



SECTION 3. COUNTY PROFILE

This profile describes the general information of Sussex County (physical setting, population and demographics, general building stock, and land use and population trends) and critical facilities located in Sussex County. In Section 4 (Risk Assessment), 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).

2021 HMP CHANGES

- The “County Profile” is now located in Section 3; previously located in Section 4. It contains updated information regarding the County's physical setting, population and demographics and trends, general building stock, land use and trends, potential new development and critical facilities. This includes U.S. Census American Community Survey (ACS) 2018 data and additional information regarding the New Jersey Highlands Region in the Development Trends/Future Development subsection.
- The critical facility inventory was expanded to include community lifelines using FEMA’s lifeline definition.

3.1 GENERAL INFORMATION

Sussex County is the northern-most county in the State of New Jersey. It is bordered to the north by New York State, to the south by Warren and Morris Counties, to the east by Passaic County and to the west by the Delaware River and the Commonwealth of Pennsylvania. The County is made up of 24 jurisdictions that span approximately 536 square miles. Historically, Sussex County has been a scenic, rural county with small municipalities, plenty of open space, and agriculture. Figure 3-1 illustrates Sussex County, its municipalities, and the surrounding jurisdictions.

3.1.1 PHYSICAL SETTING

This section presents the physical setting of Sussex County, including hydrography and hydrology, topography and geology, climate, and land use/land cover.

Hydrography and Hydrology

Numerous ponds, lakes, creeks, and rivers make up the waterscape of Sussex County. Most of the lakes in the County are found generally in two areas: along the eastern slope of the Kittatinny Ridge and in the Highlands province of eastern Sussex County. These areas are where topography and geology support the development of lakes. Most of the lakes serve recreational purposes and were developed as vacation areas in the past. The most prominent lakes in Sussex County include Lake Hopatcong (largest in New Jersey), Culvers Lake, Lake Owassa, Big Swartswood Lake, Lake Mohawk, Highland Lake, and Wawayanda Lake. Rivers and streams in Sussex County include: Delaware River, Wallkill River, Flat Brook, Paulins Kill, Pequest River, Musconetcong River, Clove Brook, Mill Brook, Kymer Brook, Lubbers Run, Papakating Creek, Pochuck Creek, Waywayanda Creek, Black Creek, Pequannock River, Pacack Brook, Russia Brook, and Rockaway River. Figure 3-1 illustrates the location of the waterbodies in the County.

Delaware River Basin

The Delaware River is the longest un-dammed river in the United States east of the Mississippi River. It runs and drains through parts of Pennsylvania, New Jersey, New York, and Delaware. The Delaware River 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 the Atlantic Ocean (Watershed Alliance 2019).

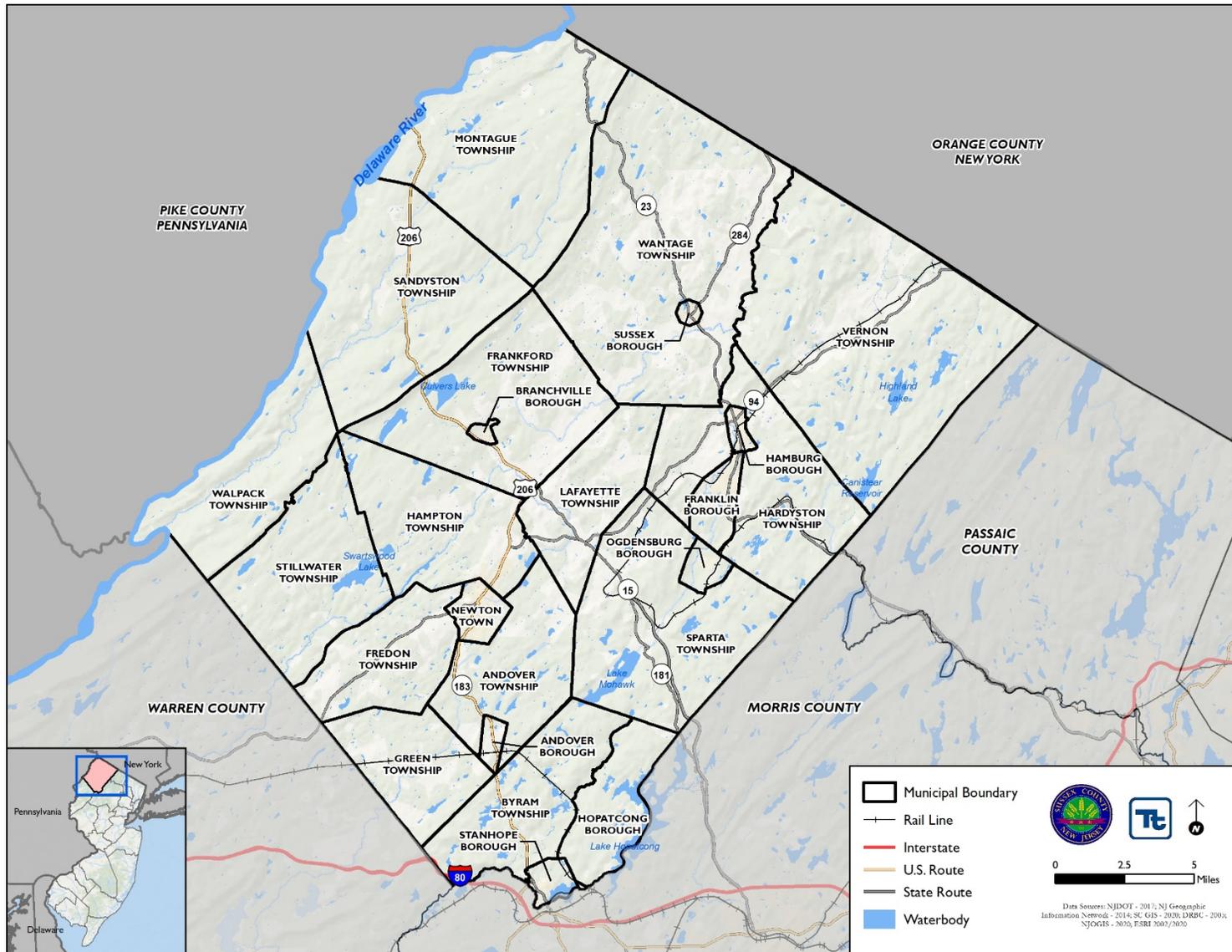
Overall, the Delaware River is fed by over 2,000 tributaries and spans approximately 13,600 square miles, including the 782 square mile Delaware Bay. Its hydrographic regions are divided between two main physiographic areas—the Appalachian Highlands and the Atlantic Coastal Plain. The Sussex County portion of the Delaware River falls in the Appalachian Highlands region, which consists primarily of consolidated sedimentary rock. The area’s sub-region, known as Ridge and Valley, consists of mountain ridges in the north and rolling hills in the south.

Approximately 8.3 million people live in the Delaware River Basin, of which 23-percent reside in the State of New Jersey. The population in the Delaware River Basin is expected to increase 8.4-percent by 2030 and a portion of this increase is expected in Sussex County (Delaware River Basin Commission 2019).

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Figure 3-1. Overview Map Sussex County, New Jersey





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. Sussex County is located in four of the 20 WMAs that are discussed further below: Upper Delaware (WMA 1); Wallkill (WMA 2); Pompton, Pequannock, Wanaque, Ramapo (WMA 3) and Upper Passaic, Whippany and Rockaway (WMA 6). Figure 3-1 illustrates the watersheds of Sussex County.

Watershed Management Area 1: Upper Delaware

WMA 1 includes portions of Sussex, Morris, and Hunterdon Counties and all of Warren County. This area is also known as the Upper Delaware River Watershed and encompasses 746 square miles in the northwest corner of New Jersey. Within WMA 1, there are six major drainage basins: Delaware River, Flat Brook, Paulins Kill, Pequest River, Lopatcong and Pohatcong River Drainage, and the Musconetcong River (NJDEP 2012).

