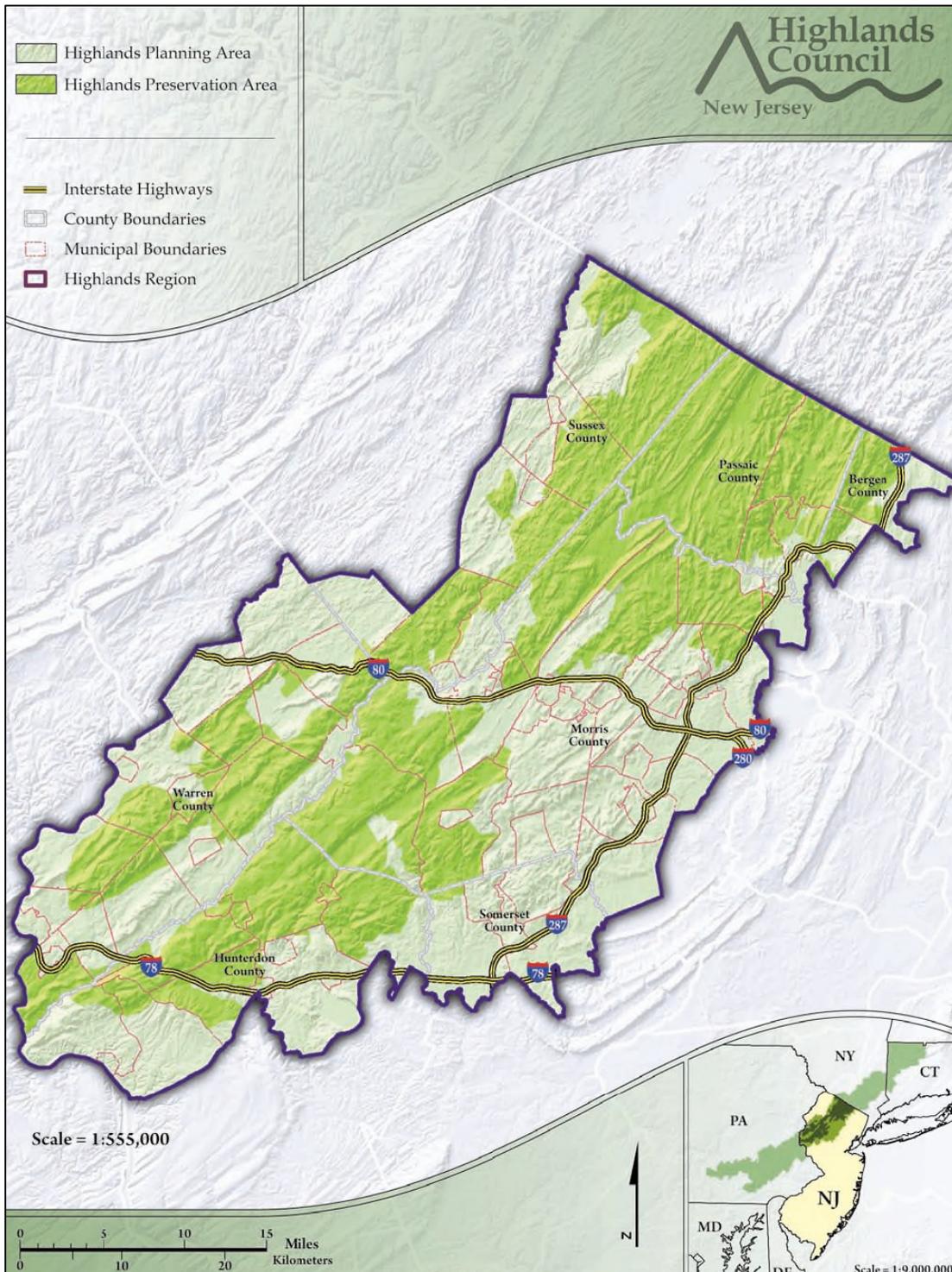
In Warren County, approximately 171,093 acres of land is located within the Highlands Region. Of the total area within the region, 104,066 acres are in the Planning Area and 67,027 acres are in the Preservation Area. The land areas within the Preservation Area are subject to stringent environmental restrictions. Mansfield Township has the most land located in the Highlands Region, followed by White Township. Table 4-X summarizes the acreage of the Highlands Region in Warren County. Figure 4-5 shows the Highlands Region in New Jersey and Warren County.

Table 4-X. Acreage of the Highlands Region in Warren County Municipalities

Municipality	Planning Area	Preservation Area	Total
Allamuchy Township	7,683	5,228	12,911
Alpha Borough	1,098	0	1,098
Belvidere Town	950	0	950
Franklin Township	11,284	3,792	15,076
Frelinghuysen Township	15,278	0	15,278
Greenwich Township	5,986	792	6,778
Hackettstown Town	2,168	203	2,371
Harmony Township	7,018	8,387	15,405
Hope Township	11,702	0	11,702
Independence Township	6,510	6,250	12,760
Liberty Township	543	7,095	7,638
Lopatcong Township	3,673	1,051	4,724
Mansfield Township	5,966	13,047	19,013
Oxford Township	1,671	2,184	3,855
Phillipsburg Town	2,110	0	2,110
Pohatcong Township	1,210	7,582	8,792
Washington Borough	1,262	0	1,262
Washington Township	7,970	3,604	11,574
White Township	9,984	7,812	17,796
Total Acres For Warren County	104,066	67,027	171,093

Source: Highlands Regional Master Plan (excerpt of Table 1.1).

Figure 4-5. Highlands Region of New Jersey



Source: New Jersey Highlands Commission 2008
 (http://www.highlands.state.nj.us/njhighlands/master/rmp/final/highlands_rmp_112008.pdf)



4.2 POPULATION AND DEMOGRAPHICS

DMA 2000 requires that HMPs consider the risk and vulnerability of socially vulnerable populations to natural hazards. These populations can be more susceptible to hazard events, based on a number of factors including their physical and financial ability to react or respond during a hazard and the location and construction quality of their housing. For the purposes of this planning process, vulnerable populations in Warren County include children, elderly, low-income, the physically or mentally disabled, non-English speakers and the medically or chemically dependent.

4.2.1 Population Characteristics

According to the 2010 U.S. Census, Warren County had a population of 108,692 people which represents a slight increase from the 2000 U.S. Census population of 102,437 people. Table 4-3 presents the population statistics for Warren County based on the 2000 and 2010 U.S. Census data. Figure 4-6 shows the distribution of the general population density (persons per square mile) in 2010 by Census block. Population density has a strong correlation with hazard vulnerability and loss. Urban areas tend to have larger populations and numbers of structures; therefore, these areas tend to experience greater loss during hazard events.

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Table 4-3. Warren County Population Statistics

Municipality	U.S. Census 2010							U.S. Census 2000*						
	Total	Pop. 65+	% Pop. 65+	Pop. Under 16	% Pop. Under 16	Low-Income Pop. ^{1*}	% Low-Income Pop.	Total	Pop. 65+	% Pop. 65+	Pop. Under 16 ¹	% Pop Under 16	Low-Income Pop. ^{1*}	% Low-Income Pop. of Total
Allamuchy, Township of	4,323	758	17.5%	798	18.5%	129	3.0%	3,877	623	16.1%	649	16.7%	38	1%
Alpha, Borough of	2,369	370	15.6%	538	22.7%	78	3.3%	2,482	420	16.9%	527	21.2%	157	6.3%
Belvidere, Town of	2,681	332	12.4%	679	25.3%	67	2.5%	2,771	353	12.7%	705	25.4%	157	5.7%
Blairstown, Township of	5,967	925	15.5%	1,426	23.9%	188	3.2%	5,747	708	12.3%	1,308	22.8%	217	3.8%
Franklin, Township of	3,176	386	12.2%	791	24.9%	94	3.0%	2,768	276	10.0%	721	26.0%	76	2.8%
Frelinghuysen, Township of	2,230	396	17.8%	482	21.6%	32	1.4%	2,083	227	10.9%	487	23.4%	48	2.3%
Greenwich, Township of	5,712	366	6.4%	1,887	33.0%	90	1.6%	4,365	247	5.7%	1,373	31.5%	82	1.9%
Hackettstown, Town of	9,724	1,372	14.1%	1,977	20.3%	374	3.8%	10,403	1,259	12.1%	2,146	20.6%	510	4.9%
Hardwick, Township of	1,696	213	12.6%	421	24.8%	27	1.6%	1,464	132	9.0%	338	23.1%	45	3.1%
Harmony, Township of	2,667	428	16.1%	559	21.0%	57	2.1%	2,729	373	13.7%	580	21.3%	106	3.9%
Hope, Township of	1,952	287	14.7%	441	22.6%	70	3.6%	1,891	206	10.9%	441	23.3%	51	2.7%
Independence, Township of	5,662	615	10.9%	1,324	23.4%	116	2.0%	5,603	443	7.9%	1,340	23.9%	202	3.6%
Knowlton, Township of	3,055	387	12.7%	713	23.3%	74	2.4%	2,977	312	10.5%	728	24.5%	70	2.4%
Liberty, Township of	2,942	283	9.6%	714	24.3%	60	2.0%	2,765	236	8.5%	708	25.6%	104	3.8%
Lopatcong, Township of	8,014	1,449	18.1%	1,851	23.1%	227	2.8%	5,765	1,330	23.1%	1,269	22.0%	410	7.1%
Mansfield, Township of	7,725	985	12.8%	1,766	22.9%	225	2.9%	6,653	774	11.6%	1,644	24.7%	227	3.4%
Oxford, Township of	2,514	311	12.4%	604	24.0%	89	3.5%	2,307	268	11.6%	576	25.0%	135	5.9%
Phillipsburg, Town of	14,950	1,975	13.2%	3,854	25.8%	1,347	9.0%	15,166	2,323	15.3%	3,571	23.5%	1,824	12.0%
Pohatcong, Township of	3,339	499	14.9%	755	22.6%	147	4.4%	3,416	537	15.7%	720	21.1%	133	3.9%
Washington, Borough of	6,461	682	10.6%	1,547	23.9%	473	7.3%	6,712	695	10.4%	1,562	23.3%	489	7.3%
Washington, Township of	6,651	863	13.0%	1,652	24.8%	229	3.4%	6,248	593	9.5%	1,586	25.4%	100	1.6%
White, Township of	4,882	1,410	28.9%	829	17.0%	237	4.9%	4,245	763	18.0%	845	19.9%	321	7.6%
Warren County (Total)	108,692	15,292	14.1%	25,608	23.6%	4,430	4.1%	102,437	13,098	12.8%	22,824	22.3%	5,502	5.4%

Source: Census 2010 (U.S. Census Bureau); HAZUS-MH (2000 Data - HAZUS-MH 2.1; 2010 Data - HAZUS-MH 2.2) ¹

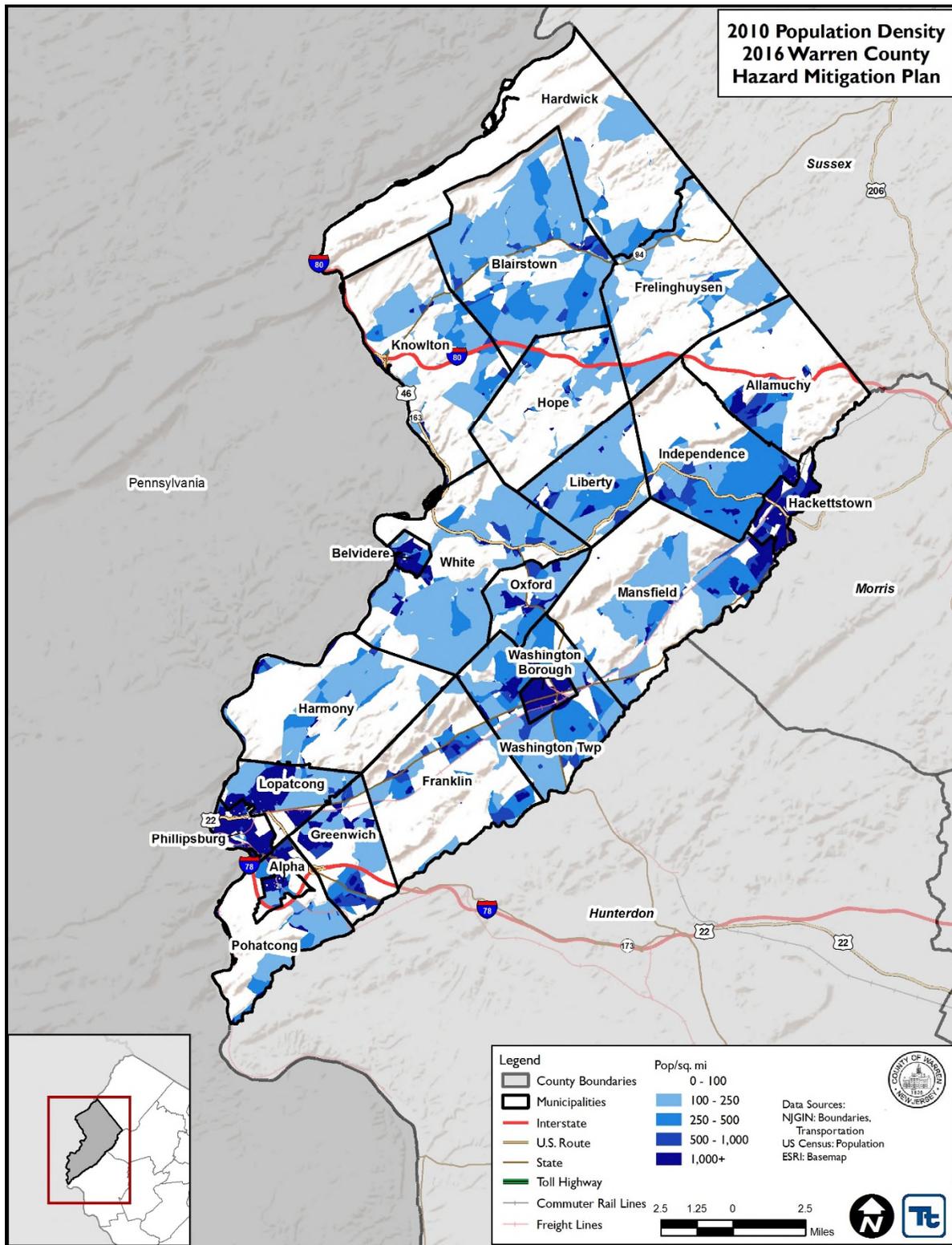
Note: Pop. = population

* Individuals below poverty level (Census poverty threshold for a 3-person family unit is approximately \$18,522)





Figure 4-6. Distribution of General Population for Warren County, New Jersey



Source: U.S. Census 2010

Note: The figure indicates distribution based on Census Block designations.





4.2.2 Vulnerable Populations

Identifying concentrations of vulnerable populations can assist communities in targeting preparedness, response and mitigation actions. For the purposes of this planning process, vulnerable populations in Warren County include children, elderly, low-income, the physically or mentally disabled, non-English speakers and the medically or chemically dependent.

Age

Children are considered vulnerable because they are dependent on others to safely access resources during emergencies. The elderly are more apt to lack the physical and economic resources necessary for response to hazard events and are more likely to suffer health-related consequences making recovery slower. Those living on their own may have more difficulty evacuating their homes. The elderly are also more likely to live in senior care and living facilities (described in Section 4.4.1) where emergency preparedness occurs at the discretion of facility operators.

According to the 2010 Census, the median age in Warren County was 42 years. Of the 2010 population, 15,292 (14 %) of the County's population is age 65 and older. According to the 2000 Census, 12.8% of the County's total population (or 13,098 persons) were age 65 and older. Figure 4-7 shows the distribution of persons over age 65 in Warren County. According to the 2000 Census, 22,824 (22.3%) people were age 16 or younger. Figure 4-8 shows the distribution of persons under the age 16 in Warren County.

Income

Of the total population, economically disadvantaged populations are more vulnerable because they are likely to evaluate their risk and make decisions based on the major economic impact to their family and may not have funds to evacuate. Based on the 2009-2013 American Community Survey five-year estimates, per capita income in Warren County was estimated at \$33,555 and the median household income for Sussex County is \$70,912 (in 2013 inflation-adjusted dollars). It is estimated that over 18.1% of households receive an income between \$50,000 and \$74,999 per year and 6.3% of households receive over \$200,000 annually.

The 2009-2013 Survey estimates approximately 14.9% (6,170 households) of the households in Warren County make less than \$25,000 per year and are therefore below the poverty level. According to the Census' 2013 poverty thresholds, the weighted average thresholds for a family of four in 2013 was \$23,834; for a family of three, \$18,552; for a family of two, \$15,142, and for unrelated individuals, \$11,888. Figure 4-8 shows the distribution of low income persons.

It is noted that the Census data for household income provided in HAZUS-MH includes two ranges (less than \$10,000 and \$10,000-\$20,000/year) that were totaled to provide the "low-income" data used in this study. This does not correspond exactly with the "poverty" thresholds established by the 2013 U.S. Census Bureau, which identifies households with two adults and two children with an annual household income below \$23,624 per year as "low income" for this region. This difference is not believed to be significant for the purposes of this planning effort.

Physically or Mentally Disabled

Based on the 2009-2013 American Community Survey, the total non-institutionalized population of Sussex County is 107,173, which is approximately 98.6% of the total population. Approximately 11,065 of those residents are living with a disability. About 7% of these residents are under the age of 18 and about 43.1% are 65 years or older.



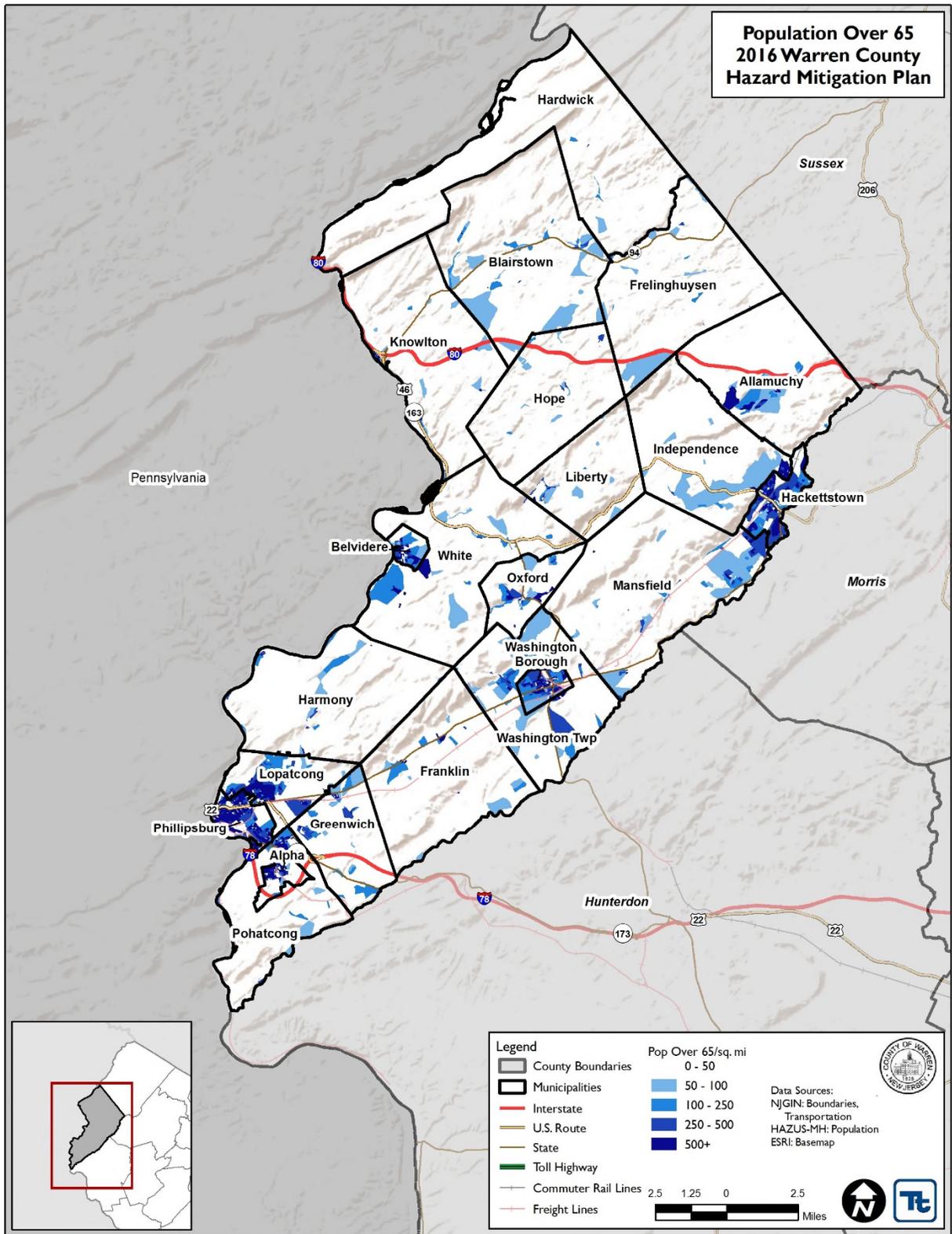
Non-English Speakers

According to the 2009-2013 American Community Survey, 11.6% of the County's population over the age of 5 primarily speaks a language other than English at home; this is significantly less than the State average of 30.0%. Of the County's population, 5.2% speak Spanish, 4.3% speak other Indo-European languages, 1.4% speak Asian and Pacific Islander languages, and 0.7% speak other languages.

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Figure 4-7. Distribution of Persons over the Age of 65 in Warren County, New Jersey



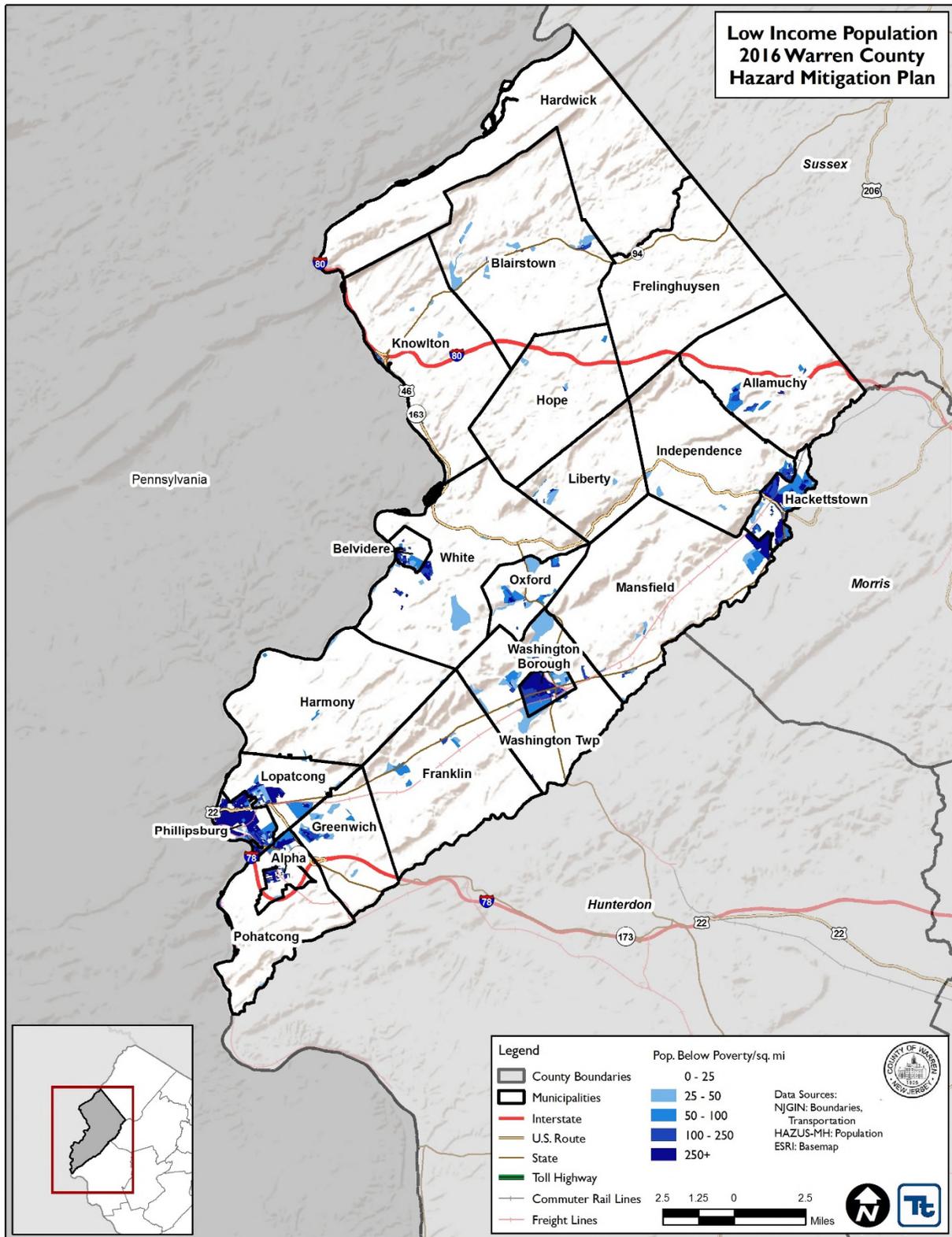
Source: U.S. Census 2010

Note: The figure indicates distribution based on Census Block designations.