In Sussex County, WMA 1 is located in the western and southern sections of the county and encompasses greater than half of the county's land area. Principal waterways in Sussex County's portion of WMA 1 include: Flat Book, Paulins Kill, Pequest River, and a short stretch of the Musconectong River (NJDEP 2012).

Watershed Management Area 2: Wallkill River Watershed

This WMA is also known as the Wallkill River Watershed and includes 11 Townships in Sussex County. The Wallkill River Watershed is unique in that its headwaters begin at Lake Mohawk in Sparta Township and then flow north into New York, eventually emptying into the Hudson River. Within WMA 2, there are four subwatersheds: the Wallkill River, Pochuck Creek, Papakating Creek and Rutgers Creek Tributaries (NJDEP 2012).

The Wallkill Watershed is approximately 208 square miles in area, and is comprised of a variety of land uses including rural and centralized residential development, agriculture, commercial, recreational and industrial usage. Also located within this watershed area is the Wallkill National Wildlife Refuge. The refuge watershed/wetlands complex provides migratory and nesting habitats for numerous birds and waterfowl and is home to several endangered species (NJDEP 2012).

WMA 2 occupies the northern and northeastern parts of Sussex County, extending south through Sparta and northern Byram Townships. The Wallkill River flows northeast into New York State, where it empties into the Hudson River near Kingston, New York. Major tributaries of the Wallkill River include Papakating Creek which begins its run in Frankford Township and Clove Brook which flows south from northern Wantage Township. Pochuck Creek is another major tributary which drains part of Vernon and Hardyston Townships east of Pochuck Mountain and enters the Wallkill River several miles into New York State (NJDEP 2012).

Watershed Management Area 3: Pompton, Pequannock, Wanaque, Ramapo Watersheds

WMA 3 is located within the Highlands Province of New Jersey. The Pequannock, Wanaque and Ramapo Rivers all flow into the Pompton River. The Pompton River is, in turn, a major tributary to the Upper Passaic River. WMA 3 contains some of the State's major water supply reservoir systems including the Wanaque Reservoir which is the largest surface water reservoir in New Jersey. There are four watersheds in WMA 3: Pompton, Ramapo, Pequannock and Wanaque River Watersheds. WMA 3 lies mostly in Passaic County but also includes parts of Bergen, Morris and Sussex Counties (NJDEP 2012).



The Pequannock River Watershed occupies a small area of eastern Sussex County. It flows south out of Vernon Township and continues into Hardyston Township where it turns southeast, forming the border between Morris and Passaic Counties. The Pequannock's confluence with the Passaic River occurs at the eastern end of the Great Piece Meadows, where Morris, Passaic and Essex Counties meet. For most of its run in Sussex County, the Pequannock River flows through Newark's water supply management lands (NJDEP 2012).

Watershed Management Area 6: Upper and Mid Passaic, Whippany, Rockaway Watersheds

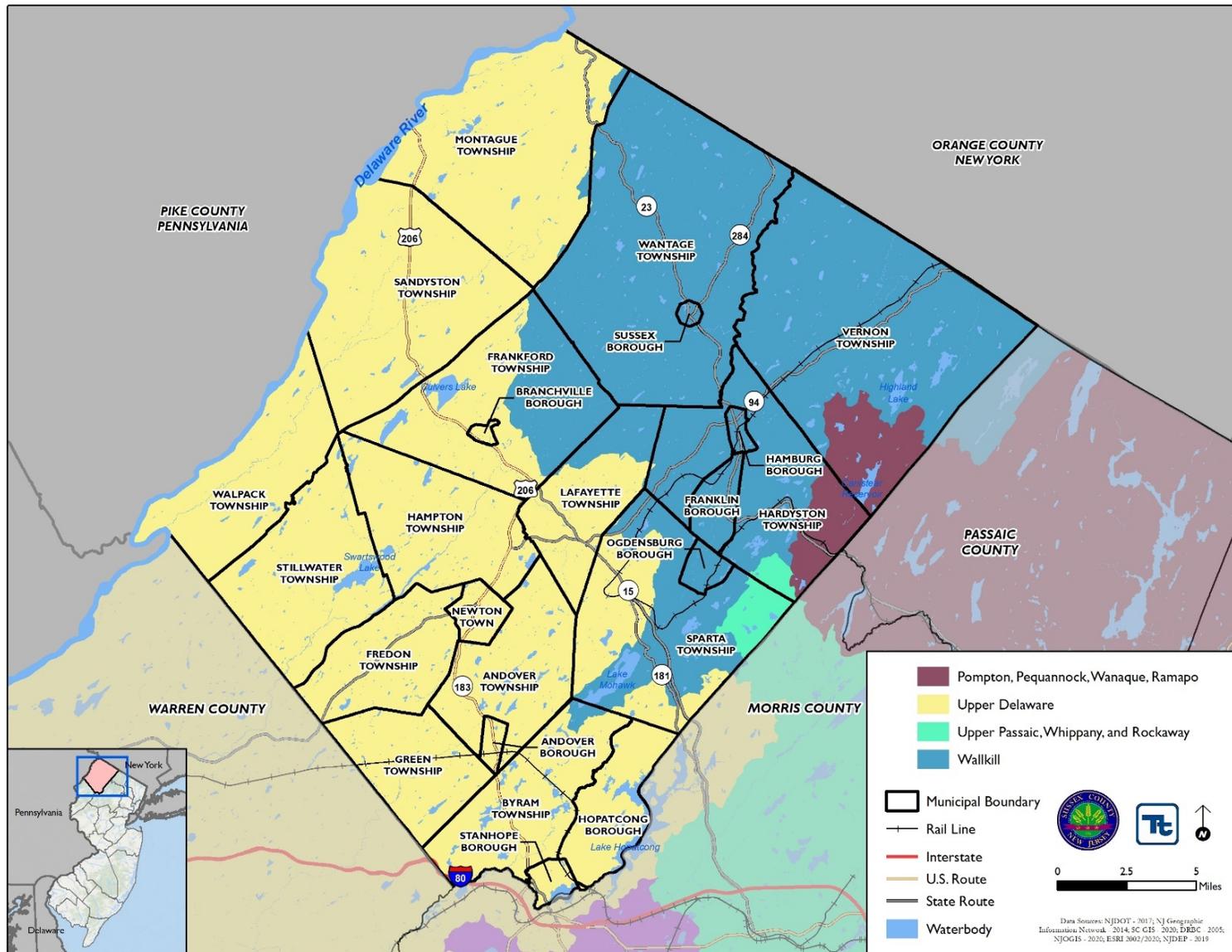
WMA 6 represents the area drained by waters from the upper reaches of the Passaic River Basin including the Passaic River from its headwaters in Morris County to the confluence of the Pompton River. WMA 6 is characterized by extensive suburban development and reliance upon ground water sources for water supply. WMA 6 lies in portions of Morris, Somerset, Sussex and Essex Counties and includes the Upper and Middle Passaic River, Whippany River and Rockaway River Watersheds (NJDEP 2012).

The Rockaway River begins in Jefferson Township and its system's upper reaches are in eastern Sparta Township, where several streams merge to form Russia Brook. Russia Brook flows into Jefferson Township where it meets the Rockaway River below Lake Swannanoa. From there, the Rockaway River flows into the Passaic River (NJDEP 2012).

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Figure 3-2. Sussex County Watersheds





Topography and Geology

The topography of Sussex County is among the most diverse in the State of New Jersey. The eastern two-thirds lies within the Highlands physiographic province which runs in a northeast belt from Reading, Pennsylvania, across New Jersey, and into southern New York State and western Connecticut. This province is characterized by forested ridges and glacially sculpted valleys. It also contains significant water resources affecting over 11 million residents. The remainder of Sussex County lies within the Ridge and Valley physiographic province. This province is characterized by parallel northeast-southwest trending ridges with fertile valleys in between. The capstone of the Ridge and Valley is the Kittatinny Ridge which runs approximately 40 miles through the county. The Ridge has elevations between 1,200 and 1,500 feet above sea level, and an average width of five miles. At High Point, the northernmost extent of the Kittatinny Ridge, has an elevation of 1,803 feet which is the highest point in New Jersey (Sussex County Natural Resources Inventory 2015).