Figure 4-8. Distribution of Low-Income Population in Warren County, New Jersey



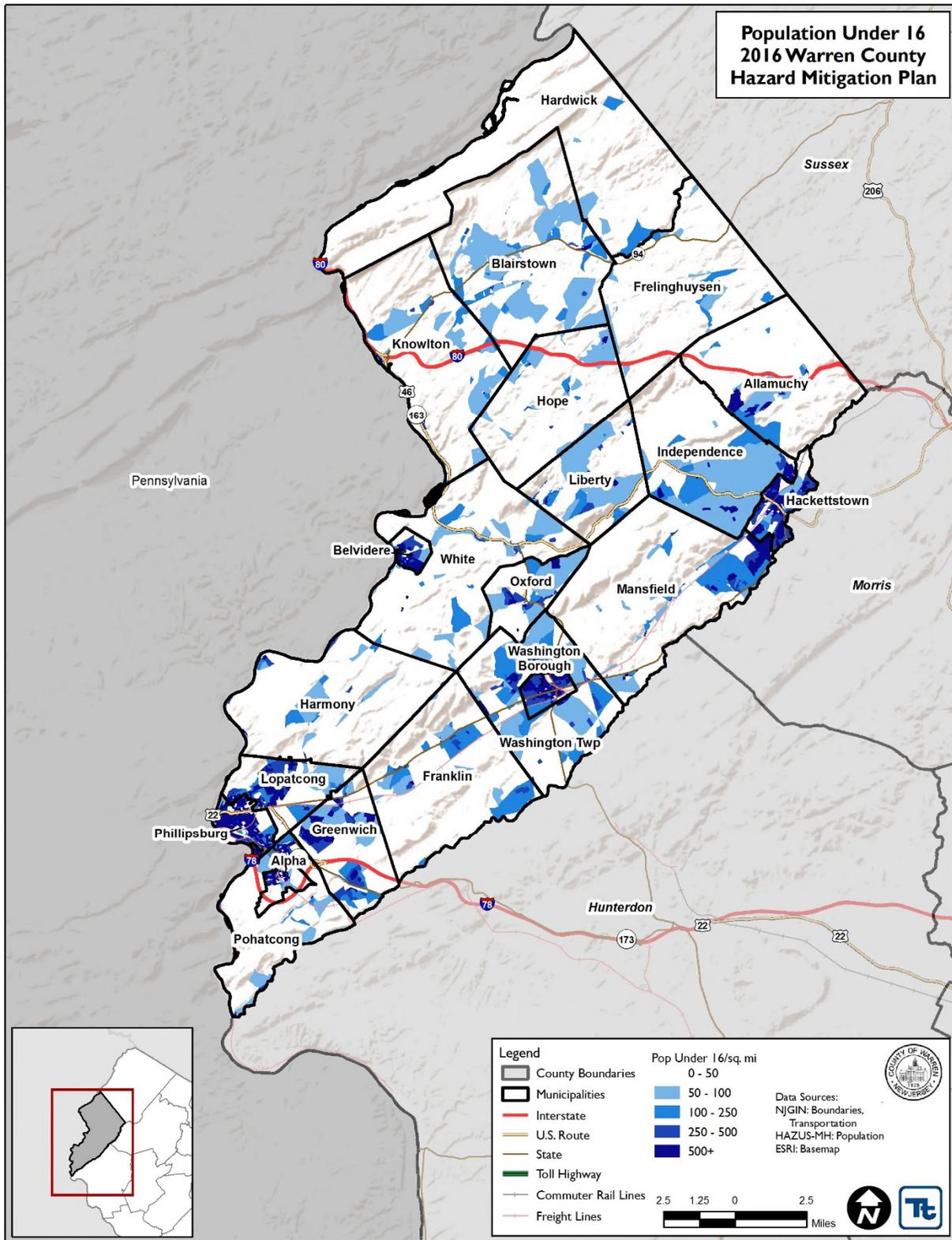
Source: U.S. Census 2010

Note: The figure indicates distribution based on Census Block designations.





Figure 4-9. Distribution of Children under Age of 16 in Warren County, New Jersey



Source: U.S. Census 2010

Note: The figure indicates distribution based on Census Block designations.





4.2.3 Population Trends

This section discusses population trends to use as a basis for estimating future changes of the population and significantly change the character of the area. Population trends can provide a basis for making decisions on the type of mitigation approaches to consider and the locations in which these approaches should be applied. This information can also be used to support planning decisions regarding future development in vulnerable areas.

According to the U.S. Census Bureau Warren County's 2010 population was 108,692 persons, which is 6.1% increase from the 2000 Census population of 102,437. Between 1900 and 2010, the County has experienced an overall growth. From 1970 to 2009, the County's population grew more than twice as fast as New Jersey's over the same period. During this time period, nine of the County's municipalities more than doubled their size (New Jersey Department of Labor and Workforce Development 2011). The smallest increase was seen between 1920 and 1930 when the County had just a 4.3% increase. The largest increase was experienced between 1960 and 1970 when the County saw an increase of 17%. The only decrease in population was seen recently, between 2010 and 2014; however, the 2014 population number is an estimate. Table 4-4 displays the population and change in population for Warren County.

Table 4-4. Warren County Population Trends, 1900 to 2014

Year	Population	Change in Population	Percent (%) Population Change
1900	37,781	N/A	N/A
1910	43,187	5,406	14.3
1920	45,057	1,870	4.3
1930	49,319	4,262	9.5
1940	50,181	862	1.7
1950	54,374	4,193	8.4
1960	63,220	8,846	16.3
1970	73,960	10,740	17.0
1980	84,429	10,469	14.2
1990	91,607	7,178	8.5
2000	102,437	10,830	11.8
2010	108,692	6,255	6.1
2014 (estimate)	106,917	-1,775	-1.6

Source: U.S. Census Bureau 2015

Note: Change in population and percent in population change was calculated from available data

Table 4-5 shows the 10 largest municipalities in Warren County. According to the 2010 Census, the Town of Phillipsburg was the most populous municipality, comprising 13.8% of the County's total population. Between 2000 and 2010, the Township of Lopatcong experienced the largest growth in population (39%). During this time period, eight County municipalities saw a decline in population: Town of Hackettstown (-6.5%), Borough of Alpha (-4.6%), Borough of Washington (-3.7%), Town of Belvidere (-3.2%), Township of Harmony (-2.3%), and the Town of Phillipsburg (-1.4%) (U.S. Census 2010). Table 4-6 shows the population trends in the County for each municipality.



Table 4-5. Ten Largest Municipalities in Warren County

Rank	Municipality	2010 Population
1	Phillipsburg, Town of	14,950
2	Hackettstown, Town of	9,724
3	Lopatcong, Township of	8,014
4	Mansfield, Township of	7,725
5	Washington, Township of	6,651
6	Washington, Borough of	6,461
7	Blairstown, Township of	5,967
8	Greenwich, Township of	5,712
9	Independence, Township of	5,662
10	White, Township of	4,882

Source: U.S. Census 2010

Table 4-6. Population Trends in Warren County by Municipality

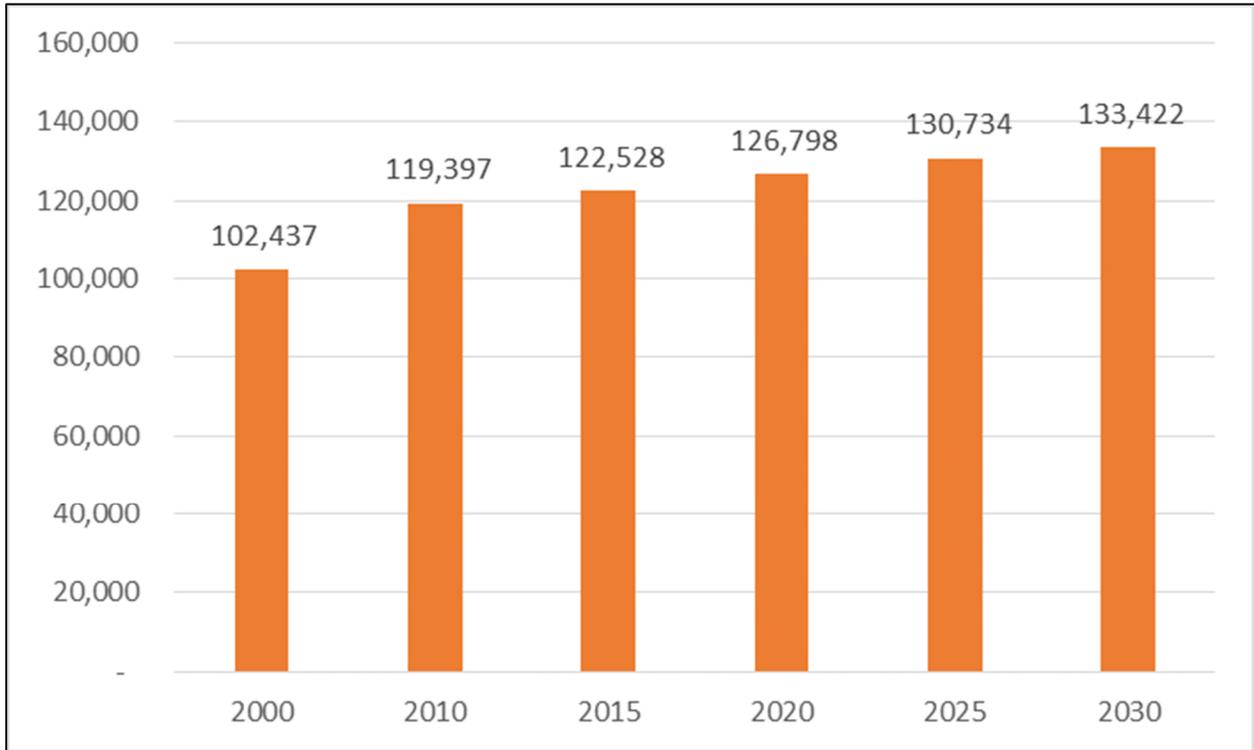
Municipality	2000 Census	2010 Census	Change in Population	Percent (%) Population Change
Allamuchy, Township of	3,877	4,323	446	11.5%
Alpha, Borough of	2,482	2,369	-113	-4.6%
Belvidere, Town of	2,771	2,681	-90	-3.2%
Blairstown, Township of	5,747	5,967	220	3.8%
Franklin, Township of	2,768	3,176	408	14.7%
Frelinghuysen, Township of	2,083	2,230	147	7.1%
Greenwich, Township of	4,365	5,712	1,347	30.9%
Hackettstown, Town of	10,403	9,724	-679	-6.5%
Hardwick, Township of	1,464	1,696	232	15.8%
Harmony, Township of	2,729	2,667	-62	-2.3%
Hope, Township of	1,891	1,952	61	3.2%
Independence, Township of	5,603	5,662	59	1.1%
Knowlton, Township of	2,977	3,055	78	2.6%
Liberty, Township of	2,765	2,942	177	6.4%
Lopatcong, Township of	5,765	8,014	2,249	39.0%
Mansfield, Township of	6,653	7,725	1,072	16.1%
Oxford, Township of	2,307	2,514	207	9.0%
Phillipsburg, Town of	15,166	14,950	-216	-1.4%
Pohatcong, Township of	3,416	3,339	-77	-2.3%
Washington, Borough of	6,712	6,461	-251	-3.7%
Washington, Township of	6,248	6,651	403	6.5%
White, Township of	4,245	4,882	637	15.0%
Warren County (Total)	102,437	108,692	6,255	6.1%



Source: U.S. Census 2010

Over the next fifteen years, from 2015 to 2030, Warren County has a projected population growth of 8.9% percent. Based on New Jersey Department of Labor population projections, the County population is expected to reach 126,798 by 2020 and 133,422 by 2030 (Figure 4-10).