The lowest points in Sussex County are found along the Delaware River at the mouth of Flat Brook (300 feet) and along the Wallkill River at the New York State line (380 feet). Located between the Highlands and Kittatinny Ridge, the Kittatinny Valley has elevations between 600 and 700 feet (Sussex County Natural Resources Inventory 2015).

The Highlands is comprised of Precambrian rock, making it the oldest bedrock in New Jersey. The portion that runs through Sussex County is predominately granite and gneiss, with a small portion of marble. To the west of the Highlands, is Paleozoic rock, which includes shale, siltstone, and sandstone along Kittatinny Valley and limestone, shale, and sandstone along the Delaware River Basin (NJDEP 2014).

Climate

Sussex County has a temperate climate with warm summers and cold winters. The average temperatures range from approximately 32 degrees Fahrenheit (°F) in January to 75°F in July, with extremes common in the summer and winter months. The average precipitation yearly is approximately 54 inches (NOAA 2020).

Land Use, Land Cover, and Land Use Trends

Local zoning and planning authority are provided for under the New Jersey Municipal Land Use Law, which gives municipalities zoning and planning authority. The 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, 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.

In 2012, the majority (55.9-percent) of the land in Sussex County was designated as forested land. The 2015 data shows there was a slight decrease in forested land (55.8-percent). In 2012, 15.9-percent was urban land; 13.6-percent was wetlands land; 0.6-percent was barren land; and 10.1-percent was agricultural lands. When compared with the land use land cover dataset from 2015, there has been a slight increase in urban land (16-percent). These land use types do not include water, which is just under 4-percent of the County. Refer to Figure 3-3 and Table 3-1 below.



Table 3-1. Land Use Summary of Sussex County, 2012 and 2015

Land Use Category	2012 Data		2015 Data	
	Acreage	Percent of Sussex County	Acreage	Percent of Sussex County
Agriculture	34,778	10.1%	34,629	10.1%
Barren	2,054	0.6%	2,125	0.6%
Forest	191,495	55.9%	191,143	55.8%
Urban	54,334	15.9%	54,839	16.0%
Wetlands	46,645	13.6%	46,799	13.7%

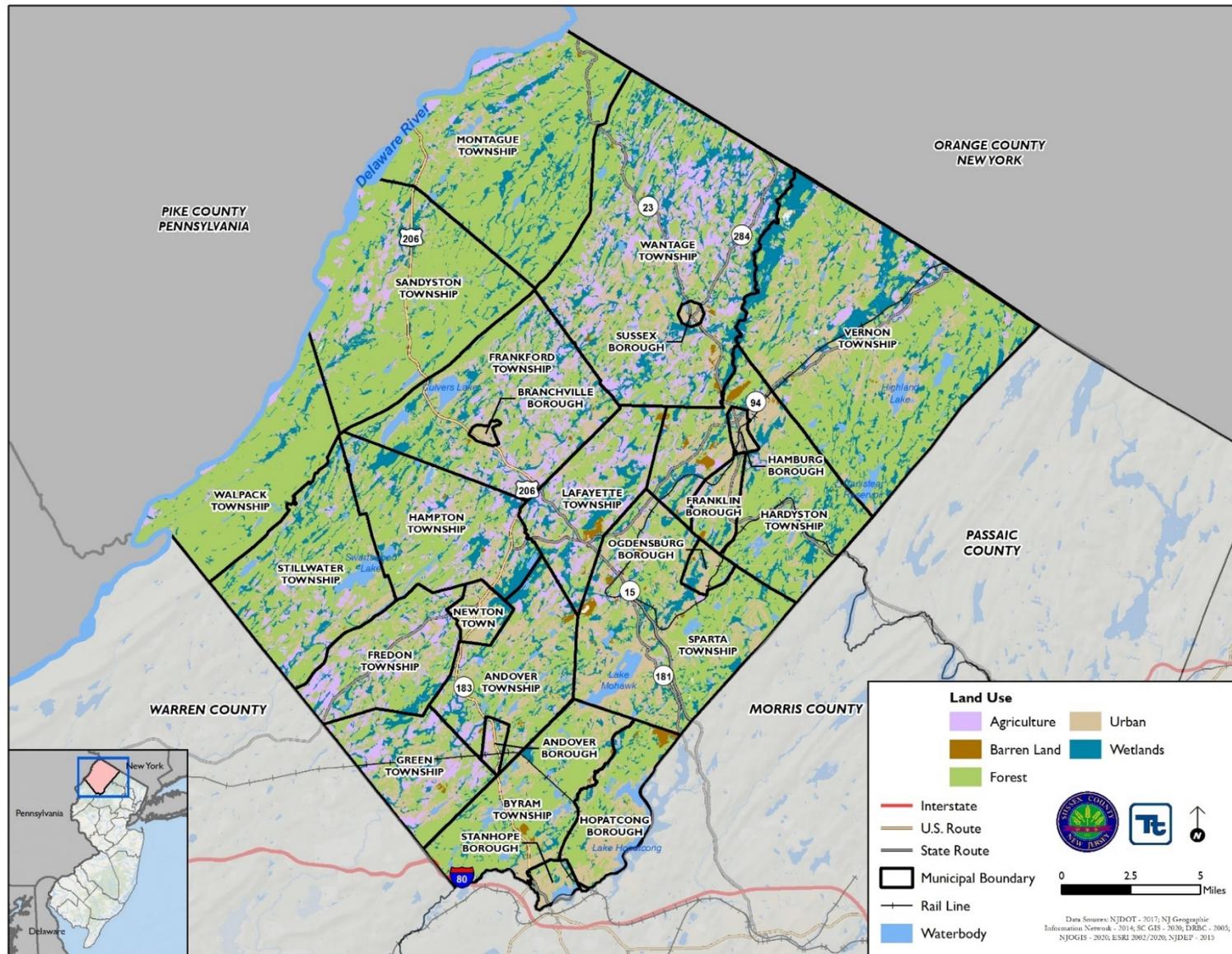
Source: NJDEP 2012/2015 LULC

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

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Figure 3-3. Land Use/Land Cover in Sussex County





Highlands Region of New Jersey

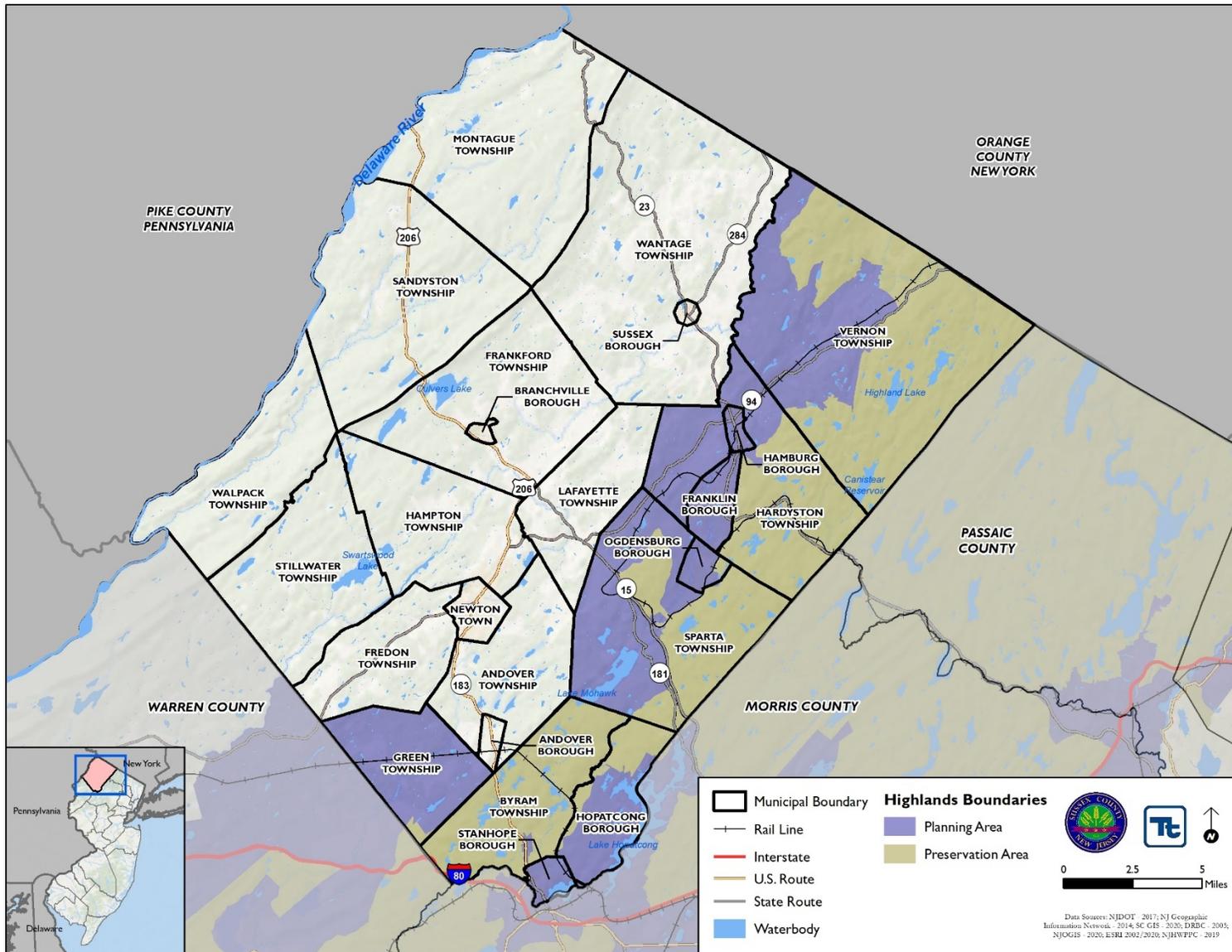
The New Jersey Highlands is a 1,343 square mile area (over 800,000 acres) in the northwest portion of New Jersey. It is noted for its scenic beauty, environmental significance and serves as a vital source of drinking water for over half of New Jersey residents. The Highlands stretches from Phillipsburg (Warren County) in southwest New Jersey to Ringwood (Passaic County) in the northeast. The Highlands Region lies within portions of seven counties, Hunterdon, Somerset, Sussex, Warren, Morris, Passaic and Bergen, and includes 88 municipalities. The Highlands Act designates approximately 398,000 acres as the Highlands Preservation Area which is identified as an area of exceptional natural resource value. The remainder of the Highlands Region that is not located within the Preservation Area lies within the Highlands Planning Area. The distinction between the Preservation and Planning Area is that municipal and county conformance with the Highlands Regional Master Plan is required in the Preservation Area, and voluntary in the Planning Area.

The Highlands Area in Sussex County is located in the eastern portion of the County and consists of approximately 129,860 acres of land (Figure 3-4). The Townships of Byram, Green, Hardyston, Sparta and Vernon, and the Boroughs of Franklin, Hamburg, Hopatcong, Ogdensburg and Stanhope are within the Highlands boundary.

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Figure 3-4. Highlands in Sussex County, New Jersey





Open Space and Parkland

Large portions of Sussex County are permanently set aside as public/conservation space. This includes the Delaware Water Gap National Recreation Area, state parks and forests (High Point and Stokes), and wildlife refuges (Wallkill). Public and conservation open space accounts for more than one-third of the County’s total land area. Overall, open space in Sussex County includes federal, state, county, municipal, and water supply management land.

The National Park Service manages 5,354 acres (federal land) in western Sussex County in the municipalities of Sandyston and Stillwater. This area is known as the Delaware Water Gap National Recreation Area; a 55,857-acre unit of the National Park System located in New Jersey and Pennsylvania. The U.S. Fish and Wildlife Service manages 21,924 acres of land in County, known as the Wallkill River National Wildlife Refuge located in the Townships of Vernon and Wantage.

For state land, the New Jersey Division of Fish and Wildlife manages 12 Wildlife Management Areas in Sussex County, totaling 23,019 acres. The New Jersey Division of Parks and Forestry oversees state parks and trail corridors (Paulinskill Valley Trail, Sussex Branch Trail and Appalachian Trail) throughout New Jersey. In Sussex County, there are six state parks, one state forest, and three long-distance trails. Additionally, the New Jersey Natural Lands Trust is an independent agency within NJDEP in which properties are comparatively small relative to other state land. There are 15 Natural Lands Trust properties in Sussex County and the land management focuses on fish and wildlife habitat conservation as opposed to public recreation.

As for county-owned open space, Sussex County owns 441 acres of land in Franklin, Frankford, Hardyston, Newton, Sparta, and Vernon municipalities. On the municipal level, there are 4,499 acres of land used for parks, recreation areas, municipal buildings, and support services. Refer to Table 3-2 below for a summary of open space in Sussex County.

Additionally, there are 1,274 acres of private land used as open space and/or protected via conservation easements. There are also 10,175 acres of open space used for utilities in Sussex County. This land is primarily in Hardyston Township and Vernon Township, with the largest parcel being a 2,223 acre watershed in Vernon. Various non-profit organizations also own open space in Sussex County, totally 5,599 acres. For instance, The Nature Conservancy, New Jersey Audubon, and The Orange YMCA own 1,755, 570, and 607 acres, respectively. Lastly, there is 18,202 of acres of preserved farmland in the County (Sussex County Open Space and Recreation Plan 2016).

Table 3-2. Federal, State, County, or Municipal Open Space

Name of Facility	Federal, State, County or Municipal Owned	Size (acres in Sussex County)	Municipality
Wallkill River National Wildlife Refuge	Federal	4,635	Hardyston, Vernon, Wantage
Delaware Water Gap National Recreation Area	Federal	21,771	Walpack, Sandyston, Montague
Bear Swamp Wildlife Management Area (WMA)	State	2,036	Frankford and Hampton
Culvers Brook Access WMA	State	4	Frankford
Flatbrook WMA	State	2,090	Sandyston, Walpack
Little Flatbrook Access WMA	State	4	Sandyston
Hainesville WMA	State	281	Montague, Sandyston
Hamburg Mountain WMA	State	2,737	Hardyston, Vernon



Name of Facility	Federal, State, County or Municipal Owned	Size (acres in Sussex County)	Municipality
Paulinskill River WMA	State	777	Fredon, Hampton
Sparta Mountain WMA	State	1,602	Hardyston, Ogdensburg, Sparta
Trout Brook WMA	State	1,098	Stillwater
Walpack WMA	State	387	Walpack
Weldon Brook WMA	State	829	Sparta
Whittingham WMA	State	1,930	Green, Fredon
Allamuchy Mountain State Park	State	5,000	Byram, Green, Stanhope
High Point State Park (includes AT west of Wallkill)	State	15,278	Wantage, Montague, Frankford
Hopatcong State Park	State	4	Hopatcong
Kittatinny Valley State Park	State	1,313	Andover Borough, Andover Township
Paulinskill Valley Trail/Sussex Branch Trail	State	556	Andover Borough, Andover Township, Byram, Frankford, Fredon, Hamburg, Hampton, Lafayette, Newton, Ogdensburg, Stillwater, Sparta
Stokes State Forest	State	15,734	Montague, Sandyston, Frankford, Hampton, Stillwater
Swartwood State Park	State	2,250	Hampton, Stillwater
Wawayanda State Park (includes AT east of Wallkill)	State	15,000	Vernon
Newark-Pequannock Watershed Easemen	State	3,896	Vernon
Congleton -CLC Partners/Smith (easement)	State	15	Hardyston
Congleton - Violante (easement)	State	16	Hardyston, Wantage
Congleton Wildlife Sanctuary	State	79	Hardyston, Wantage
Congleton Wildlife Sanctuary - CCK Realty)	State	127	Hardyston, Wantage, Lafayette
Congleton - Ferra (easement)	State	14	Hardyston
Congleton - Padula (easement)	State	18	Hardyston
Congleton - Williams (easement)	State	12	Hardyston
Congleton - Wildlife Sanctuary - Farm Association - Marx	State	100	Hardyston, Wantage
Crooked Swamp Caves	State	18	Lafayette
Elm Spring Preserve	State	11	Wantage
Lubbers Run	State	35	Byram
Lubbers Run - Vanderbilt	State	28	Byram
Lubbers Run - Vanderbilt II	State	28	Byram
McCarthy	State	4	Hopatcong
Papakating Creek	State	11	Frankford
Quarryville Brook	State	44	Wantage
Reinhardt - Weber	State	5	Montague
Reinhardt Preserve	State	240	Montague