Figure 4-10. Warren County Population Projections, 2000 to 2030



Source: New Jersey Department of Labor and Workforce Development 2005



4.3 GENERAL BUILDING STOCK

The 2000 U.S. Census data identified 38,660 households (41,157 housing units) in Warren County. The 2010 U.S. Census data identified 41,480 households (44,925 housing units) in Warren County. The County experienced an increase in both households and housing units from 2000 to 2010. As for households and housing units, between 2000 and 2010, the County experienced a 7.3% increase and a 8.4% increase, respectively. The U.S. Census defines household as all the persons who occupy a housing unit, and a housing unit as a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Therefore, you may have more than one household per housing unit. The median price of an owner-occupied housing unit in Warren County was estimated at \$307,300 (U.S. Census, 2013).

For this HMP update, the default general building stock in HAZUS-MH was updated and replaced with a custom building inventory for Warren County both at the aggregate and structure level. The building stock update was performed using the most current parcel and tax assessment data provided by the New Jersey Department of the Treasury and Warren County. The improved value was utilized on a parcel by parcel basis. For the purposes of this plan, there are approximately 37,647 parcels with improved values identified by the tax data available. These improved parcels account for a value of approximately \$11.9 billion. Estimated content value was calculated by using 50-percent of the residential improvement value, and 100-percent of the non-residential improvement values. Using this methodology, there is approximately \$4.6 billion in contents within these improved properties. Approximately 91.8-percent of the total buildings in the County are residential, which make up approximately 67-percent of the building stock structural value associated with residential housing. Table 4-7 presents building stock statistics by occupancy class for Warren County.



Table 4-7. Number of Buildings and Improvement Value by Occupancy Class

Municipality	All Occupancies				Residential		Commercial		Industrial	
	Count	Improved Value	Estimated Contents	Total (Improved + Contents)	Count	Total Improved Value	Count	Total Improved Value	Count	Total Improved Value
Allamuchy, Township of	2,206	\$371,928,938	\$202,124,638	\$574,053,576	2,133	\$509,412,900	27	\$19,739,722	3	\$133,046
Alpha, Borough of	899	\$142,442,200	\$93,630,250	\$236,072,450	815	\$146,435,850	56	\$43,992,000	18	\$32,778,600
Belvidere, Town of	962	\$122,533,598	\$86,521,349	\$209,054,947	844	\$108,036,749	79	\$23,398,998	5	\$13,074,400
Blairstown, Township of	2,091	\$494,319,677	\$313,227,677	\$807,547,354	1,869	\$543,276,000	111	\$86,629,800	8	\$9,830,000
Franklin, Township of	1,064	\$254,753,630	\$161,100,430	\$415,854,060	958	\$280,959,600	42	\$18,876,600	13	\$57,065,800
Frelinghuysen, Township of	693	\$161,598,428	\$90,724,728	\$252,323,156	601	\$212,621,100	24	\$12,420,556	0	\$0
Greenwich, Township of	1,849	\$471,244,826	\$279,526,031	\$750,770,857	1,764	\$575,156,385	51	\$138,314,172	5	\$22,414,400
Hackettstown, Town of	2,731	\$741,234,785	\$506,623,180	\$1,247,857,965	2,411	\$703,834,815	233	\$233,784,200	37	\$154,896,550
Hardwick, Township of	488	\$96,410,820	\$56,597,095	\$153,007,915	446	\$119,441,175	12	\$9,641,800	1	\$1,099,800
Harmony, Township of	1,010	\$370,405,710	\$305,972,610	\$676,378,320	910	\$193,299,300	26	\$11,392,000	9	\$437,021,000
Hope, Township of	732	\$129,143,932	\$76,558,782	\$205,702,714	646	\$157,755,450	36	\$21,361,200	1	\$312,200
Independence, Township of	2,002	\$360,549,900	\$199,825,550	\$560,375,450	1,904	\$482,173,050	52	\$30,823,000	6	\$5,129,800
Knowlton, Township of	1,059	\$166,041,730	\$96,771,930	\$262,813,660	925	\$207,809,400	55	\$24,548,400	2	\$851,400
Liberty, Township of	1,091	\$168,735,159	\$91,954,609	\$260,689,768	1,024	\$230,341,650	20	\$7,788,600	1	\$25,000
Lopatcong, Township of	3,174	\$570,126,290	\$338,884,578	\$909,010,868	2,995	\$693,725,136	137	\$150,848,030	13	\$21,727,800
Mansfield, Township of	1,921	\$416,212,280	\$256,515,780	\$672,728,060	1,791	\$479,089,500	48	\$121,177,000	15	\$28,510,200
Oxford, Township of	936	\$148,263,870	\$89,344,780	\$237,608,650	871	\$176,757,270	23	\$8,029,282	3	\$1,535,800
Phillipsburg, Town of	5,019	\$724,427,519	\$522,933,869	\$1,247,361,388	4,555	\$604,480,950	346	\$185,042,400	33	\$135,123,000
Pohatcong, Township of	1,340	\$216,290,405	\$150,857,082	\$367,147,487	1,241	\$196,299,969	56	\$131,084,600	3	\$336,200
Washington, Borough of	2,247	\$288,556,584	\$177,507,854	\$466,064,438	2,023	\$333,146,190	173	\$68,634,600	15	\$24,076,600
Washington, Township of	2,448	\$496,189,088	\$296,647,138	\$792,836,226	2,286	\$598,625,852	96	\$95,200,400	7	\$4,386,400
White, Township of	1,685	\$335,737,423	\$209,623,773	\$545,361,196	1,556	\$378,340,950	68	\$46,492,800	6	\$1,962,186
Warren County (Total)	37,647	\$7,247,146,792	\$4,603,473,712	\$11,850,620,504	34,568	\$7,931,019,240	1,771	\$1,489,220,160	204	\$952,290,182

Source: Warren County, NJ Department of the Treasury, 2015;

Note: Total Improved Value equals the structural improved value and estimated content value.





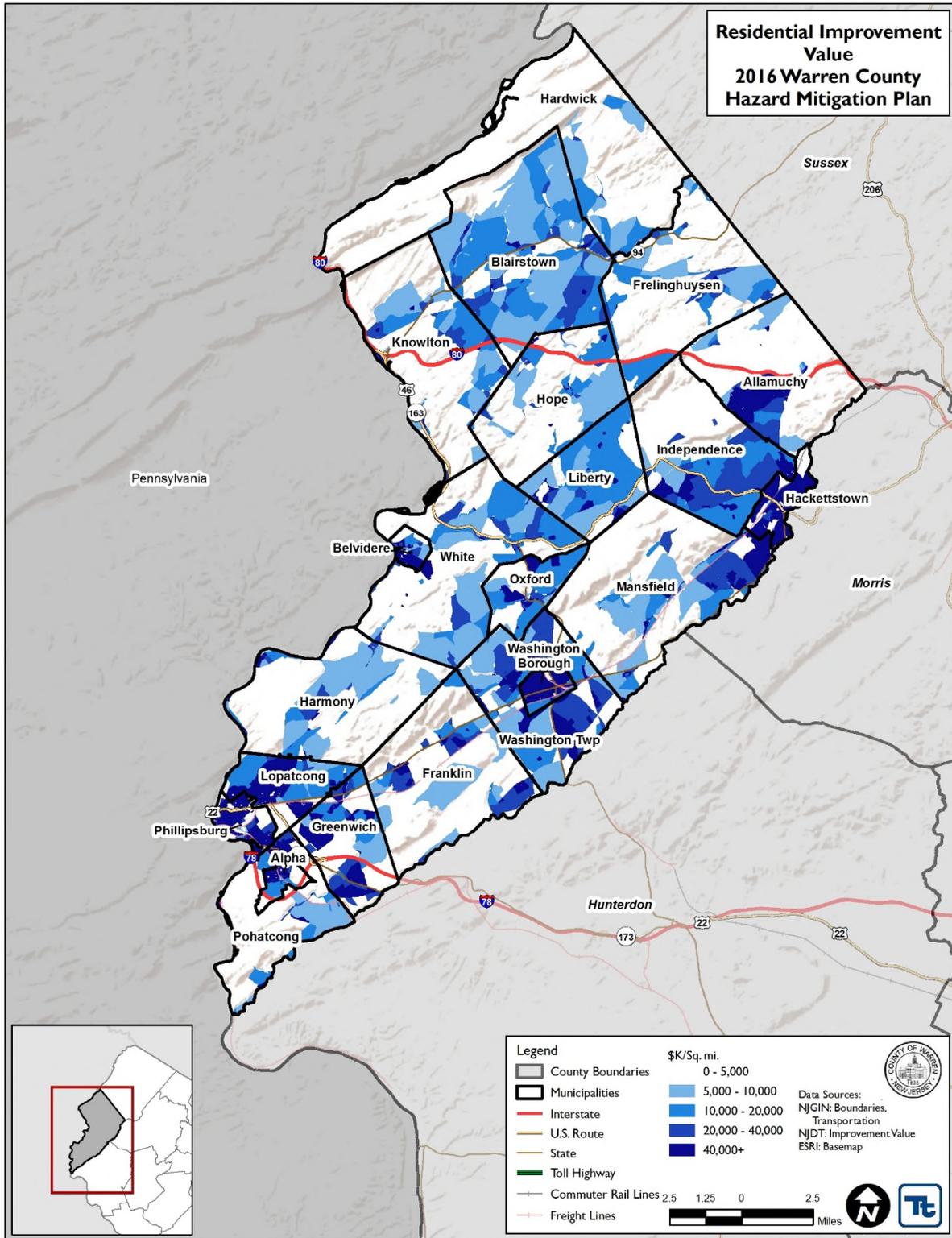
The 2009-2013 American Community Survey for Warren County identified that the majority of housing units (66.8%) in Warren County are one-unit detached units. The 2013 U.S. Census Bureau's County Business Patterns data identified 2,487 business establishments employing 30,169 people in Warren County. The retail trade industry has the greatest number of establishments in the County (388 establishments). This is followed by the health care and social assistance industry with 299 establishments, and the other services (except public administration) industry with 298 establishments (U.S. Census, 2013) (<http://censtats.census.gov/cgi-bin/cbpnaic/cbpsect.pl>).

Figures 4-13 through 4-16 show the distribution and exposure density of residential, commercial and industrial buildings in Warren County. Exposure density is the dollar value of structures per unit area, including building content value. Generally, contents for residential structures are valued at about 50 percent of the building's value. For commercial facilities, the value of the content is generally about equal to the building's structural value. Actual content value varies widely depending on the usage of the structure. The densities are shown in units of \$1,000 (\$K) per square mile.

Viewing exposure distribution maps, such as Figure 4-11 through Figure 4-13, can assist communities in visualizing areas of high exposure and in evaluating aspects of the study area in relation to the specific hazard risks.



Figure 4-11. Distribution of Residential Building Stock and Improvement Value Density in Warren County

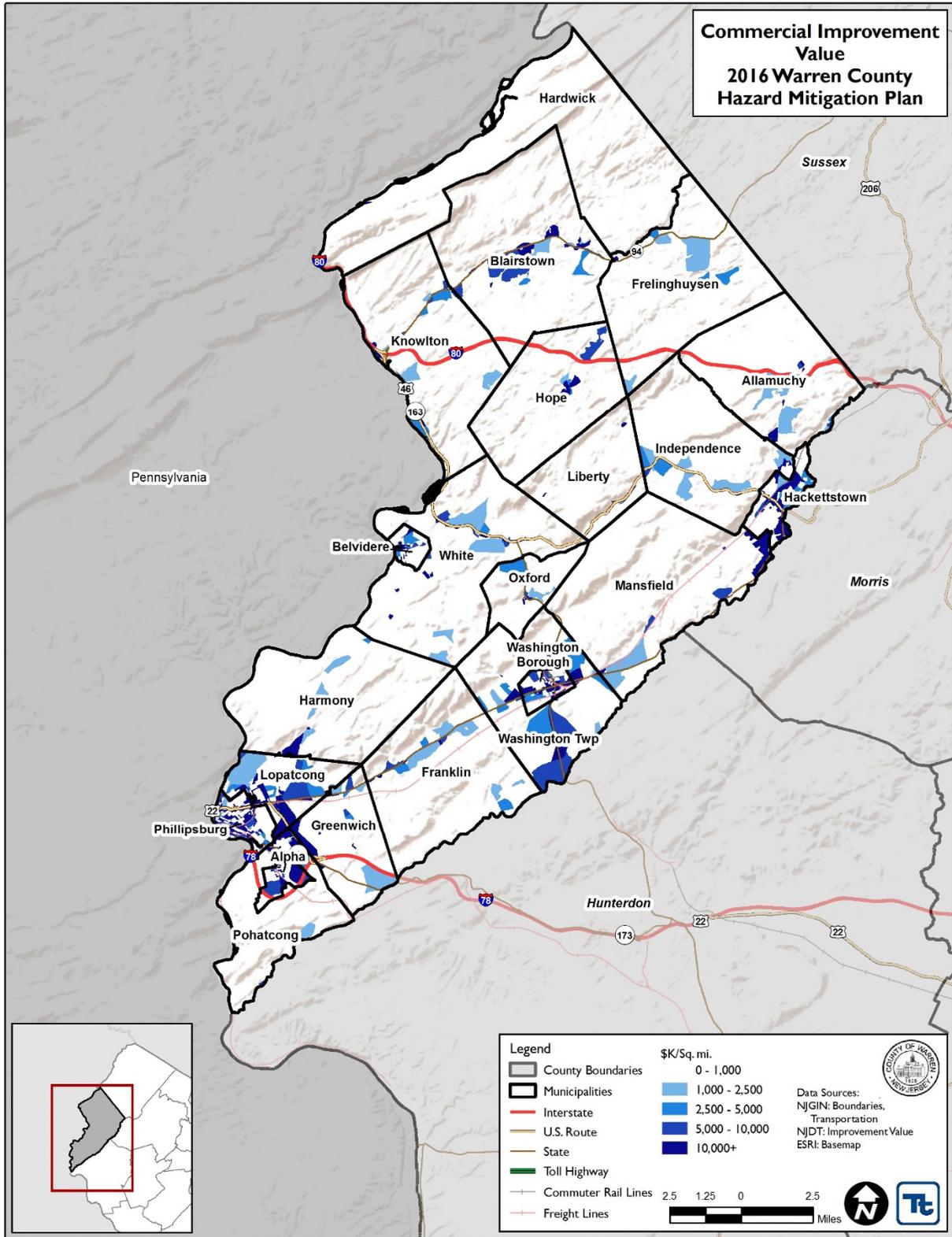


Source: Warren County; NJ Department of the Treasury, 2015





Figure 4-12. Distribution of Commercial Building Stock and Exposure Density in Warren County

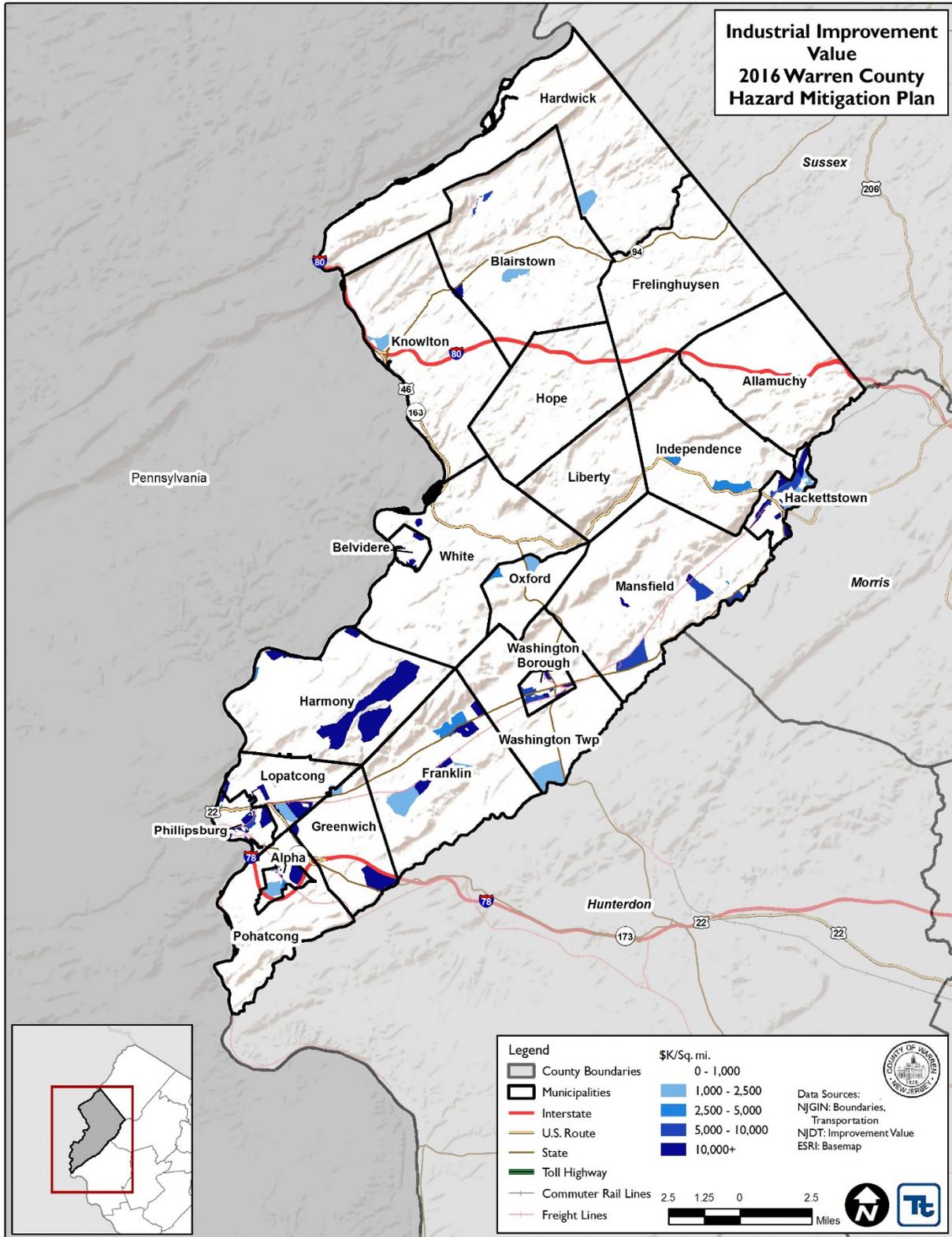


Source: Warren County; NJ Department of the Treasury, 2015





Figure 4-13. Distribution of Industrial Building Stock and Value Density in Warren County



Source: Warren County; NJ Department of the Treasury, 2015





4.3.1 Development Trends and New Development

Local zoning and planning authority is provided for under the New Jersey Municipal Land Use Law, which gives municipalities zoning and planning authority. DMA 2000 requires that communities consider land use trends, which can impact the need for, and priority of, mitigation options over time. Land use trends significantly impact exposure and vulnerability to various hazards. For example, significant development in a hazard area increases the building stock and population exposed to that hazard.

This plan provides a general overview of population and land use and types of development occurring within the study area. An understanding of these development trends can assist in planning for future development and ensuring that appropriate mitigation, planning, and preparedness measures are in place to protect human health and community infrastructure. Table 4-8 summarizes the potential new development identified across Warren County over the next five years.

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Table 4-8. Potential New Development in Warren County

Municipality	Property Name	Type	Number of Structures	Address/Block and Lot	Description/Status
Allamuchy, Township of	Village of Bowers Glen Major Subdivision	Residential	128	Bald Eagle Road; Block 701.02	Most of the development has been built. There are approx. 20 building lots that remain in the development.
Allamuchy, Township of	Mountain Ridge at Panther Valley	Residential	372	Mallard Drive; Block 711	Approx. 200 units have been built to date. Build out is expected by 2017 or 2018.
Alpha, Borough of	The Grande at Park Ridge Estates	Residential	93	Rt 519 - Springtown Rd	Approved
Alpha, Borough of	Bryant Property	Residential	48	7th Avenue	Approved
Belvidere, Town of	Kasson Belvidere LLC	Residential	257	Manunkachucnk Rd; Block 2, Lot 23	Approved. No construction to date.
Belvidere, Town of	Quality First Builders	Residential	13	Oxford Street; Block 31, Lot 15	Approved. No construction to date.
Franklin, Township of	RLL Major Subdivsion	Residential	10	Maple Avenue; Block 51, Lot 4	Approved
Franklin, Township of	Moncada Solar Farm	Commercial	N/A	Good Springs Road; Block 26, Lots 16/17	Approved, construction pending
Franklin, Township of	Chapel at Warren Valley Church	Commercial	1	Stewartsville Road; Block 39, Lots 6.03	Approved
Greenwich, Township of	Janry Kennels	Commercial	1	Route 173; Block 42, Lot 14	Completed
Greenwich, Township of	4 Paws Playground	Commercial	1	County Route 632; Block 31, Lot 13	Under construction
Greenwich, Township of	Phillipsburg-Easton Honda	Commercial	1	County Route 519; Block 25, Lot 2.01	Completed
Greenwich, Township of	Greenwich Solar	Commercial	N/A	Route 57; Block 15, Lot 2.01	Approved
Greenwich, Township of	Phillipsburg Hyundai	Commercial	2	Route 173; Block 40.01, Lot 1	Approval pending
Greenwich, Township of	Stewartsville Self Storage	Commercial	6	Route 57; Block 3, Lot 13	Approved
Greenwich, Township of	Greenwich Center Expansion	Commercial	1	U.S. Route 22; Block 26, Lot 33.01	Submission pending
Independence, Township of	Asbury Hill Estates	Residential	11	Ketcham/Asbury Rd	Under Construction
Independence, Township of	Kingston Hill	Residential	9	Laurel Ct	Under Construction
Independence, Township of	Woodmont	Residential	120/5	922-930 Rt. 517	Planning/Pending