Name of Facility	Federal, State, County or Municipal Owned	Size (acres in Sussex County)	Municipality
Reinhardt Preserve - Bunnell (easement)	State	34	Montague
Reinhardt Preserve - Coss	State	6	Montague
Reinhardt Preserve - Layne (easement)	State	24	Montague
Reinhardt Preserve - Reinhardt I	State	14	Montague
Walkkill - May/Green Acres	State	13	Ogdensburg
Walkkill River	State	10	Sparta
Walkkill River Addition -NJCF	State	80	Ogdensburg
Walkkill River Addition - Predmore/Bennett	State	4	Ogdensburg
Walkkill River - Pope John High School	State	40	Sparta
Walkkill River Preserve - NJDOT	State	34	Sparta
Sussex County Park	County	1	Newton
Andover Township	Municipal	278	Andover Township
Byram	Municipal	92	Byram
Frankford	Municipal	9	Frankford
Fredon	Municipal	69	Fredon
Hamburg	Municipal	2	Hamburg
Hopatcong	Municipal	172	Hopatcong
Lafayette	Municipal	250	Lafayette
Newton	Municipal	49	Newton
Stanhope	Municipal	15	Stanhope
Stillwater	Municipal	242	Stillwater
Sussex Borough	Municipal	63	Sussex Borough
Vernon	Municipal	123	Vernon
Wantage	Municipal	157	Wantage

Source: Open Space and Recreation Plan 2003

3.2 POPULATION AND DEMOGRAPHICS

Knowledge of the composition of the population, how it has changed in the past and how it may change in the future is needed to make informed decisions. Information about population is a critical part of planning because it directly relates to needs such as housing, industry, stores, public facilities and services, and transportation.

3.2.1 POPULATION CHARACTERISTICS

The population of Sussex County was estimated at 142,298 in the 2014-2018 American Community Survey (ACS). According to the 2010 U.S. Census, Sussex County had a population of 149,265 people which represents a 4.7-percent decrease. Alternatively, there has been an increase in the elderly population (65 and over). The elderly population grew from 17,850 in 2010 to 22,889 in the 2014-2018 ACS 5-Year Census, which represents a 28-percent increase.

Table 3-3 and Table 3-4 present the population statistics for Sussex County based on the 2010 decennial Census' and the 2014-2018 American Community Survey (ACS) 5-Year Estimates. Figure 3-5 shows the distribution of



the general population density (persons per square mile) based on the 2014-2018 ACS 5-Year Estimates by Census block. Western Sussex County is not as densely populated as eastern Sussex County due to its location within the Delaware River Basin. The basin has steep grades, making it difficult to construct homes and businesses.

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. Hazus demographic data will be used in the loss estimating analyses in Section 4 (Risk Assessment) of this plan. All demographic data in Hazus corresponds to the 2010 U.S. Census.

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Table 3-3. Sussex County 2010 Population Statistics

Jurisdiction	U.S. Census 2010						
	Total	Population 65+	Percent (%)Population 65+	Population Under 16	Percent (%)Population Under 16	Low Income Population*	Percent (%) Low Income Population*
Andover (B)	606	73	12.0%	128	21.1%	28	4.6%
Andover (Twp)	6,319	1,012	16.0%	1,374	21.7%	91	1.4%
Branchville (B)	841	141	16.8%	183	21.8%	46	5.5%
Byram (Twp)	8,350	843	10.1%	2,146	25.7%	104	1.2%
Frankford (Twp)	5,565	921	16.5%	1,176	21.1%	124	2.2%
Franklin (B)	5,045	659	13.1%	1,119	22.2%	323	6.4%
Fredon (Twp)	3,437	469	13.6%	882	25.7%	52	1.5%
Green (Twp)	3,601	388	10.8%	1,021	28.4%	50	1.4%
Hamburg (B)	3,277	385	11.7%	741	22.6%	212	6.5%
Hampton (Twp)	5,196	768	14.8%	1,095	21.1%	142	2.7%
Hardyston (Twp)	8,213	1,194	14.5%	1,741	21.2%	348	4.2%
Hopatcong (B)	15,147	1,489	9.8%	3,394	22.4%	262	1.7%
Lafayette (Twp)	2,538	325	12.8%	593	23.4%	52	2.0%
Montague (Twp)	3,847	536	13.9%	877	22.8%	140	3.6%
Newton (T)	7,997	1,481	18.5%	1,718	21.5%	810	10.1%
Ogdensburg (B)	2,410	275	11.4%	590	24.5%	104	4.3%
Sandyston (Twp)	1,998	234	11.7%	448	22.4%	57	2.9%
Sparta (Twp)	19,722	2,198	11.1%	5,688	28.8%	251	1.3%
Stanhope (B)	3,610	374	10.4%	817	22.6%	74	2.0%
Stillwater (Twp)	4,099	459	11.2%	896	21.9%	199	4.9%
Sussex (B)	2,130	261	12.3%	485	22.8%	176	8.3%
Vernon (Twp)	23,943	2,019	8.4%	5,824	24.3%	403	1.7%
Walpack (Twp)	16	4	25.0%	2	12.5%	0	0.0%
Wantage (Twp)	11,358	1,342	11.8%	2,835	25.0%	163	1.4%
Sussex County (Total)	149,265	17,850	12.0%	35,773	24.0%	4,211	2.8%

Source: U.S. Census Bureau: Census 2010; Hazus v4.2 2010 population demographics

Note: * Individuals below poverty level (Hazus v4.2 - Income less than \$20,000)

B = Borough; T = Town; Twp = Township





Table 3-4. Sussex County 2014-2018 American Community Survey Population Statistics

Jurisdiction	2014-2018 American Community Survey										
	Total	Population 65+	Percent (%) Population 65+	Population Under 5	Percent (%) Under 5	Population Below Poverty Level*	Percent (%) Below Poverty Level	Disability Population	Percent (%) Disability Population	Non-English Speaking Population	Percent (%) Non-English Speaking Population
Andover (B)	594	99	16.7%	30	5.1%	28	4.7%	53	8.9%	9	1.5%
Andover (Twp)	5,996	1,392	23.2%	219	3.7%	340	5.7%	671	11.2%	252	4.2%
Branchville (B)	896	128	14.3%	62	6.9%	88	9.8%	113	12.6%	3	0.3%
Byram (Twp)	8,010	1,101	13.7%	379	4.7%	194	2.4%	678	8.5%	176	2.2%
Frankford (Twp)	5,361	1,080	20.1%	171	3.2%	305	5.7%	567	10.6%	49	0.9%
Franklin (B)	4,807	654	13.6%	287	6.0%	394	8.2%	613	12.8%	87	1.8%
Fredon (Twp)	3,214	577	18.0%	120	3.7%	251	7.8%	352	11.0%	17	0.5%
Green (Twp)	3,495	530	15.2%	83	2.4%	188	5.4%	402	11.5%	109	3.1%
Hamburg (B)	3,152	485	15.4%	132	4.2%	217	6.9%	226	7.2%	34	1.1%
Hampton (Twp)	4,916	956	19.4%	138	2.8%	345	7.0%	655	13.3%	191	3.9%
Hardyston (Twp)	7,886	1,485	18.8%	436	5.5%	261	3.3%	696	8.8%	121	1.5%
Hopatcong (B)	14,362	1,965	13.7%	732	5.1%	511	3.6%	1,539	10.7%	786	5.5%
Lafayette (Twp)	2,390	434	18.2%	128	5.4%	124	5.2%	298	12.5%	158	6.6%
Montague (Twp)	3,716	644	17.3%	138	3.7%	178	4.8%	644	17.3%	34	0.9%
Newton (T)	7,895	1,417	17.9%	315	4.0%	1,027	13.0%	1,232	15.6%	502	6.4%
Ogdensburg (B)	2,314	369	15.9%	83	3.6%	129	5.6%	240	10.4%	100	4.3%
Sandyston (Twp)	1,925	381	19.8%	113	5.9%	80	4.2%	264	13.7%	71	3.7%
Sparta (Twp)	18,841	2,590	13.7%	993	5.3%	533	2.8%	1,455	7.7%	532	2.8%
Stanhope (B)	3,377	450	13.3%	123	3.6%	138	4.1%	415	12.3%	89	2.6%
Stillwater (Twp)	3,936	857	21.8%	224	5.7%	247	6.3%	532	13.5%	0	0%
Sussex (B)	1,854	233	12.6%	105	5.7%	297	16.0%	285	15.4%	62	3.3%
Vernon (Twp)	22,369	3,059	13.7%	979	4.4%	848	3.8%	2,261	10.1%	439	2.0%
Walpack (Twp)	6	6	100.0%	0	0%	0	0%	0	0%	0	0%
Wantage (Twp)	10,986	1,997	18.2%	458	4.2%	468	4.3%	1,027	9.3%	179	1.6%
Sussex County (Total)	142,298	22,889	16.1%	6,448	4.5%	7,191	5.1%	15,218	10.7%	4,000	2.8%

Source: U.S. Census Bureau 2014-2018

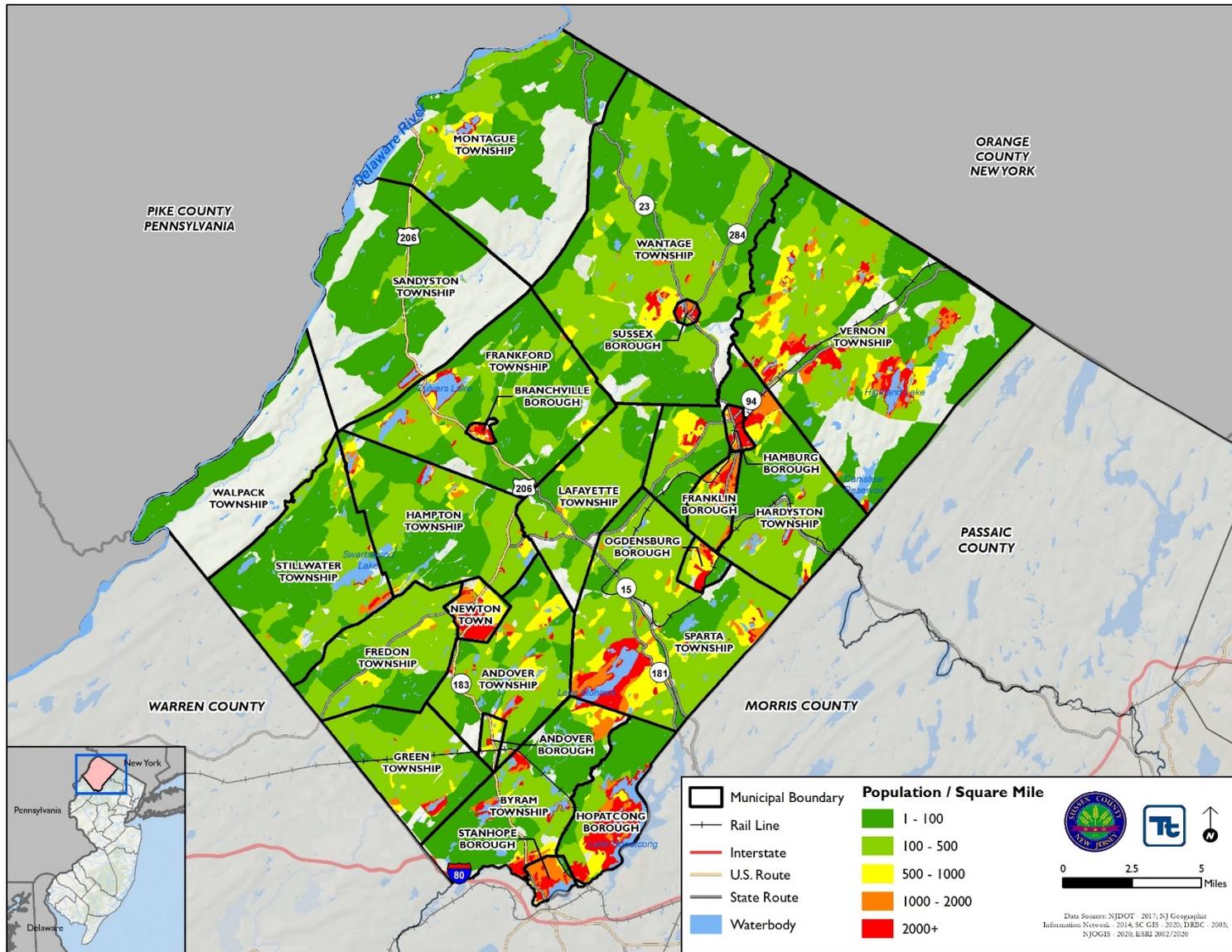
Note: * Individuals below poverty level (Census poverty weighted average threshold for a 3-person family unit in 2018 was approximately \$19,985)

B = Borough; T = Town; Twp = Township





Figure 3-5. Distribution of General Population for Sussex County, New Jersey





3.2.2 VULNERABLE POPULATIONS

Research has shown that some populations, while they may not have more hazard exposure, may experience exacerbated impacts and prolonged recovery if/when impacted. This is due to many factors including their physical and financial ability to react or respond during a hazard. 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 Sussex 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 where emergency preparedness occurs at the discretion of facility operators. Senior care and living facilities are also most vulnerable to hazards like pandemics in light of the close living arrangements combined with older populations with potentially weakened immune systems or pre-existing health issues that may be accentuated during an event like a pandemic.

According to the 2014-2018 ACS 5-Year estimates, the mean age in Sussex County was 44.8 years. Of the 2014-2018 population, 22,889 (13.6%) of the County’s population is age 65 and older; an increase from 2010 (28-percent). The Census also reports a population under 5 of 6,448. Figure 3-5 shows the distribution of persons under the age of 5 and over 65 in purple and orange, respectively based on the 2014-2018 ACS 5-Year estimates.

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. The 2014-2018 ACS data identified approximately 7,191 people as low-income. According to the Census’ 2019 poverty thresholds, the weighted average thresholds for a family of four in 2018 was \$25,701; for a family of three, \$19,985; for a family of two, \$12,784, and for unrelated individuals, \$13,016. Figure 3-5 shows the distribution of low-income persons in Sussex County.

According to the 2014-2018 ACS 5-Year estimates, there were 7,191 people in poverty in Sussex County; an increase from the 2010 low-income population (4,211). It is noted that the 2010 Census data for household income provided in Hazus includes two ranges (\$0-10,000 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 updated ACS statistics; however, this difference is not believed to be significant for the purposes of this planning effort.

Physically or Mentally Disabled

The Center for Disease Control and Prevention (CDC) defines a disability as a “condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions)” (CDC 2020). These impairments may increase the level of difficulty that individuals may face during an emergency. Cognitive impairments may reduce an individual’s capacity to receive, process, and respond to emergency information or warnings. Individuals with a physical or sensory disability may face issues of mobility, sight, hearing, or reliance on specialized medical equipment. According to the 2014-2018 ACS, 10.7-percent of residents of Sussex County are living with a disability. Figure 3-5 shows the geographic distribution of disabled individuals throughout



Sussex County which includes individuals with hearing, vision, cognitive, ambulatory, self-care, and independent living difficulties.