Table 4-8. Potential New Development in Warren County

Municipality	Property Name	Type	Number of Structures	Address/Block and Lot	Description/Status
Independence, Township of	Pio Costa	Commercial	2	260-276 Rt. 46	Conceptual/Planning
Independence, Township of	Liberty Square	Commercial	2	923 Rt. 517	Planning/Pending
Independence, Township of	Pio Costa	Residential	5	Alphano Rd	Planning/Pending
Lopatcong, Township of	K & S Enterprise Trucking	Commercial	One	199 Strykers Road; Block 100, Lots 2 & 2.04	New Warehouse Bldg. Approved 8/25/10
Lopatcong, Township of	Aqua New Jersey Solar Array	Commercial	One	1060 River Rd.; Block 2, Lot 47.01	Solar Array Approved 2011
Lopatcong, Township of	Safeguard Power Solar Array	Commercial	One	186 Strykers Rd.; Block 99, lot 6	Solar Array Approved 5/23/11
Lopatcong, Township of	Busy Bees Learning Center	Commercial	One	108 Baltimore St.; Block 62, Lots 4, 4.01 & 5	Learning Center for Children Approved 2012
Lopatcong, Township of	Sycamore Landing	Residential	247 Units	US Route 22; Block 102, Lot 3	Multi-Family Apts. Approved 8/23/12
Lopatcong, Township of	Coordinated Health Medical Office Bldg.	Commercial	One Bldg. 2 Parking Lots	225 Red School Lane; Block 85, Lots 5 & 5.02	Office Approved 2014
Lopatcong, Township of	189 Strykers Road	Industrial	3	189 Strykers Road; Block 100, Lot 6	Asphalt/Concrete Plant Approved 5/23/12
Lopatcong, Township of	Zaccheo Veterinary Clinic	Commercial	2	793 Uniontown Rd.; Block 95, Lot 12.02	Expansion of Clinic Approved 2014
Mansfield, Township of	Meadows at Mansfield	Residential	226	655 Route 57; 1501/9.01	Approved has not begun
Oxford, Township of	Oxford Textile Mill	Mixed Use	325 / 40,000 SF	11 Foundry Street; B-33, L-4, 4.02, 4.03	Redevelopment agreements in place with Township
Phillipsburg, Town of	Hillcrest Acres	Residential	7	Frost Avenue; Block 502, Lot 22.01-22.07	Completed
Phillipsburg, Town of	Riverview at Delaware Station	Residential	448	Howard Street; Block 2102, Lot 2 & 11	Planning Board
Phillipsburg, Town of	Ravenscroft Apartments	Residential	24	Fairview Avenue; Block 205 Lot 2	Planning Board
Pohatcong, Township of	Wal-Mart Supercenter	Commercial	4	1300-1306 Rt. 22 Phillipsburg, NJ; Bl. 75, Lot 1.01	Completed
Pohatcong, Township of	Chick-fil-A	Commercial	1	1200 Rt. 22, Phillipsburg, NJ; Bl. 1, Lot 1.03	Completed
Pohatcong, Township of	Sonic	Commercial	1	1200 Rt. 22, Phillipsburg, NJ; Bl. 1, Lot 1.03	Completed



Table 4-8. Potential New Development in Warren County

Municipality	Property Name	Type	Number of Structures	Address/Block and Lot	Description/Status
Washington, Borough of	Quick Chek	Commercial	1	Brass Castle Road; Bl. 2.06, Lot 6	Completed
Washington, Borough of	Washington Square	Residential	86	NJ. Route 57; Bl.73.01, Lot 1-44 Block 73.02 Lot 1-44	In Progress
Washington, Borough of	Town Center @ Wash.	Mixed Use	50 Apts / 5000 SF	NJ. Route 57; Bl. 95, Lots 3 & 4	PB Board Approval
Washington, Township of	Unity Bank Major Site Plan	Commercial	1	5 East Asbury Anderson Road; Block 78, Lot 9	Completed
Washington, Township of	Asbury Farms – Major Site Plan/GDP Amend	Commercial		4 Clubhouse Drive; Block 65, Lots 2 & 4	Ongoing
Washington, Township of	Washington Cemetery Soil Removal Permit	Commercial	NA	Cemetery Hill Road; Block 67, Lot 4	Completed
Washington, Township of	Retail Shoppes & Hawk Pointe	Commercial	7 Units/ 1 Structure	4 Clubhouse Drive; Block 65.01, Lots 1	Ongoing
Washington, Township of	DeSapio Real Estate - Dunkin Donuts/Verizon	Commercial	2 Bldgs	249-253 Route 31 S; Block 66, Lots 20.05 & 20.06	Completed
Washington, Township of	Quick Chek Corp Major Site Plan	Commercial	1	350 Route 57 West; Block 23, Lot 12	Completed
Washington, Township of	Pride Builders, LLC Major Subdivision	Residential	2 new houses	McCullough Road; Block 47, Lot 9.04	Final Approval. No houses built
Washington, Township of	Joe Justo Realty Major Subdivision	Residential	8	West Asbury Anderson Road; Block 74, Lot 5	Final Approval. No houses built
Washington, Township of	Washington Comm Solar Major Site Plan	Commercial	Solar Array	351 Route 57 West; Block 67, Lot 63.01	Final Approval. Not Built
Washington, Township of	Village Supermarkets Major Site Plan	Commercial	1	4 Club House Drive; Block 65, Lots 2 & 4	Completed/ Shop-Rite Market
Washington, Township of	Smith Motor Company Major Site Plan	Commercial	Parking Lot	359 Route 31 South; Block 66, Lots 20.01 & 20.11	Ongoing
Washington, Township of	Washington PV Generation – Site Plan	Commercial	Solar Array	30 McCullough Road; Block 47, Lot 7	Final Approval. Not Built
Washington, Township of	Johnson Chrysler Dodge Jeep Ram	Commercial	1	411 Route 31 South; Block 78, Lot 1	Approvals ongoing
Washington, Township of	Asbury Farms	Mixed Use	Multiple	4 Club House Drive; B 65, L 2 & 4; B 65 L 1,9 11-16	Retail & Commercial Development



Table 4-8. Potential New Development in Warren County

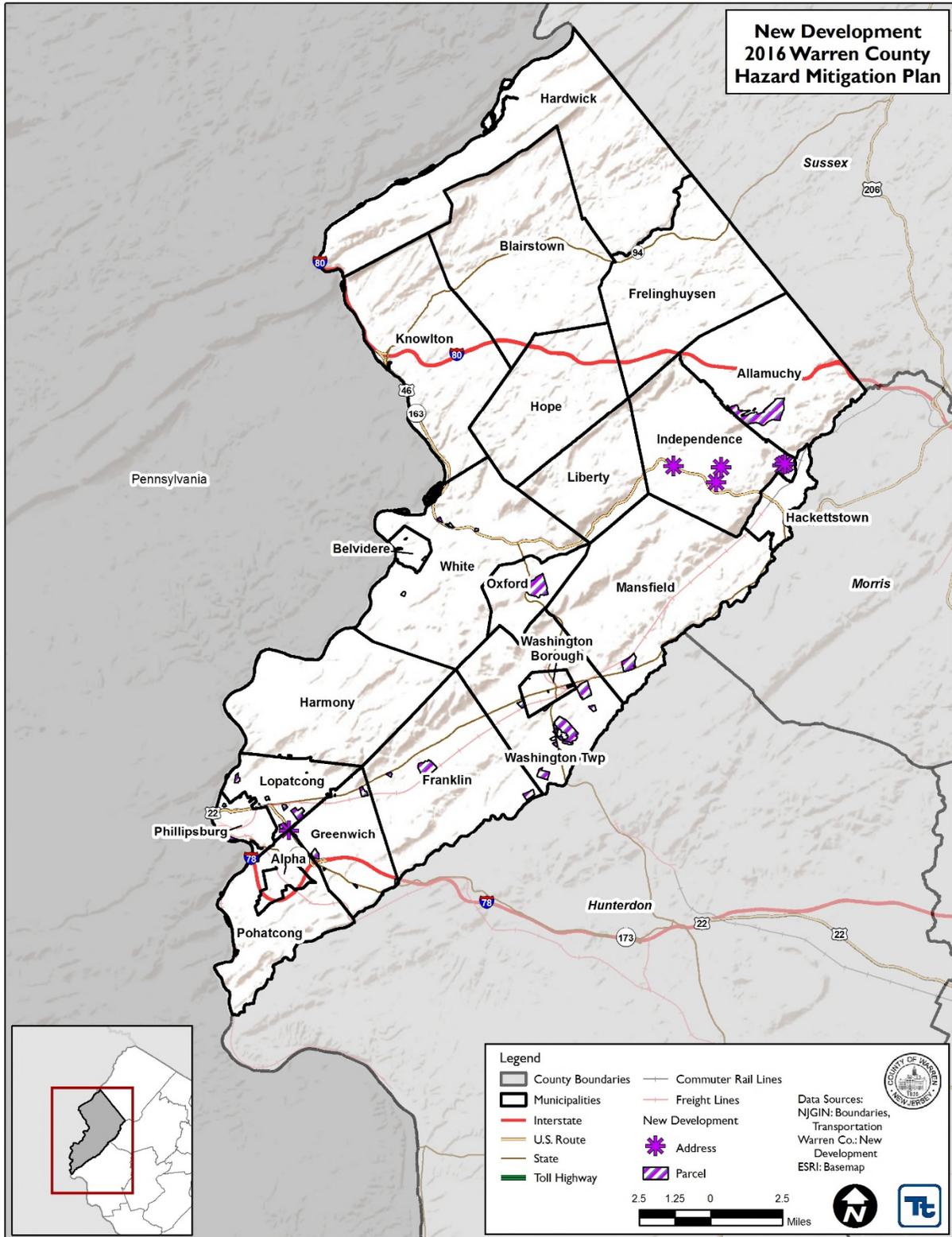
Municipality	Property Name	Type	Number of Structures	Address/Block and Lot	Description/Status
Washington, Township of	Pride Builders, LLC Major Subdivision	Residential	2 new houses	McCullough Road; Block 47, Lot 9.04	New Homes
Washington, Township of	Hess Corporation Major Site Plan	Commercial	1	323 Route 31 South; Block 64, Lot 16.01	Final Approval. Not completed
White, Township of	Becrett	Commercial	2 Bldgs	Rt. 46 West; Bk 62 Lots 15, 17 and 17.01	Approved by Planning Board
White, Township of	Big Red Transport	Commercial	1 Bldg	454 Rt. 46; Bk 62 Lots 6.01 and 7	Approved by Zoning Board
White, Township of	JERC Partners X	Commercial	3 Bldgs	Rt 46 West and Upper Sarepta Rd.; Bk 54.01 Lots 1 and 1.01	Approved by Planning Board
White, Township of	LaTorre Plaza	Commercial	1 Bldg	187 Rt 519; Bk 21 Lot 7.03	Approved by Planning Board

Source: Warren County





Figure 4-14. Potential New Development in Warren County



Source: Warren County





4.4 CRITICAL FACILITIES

A comprehensive inventory of critical facilities in Warren County was developed from various sources provided by the County and individual municipalities. The inventory of critical facilities presented in this section represents the current state of this effort at the time of publication of the HMP and was used for the risk assessment in Section 5.

The inventory of critical facilities identified for the HMP is considered sensitive information. It is protected by the Protected Critical Infrastructure Information (PCII) program and under New Jersey Executive Order 21. Therefore individual facility names and addresses are not provided in this HMP. A summary of the facility types used for the risk assessment are presented further in this section.

Critical facilities are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard. As defined for this HMP, critical facilities include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities and hazardous material facilities.

Essential facilities are a subset of critical facilities that include those facilities that are important to ensure a full recovery following the occurrence of a hazard event. For the County risk assessment, this category was defined to include police, fire, EMS, EOCs, schools, shelters, senior facilities and medical facilities.

Emergency Facilities are a subset of critical facilities that, for the purposes of this Plan, include police, fire, emergency medical services (EMS) and emergency operations centers (EOC).

4.4.1 Essential Facilities

This section provides information on emergency facilities, hospital and medical facilities, schools, shelters and senior care and living facilities, all of which are considered essential facilities for the purposes of this plan. Figure 4-14 illustrates the general location of facilities in Warren County.

Emergency Facilities

For the purposes of this HMP, emergency facilities include police, fire, EMS and emergency operations centers (EOC). The county has a highly coordinated and interconnected network of emergency facilities and services at the county and municipal level. The Warren County Office of Emergency Management (WCOEM) serves as the primary coordinating agency between local, state, and federal agencies. In response to an emergency event, the WCOEM will work with county and municipal health agencies and healthcare providers, emergency facilities and the County Sheriff's Office to provide aid to residents of the county.

Each municipality is responsible for maintaining its own fire department; however, not every municipality maintains their own police department or emergency medical services facility. The Town of Belvidere, Blairstown Township, Greenwich Township, the Town of Hackettstown, Independence Township, Mansfield Township, the Town of Phillipsburg, Pohatcong Township, and Washington Township maintain their own police department and cover additional areas of the County where municipalities do not maintain their own department. The Warren County Sheriff's Office and NJ State Police also provide emergency support to the municipalities. The Town of Belvidere, Blairstown Township, Franklin Township, Greenwich Township, the Town of Hackettstown, Independence Township, Knowlton Township, Lopatcong Township, Mansfield Township, Oxford Township, and Washington Borough maintain their own EMS facilities and provide support to surrounding municipalities.

Overall, there are 15 local, county, and state enforcement facilities, 46 fire and EMS facilities, and 44 EOCs in Warren County.

Hospital and Medical Facilities

Warren County has a dynamic health care industry that includes hospitals, adult day care centers, and long-term care facilities. The two major health centers in the County are Hackettstown Regional Medical Center in Hackettstown and St. Luke's – Warren Hospital in Phillipsburg. Additionally, adult care and long-term care



facilities are located in Frelinghuysen Township, Harmony Township, Knowlton Township, and Oxford Township.

Schools

More than 40 schools, ranging from elementary to post-secondary education, service the county. Several municipalities have their own school systems, while several others are serviced by regional school districts. During an emergency event, many of these facilities can function as shelters. Warren County is home to two colleges that provide a wide range of programs for students. These institutions are Centenary College located in Hackettstown and Warren County Community College located in Washington Township.

There is a total of 48 education facilities located in the County.

Shelters

There were 88 shelters identified within Warren County; many schools, community centers, and municipal buildings could serve as a shelter during an emergency.

Senior Care and Living Facilities

It is important to identify and account for senior facilities, as their residents are highly vulnerable to the potential impacts of disasters. Understanding the location and numbers of these types of facilities can help manage an effective response post disaster. There are 20 senior facilities located within the County.

Government Buildings

In addition to the facilities discussed, other county and municipal buildings, and department of public works facilities are essential to the continuity of operations pre-, during and post-disasters. There are 34 government facilities located in the County. In addition to these 34 facilities, the majority of the EOCs discussed above are local municipal buildings.

4.4.2 Transportation Systems

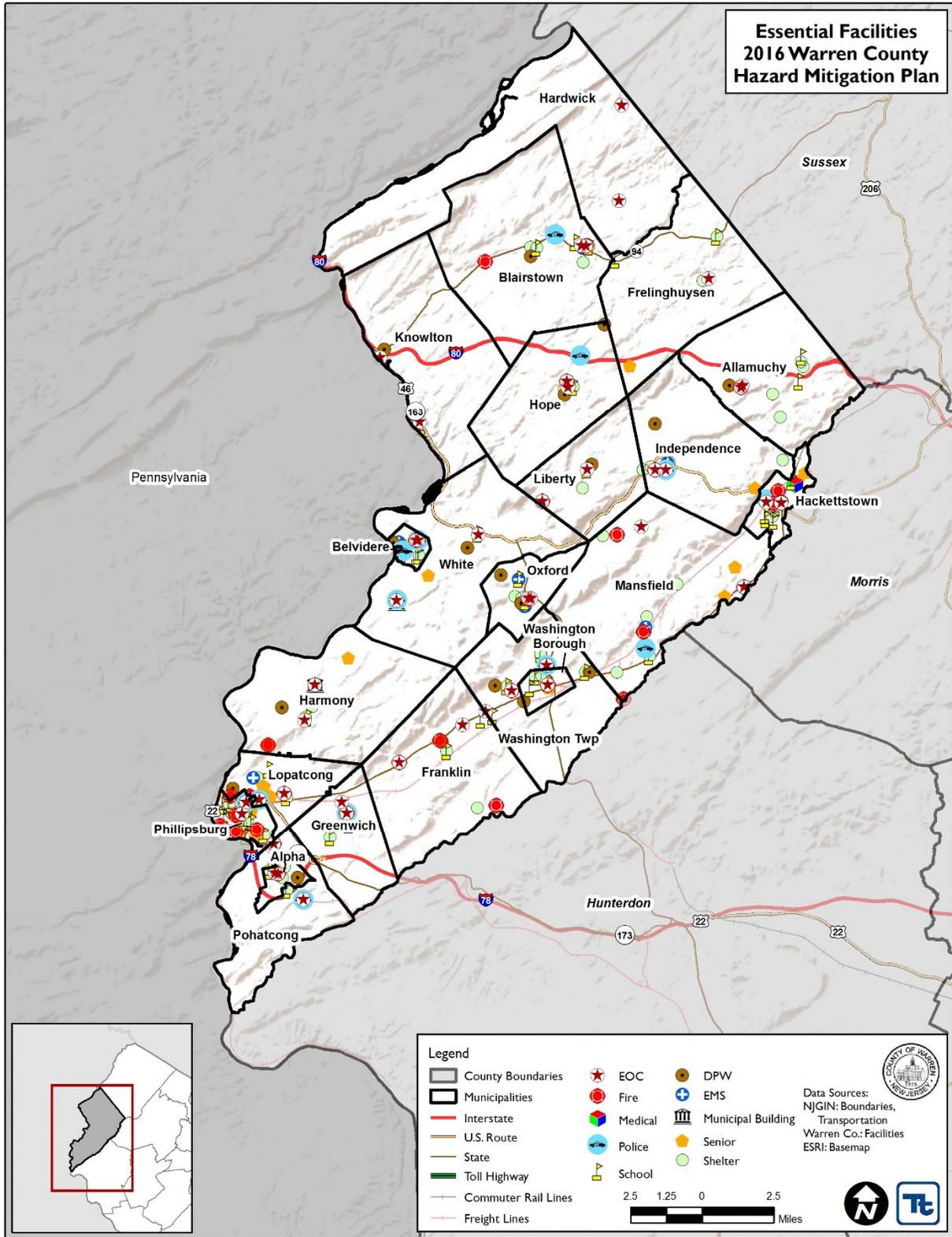
Transportation plays an important role in Warren County. Interstates 78 and 80 cross the County, opening the area to new residents who commute daily to their jobs. Other major highways in the County include U.S. Routes 22 and 46, and State Routes 57, 173, 31, and 94. The Montclair-Boonton Rail Line and Raritan Valley Rail Line also run through the County.

Air

There were four air facilities identified within the County; two local airports and two local heliports. The two local airports are Blirstown Airport located in Blirstown and Hackettstown Airport located in Hackettstown.



Figure 4-15. Essential Facilities in Warren County

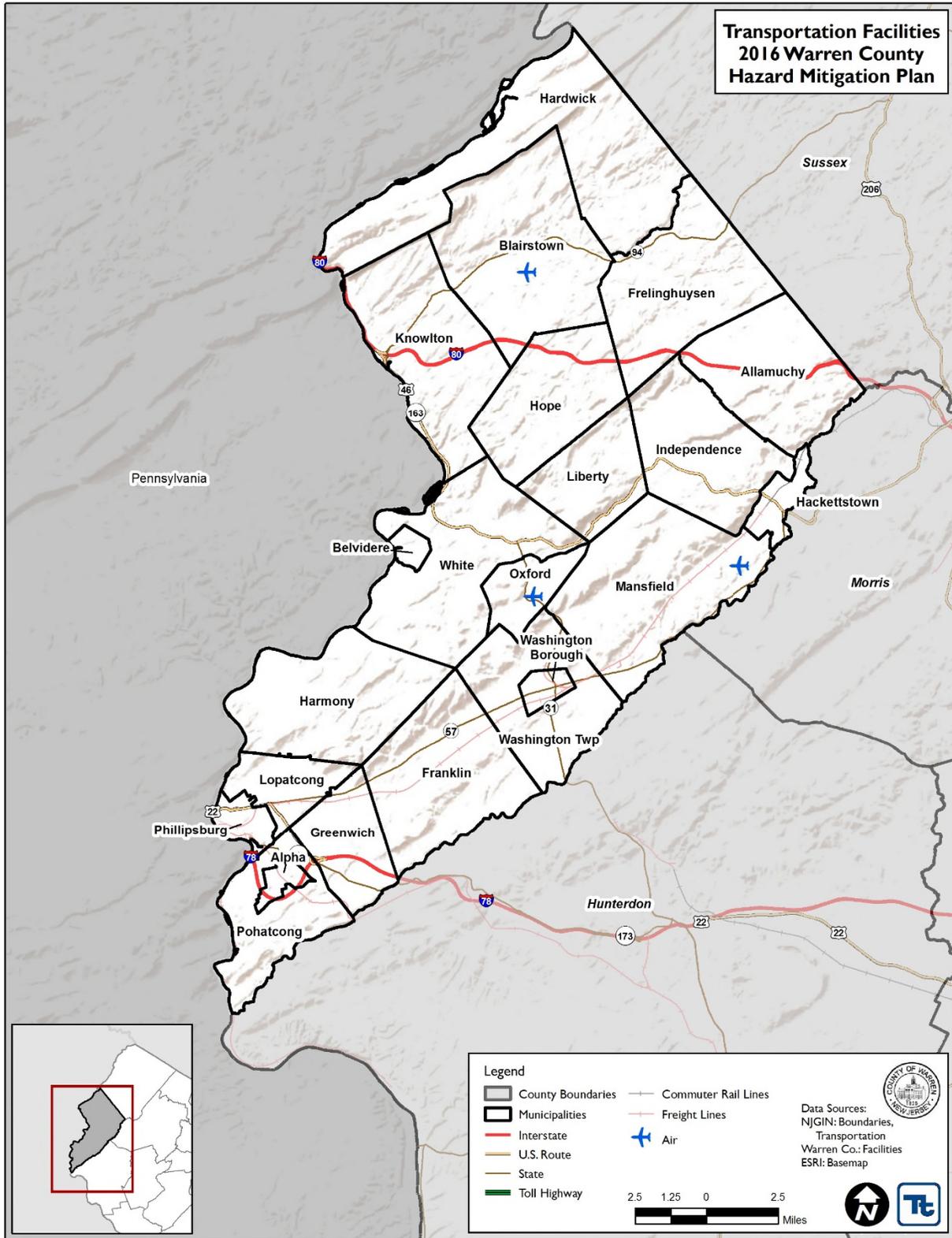


Source: Warren County





Figure 4-16. Transportation Facilities in Warren County



Source: Warren County





4.4.3 Lifeline Utility Systems

This section presents communication, potable water, wastewater, and energy resource utility system data. Due to heightened security concerns, local utility lifeline data sufficient to complete the analysis have only partially been obtained.

Communication

Warren County has a network of communication facilities and cell towers. These facilities are controlled by both public and private institutions. These facilities include a CenturyLink switching station located in Oxford. There were seven essential communication facilities identified in the County.

Potable Water

Groundwater accounts for all drinking water in Warren County (Strategic Growth Plan 2005). Water suppliers in Warren County include:

- Allamuchy Township Water and Sewer
- Alpha Municipal Waterworks
- Aqua NJ
- Blairstown Water Department
- Hackettstown Municipal Utilities Authority
- Independence Municipal Utilities Authority
- NJ American Water
(NJDEP, 2015)

There was one potable water treatment plants, three potable water tanks, five wells, and one potable water pump identified as critical located within the County.

Wastewater Facilities

The County is served by several wastewater service providers, including Allamuchy Water and Sewer and the Warren County Pequest River Municipal Utilities Authority. There were six wastewater treatment plants and 16 wastewater pump stations identified in the County.

Energy Resources

The primary electric and gas utility company in Warren County is Jersey Central Power and Light (JCP&L). There were 15 electric substations identified within the County. Figure 4-17 illustrates the location of the utility lifelines in Warren County.

4.4.4 High-Potential Loss Facilities

High-potential loss facilities include dams, levees, chemical storage facilities, and military installations. Source: Warren County

Figure 4-18 displays the general locations of these facilities in the County. Dams are discussed further below.

According to the NJDEP, there are four hazard classifications of dams in New Jersey. The classifications relate to the potential for property damage and/or loss of life should the dam fail:



- Class I (High-Hazard Potential) - Failure of the dam may result in probable loss of life and/or extensive property damage
- Class II (Significant-Hazard Potential) - Failure of the dam may result in significant property damage; however loss of life is not envisioned
- Class III (Low-Hazard Potential) - Failure of the dam is not expected to result in loss of life and/or significant property damage
- Class IV (Small-Dam Low-Hazard Potential) - Failure of the dam is not expected to result in loss of life or significant property damage

According to the NJDEP Bureau of Dam Safety, there are 102 dams located in Warren County, 15 of which are classified with a high-hazard potential.