Non-English Speakers

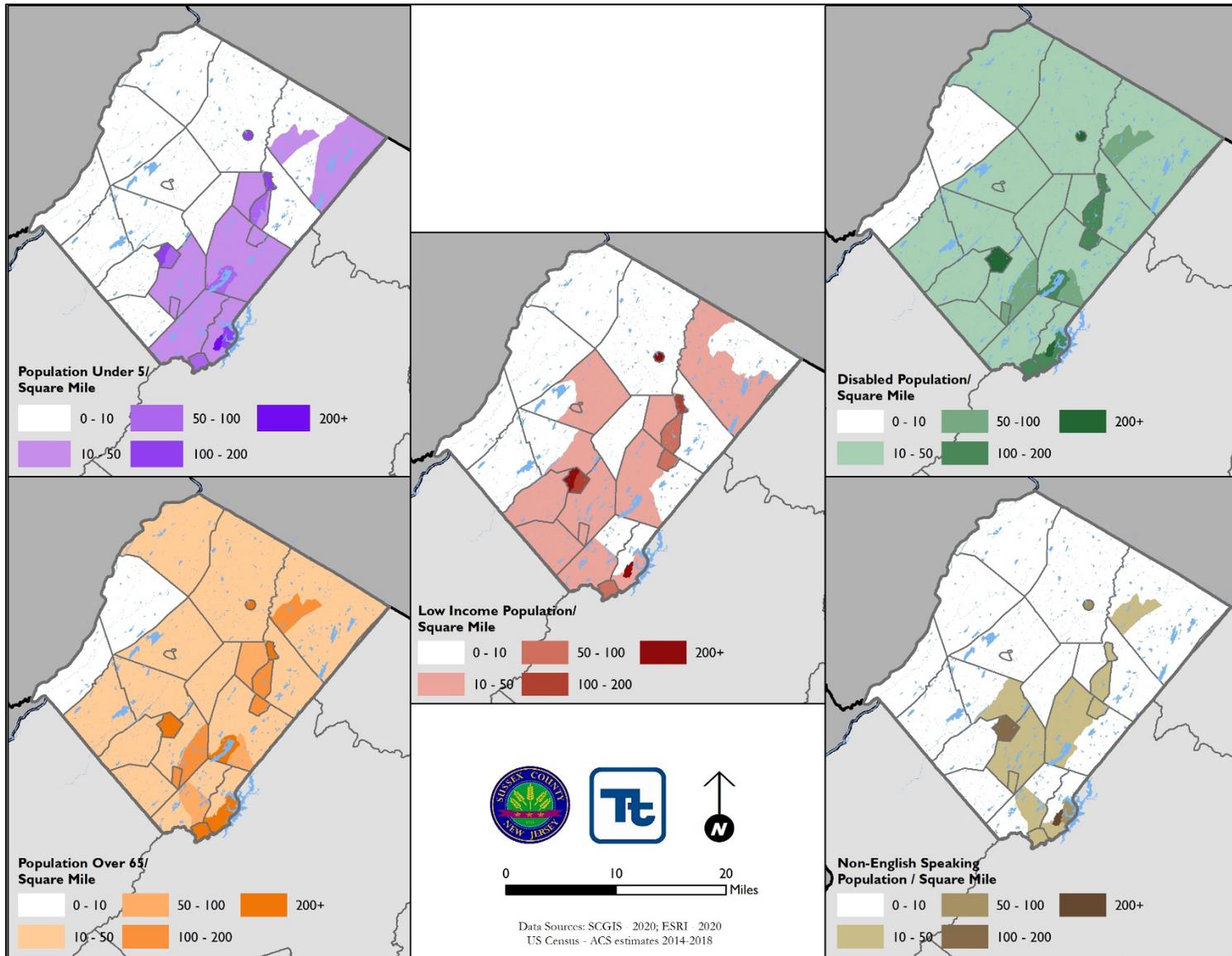
Individuals who are not fluent or have a working proficiency in English may be vulnerable to hazard events because they may have difficulty with understanding information being conveyed to them. Cultural differences can also add complexity to how information is being conveyed to populations with limited proficiency of English (CDC 2020).

According to the 2014-2018 ACS, 2.8-percent of the County's population over the age of 5 speaks a language other than English at home; this is significantly less than the State average of 30-percent. Figure 3-6 shows the geographic distribution of non-English speakers throughout Sussex County.

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Figure 3-6. Distribution of Socially Vulnerable Populations in Sussex County





3.2.3 POPULATION TRENDS

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 2014-2018 ACS, Sussex County’s population was 142,298 persons, which is a 4.7-percent decrease from the 2010 Census population of 149,265. Between 1900 and 2010, the County experienced overall growth. Between 1960 and 1970, the County experienced its largest increase in population: 57.4-percent. The smallest increase was between 2000 and 2010, when the population increased by 3.5-percent. Since 2010, the population has been decreasing, but the largest decrease was between 1910 and 1920, when the County experienced a 7-percent decrease in population (New Jersey State Data Center 2001).

Over the past 10 years, the County experienced population decline and is expected to shrink in the coming years. Table 3-5 displays the population and change in population from 1900 to 2018 in Sussex County.

Table 3-5. Sussex County Population Trends, 1900 to 2018

Year	Population	Change in Population	Percent Population Change
1900	24,134	N/A	N/A
1910	26,781	2,647	11.0%
1920	24,905	-1,876	-7.0%
1930	27,830	2,925	11.7%
1940	29,632	1,802	6.5%
1950	34,423	4,791	16.2%
1960	49,255	14,832	43.1%
1970	77,528	28,273	57.4%
1980	116,119	38,591	49.8%
1990	130,943	14,824	12.8%
2000	144,166	13,223	10.1%
2010	149,265	5,099	3.5%
2014	146,888	-2,377	-1.6%
2018	142,298	-4,590	-3.1%

Source: U.S. Census Bureau 2018; New Jersey State Data Center 2001
Note: % - Percent
Change in population and percent in population change was calculated from available data

Table 3-6 displays the ten largest municipalities in Sussex County. According to the 2014-2018 ACS data, the Township of Vernon was the most populous municipality, comprising 15.7-percent of the County’s total population.

Table 3-6. Ten Largest Municipalities in Sussex County

Rank	Jurisdiction	Total
1	Vernon (Twp)	22,369
2	Sparta (Twp)	18,841
3	Hopatcong (B)	14,362



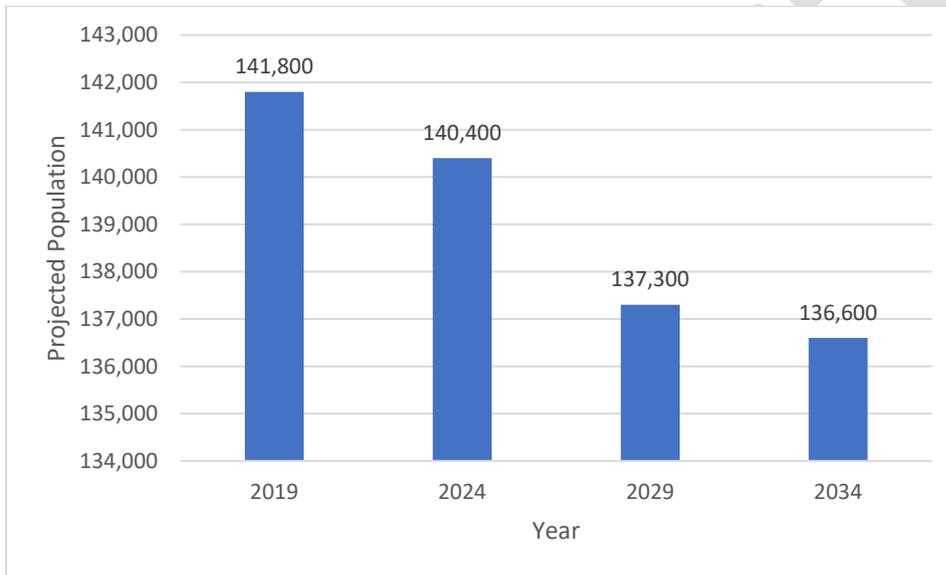


Rank	Jurisdiction	Total
4	Wantage (Twp)	10,986
5	Byram (Twp)	8,010
6	Newton (T)	7,895
7	Hardyston (Twp)	7,886
8	Andover (Twp)	5,996
9	Frankford (Twp)	5,361
10	Hampton (Twp)	4,916

Source: 2014-2018 ACS Census
 B = Borough; T = Town; Twp = Township

Over the next 15 years, it is projected that population will continue to decline in Sussex County (-3.7-percent). Based on New Jersey Department of Labor population projections, the County population is expected to reduce to 140,400 by 2024, 137,300 by 2029, and 136,600 by 2034 (Figure 3-7 and Table 3-7).