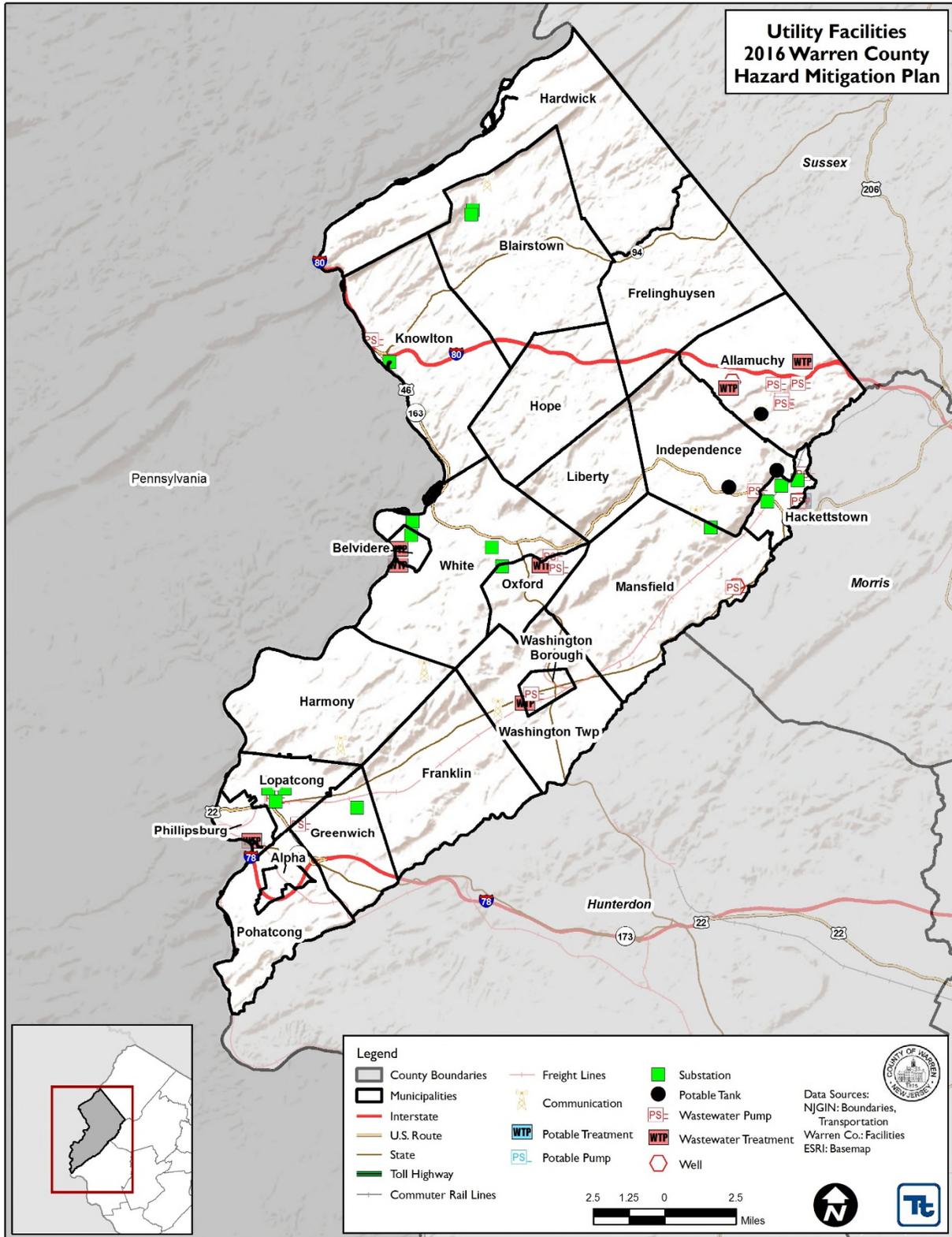
4.4.5 Other Facilities

The Planning Committee identified additional facilities (user-defined facilities) as critical. These facilities include three industrial facilities, one correctional facility, and 71 gas stations. Source: US Army Corps of Engineers

Figure 4-19 illustrates the general locations of these facilities in the County.



Figure 4-17. Utility Lifelines in Warren County

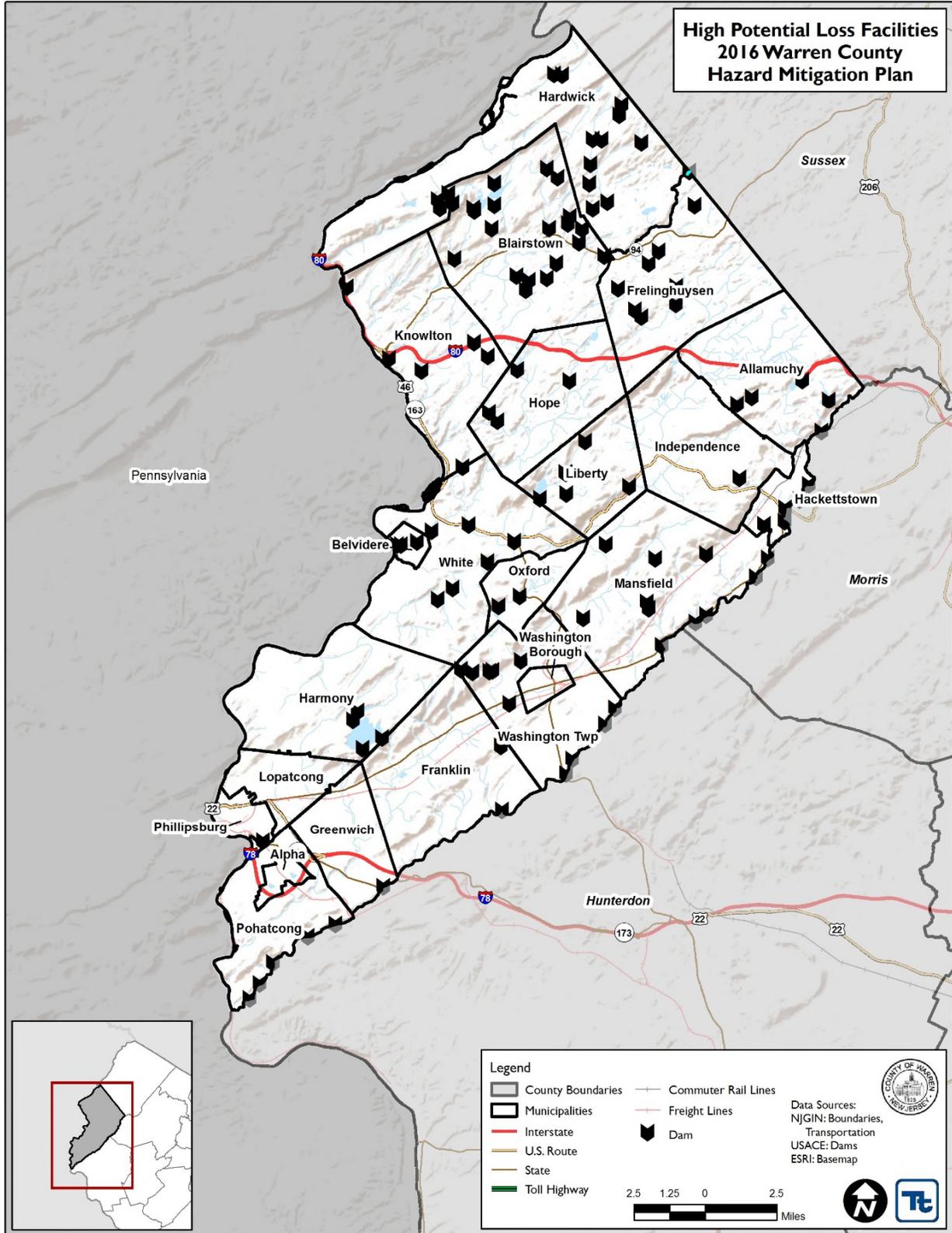


Source: Warren County





Figure 4-18. High-Potential Loss Facilities in Warren County

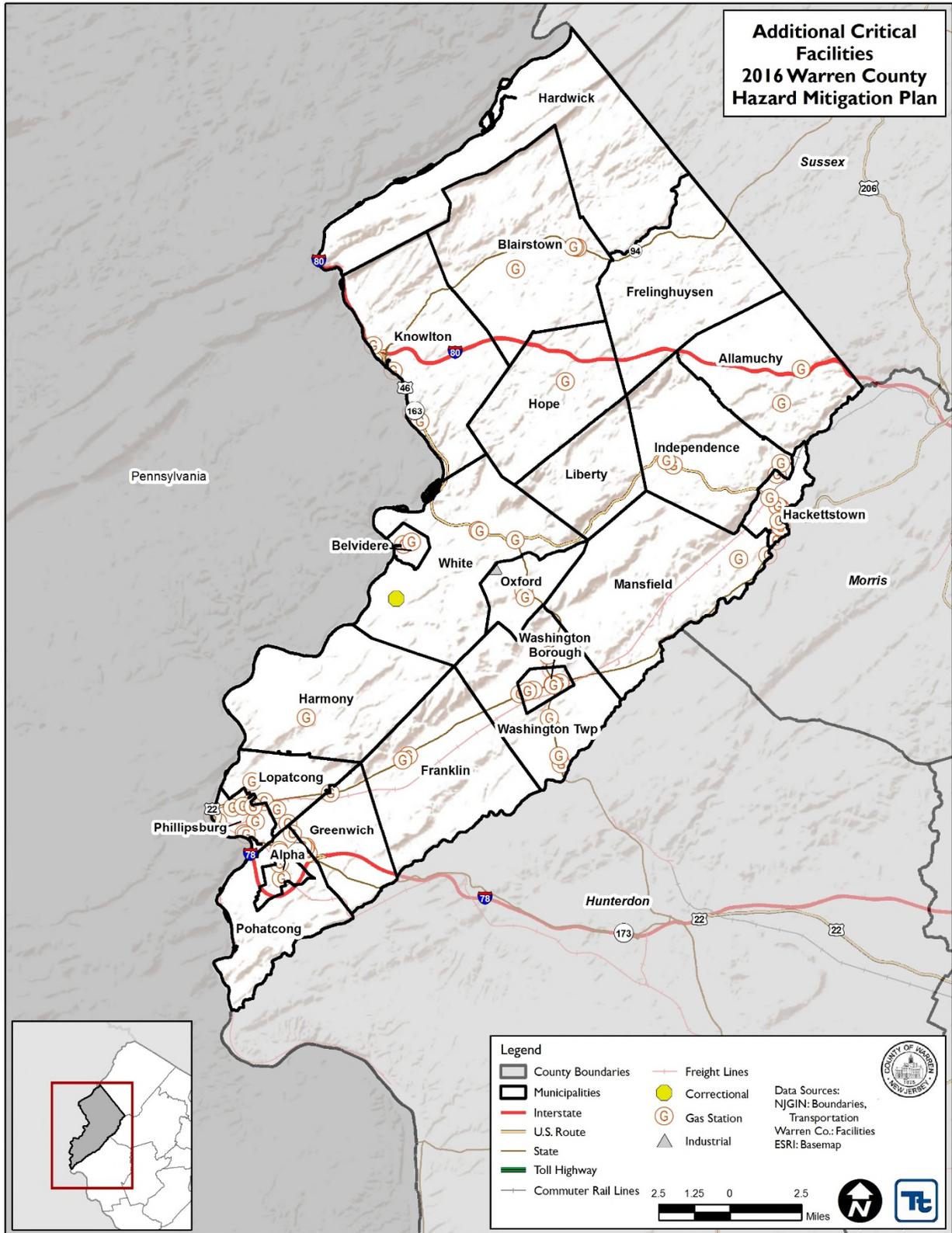


Source: US Army Corps of Engineers





Figure 4-19. Additional Critical Facilities in Warren County



Source: Warren County