Figure 3-7. Sussex County Population Projections, 2019 to 2034



Source: New Jersey Department of Labor and Workforce Development 2019

Table 3-7. Population Trends in Sussex County by Jurisdiction

Jurisdiction	2010 Census	2014-2018 ACS	Change in Population	Percent Population Change
Andover (B)	606	594	-12	-2.0%
Andover (Twp)	6,319	5,996	-323	-5.1%
Branchville (B)	841	896	55	6.5%
Byram (Twp)	8,350	8,010	-340	-4.1%
Frankford (Twp)	5,565	5,361	-204	-3.7%
Franklin (B)	5,045	4,807	-238	-4.7%
Fredon (Twp)	3,437	3,214	-223	-6.5%
Green (Twp)	3,601	3,495	-106	-2.9%



Jurisdiction	2010 Census	2014-2018 ACS	Change in Population	Percent Population Change
Hamburg (B)	3,277	3,152	-125	-3.8%
Hampton (Twp)	5,196	4,916	-280	-5.4%
Hardyston (Twp)	8,213	7,886	-327	-4.0%
Hopatcong (B)	15,147	14,362	-785	-5.2%
Lafayette (Twp)	2,538	2,390	-148	-5.8%
Montague (Twp)	3,847	3,716	-131	-3.4%
Newton (T)	7,997	7,895	-102	-1.3%
Ogdensburg (B)	2,410	2,314	-96	-4.0%
Sandyston (Twp)	1,998	1,925	-73	-3.7%
Sparta (Twp)	19,722	18,841	-881	-4.5%
Stanhope (B)	3,610	3,377	-233	-6.5%
Stillwater (Twp)	4,099	3,936	-163	-4.0%
Sussex (B)	2,130	1,854	-276	-13.0%
Vernon (Twp)	23,943	22,369	-1,574	-6.6%
Walpack (Twp)	16	6	-10	-62.5%
Wantage (Twp)	11,358	10,986	-372	-3.3%
Sussex County (Total)	149,265	142,298	-6,967	-4.7%

Source: 2014-2018 ACS Census

B = Borough; T = Town; Twp = Township

Between 2010 and 2018, all jurisdictions, but one, experienced population decline. The Borough of Branchville was the only municipality to increase its population (841 to 896). The Township of Walpack and the Borough of Sussex were the two municipalities with the largest percentage of population reduction: 62.5-percent and 13-percent, respectively.

3.3 GENERAL BUILDING STOCK

The 2014-2018 ACS data identified 53,361 households (62,371 housing units) in Sussex County which is a small decrease in total households (-2.8-percent) but an increase in housing units (+0.5-percent) from 2010 to 2018. The U.S. Census defines a household as all persons who occupy a housing unit, and a housing unit as a house, apartment, mobile home, 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 a single-family home in Sussex County was estimated at \$279,600 (ACS, 2014-2018).

For the HMP update, a custom-building inventory was developed to assess the current built environment's risk to natural hazards. The building stock update was performed using the most current parcel and tax assessment data provided by the New Jersey Geographic Information Network. There are approximately 72,021 structures included in the inventory with an estimated replacement cost value (RCV) of approximately \$60 billion (structure and contents). Estimated content value was calculated by using 50-percent of the residential and parking replacement cost value, 100-percent of the commercial, industrial construction, religious, government and primary education values, and 150-percent of hospitals, industrial, emergency government and secondary education values. Actual content value varies widely depending on the usage of the structure. Approximately 86.7-percent of the total buildings in the County are residential, which make up approximately 39.8-percent of



the County's total replacement cost value. Table 3-8 presents building stock statistics by occupancy class for Sussex County.

The 2014-2018 ACS for Sussex County identified that the majority of housing units (80.1-percent) are one-unit detached units. The 2018 U.S. Census Bureau's County Business Patterns data identified a total 3,207 business establishments employ 31,622 people in Sussex County. The Construction industry has the greatest number of establishments in the County, with 512 and the Healthcare and Social Assistance industry has the greatest number of employees in the County, with 5,998.

Figure 3-8 through Figure 3-10 show the distribution and exposure density of residential, commercial, and industrial buildings in Sussex County. Exposure density is the dollar value of structures per unit area, including building content value. The densities are shown in units of \$1,000 (\$K) per square mile. Viewing exposure distribution maps can assist communities in visualizing areas of high exposure and in evaluating aspects of the study area in relation to the specific hazard risks.

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Table 3-8. Number of Buildings and Replacement Cost Value by Occupancy Class

Jurisdiction	All Occupancies				Residential		Commercial		Industrial	
	Count	Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure + Contents)	Count	Total Replacement Cost Value (Structure + Contents)	Count	Total Replacement Cost Value (Structure + Contents)	Count	Total Replacement Cost Value (Structure + Contents)
Andover (B)	328	\$332,119,752	\$296,343,278	\$628,463,030	234	\$113,045,719	69	\$464,742,666	2	\$1,963,145
Andover (Twp)	2,584	\$1,950,232,362	\$1,659,447,362	\$3,609,679,724	2,144	\$976,175,392	159	\$1,915,807,334	14	\$69,582,340
Branchville (B)	426	\$283,245,897	\$249,131,471	\$532,377,368	339	\$123,183,329	71	\$351,922,955	1	\$23,764,725
Byram (Twp)	3,676	\$1,568,849,755	\$1,177,700,691	\$2,746,550,446	3,345	\$1,195,284,013	112	\$1,258,359,318	2	\$4,331,196
Frankford (Twp)	3,537	\$1,739,300,413	\$1,390,587,892	\$3,129,888,305	2,783	\$1,193,756,590	174	\$818,858,093	9	\$49,270,892
Franklin (B)	2,061	\$1,074,588,863	\$846,622,993	\$1,921,211,856	1,819	\$750,769,532	150	\$855,563,757	14	\$96,080,193
Fredon (Twp)	1,615	\$779,059,999	\$592,990,935	\$1,372,050,934	1,213	\$585,811,657	43	\$90,249,154	6	\$44,769,432
Green (Twp)	1,698	\$920,306,992	\$678,328,812	\$1,598,635,804	1,377	\$791,714,893	28	\$133,482,533	4	\$93,921,824
Hamburg (B)	1,594	\$859,898,957	\$728,150,334	\$1,588,049,291	1,473	\$469,464,565	95	\$849,357,791	8	\$99,532,914
Hampton (Twp)	2,763	\$1,239,383,737	\$956,747,861	\$2,196,131,598	2,303	\$865,409,960	106	\$635,639,668	1	\$7,938,962
Hardyston (Twp)	4,403	\$1,807,469,173	\$1,375,564,369	\$3,183,033,542	3,965	\$1,400,824,808	188	\$1,196,445,035	20	\$112,756,086
Hopatcong (B)	8,040	\$1,767,028,668	\$1,121,543,007	\$2,888,571,676	7,641	\$1,924,437,823	180	\$652,082,684	0	\$0
Lafayette (Twp)	1,462	\$1,036,755,531	\$921,418,534	\$1,958,174,065	958	\$501,339,546	95	\$489,709,499	28	\$87,340,680
Montague (Twp)	2,175	\$833,154,433	\$626,456,587	\$1,459,611,020	1,870	\$633,887,759	92	\$423,339,200	8	\$16,169,966
Newton (T)	2,679	\$2,711,511,234	\$2,381,764,573	\$5,093,275,807	2,245	\$1,333,560,567	284	\$2,879,641,363	21	\$275,709,494
Ogdensburg (B)	992	\$462,330,280	\$357,549,349	\$819,879,629	909	\$339,343,924	49	\$332,727,893	3	\$31,865,808
Sandyston (Twp)	1,528	\$666,040,739	\$546,585,925	\$1,212,626,664	1,094	\$381,205,972	89	\$295,884,103	7	\$38,069,215
Sparta (Twp)	8,132	\$5,023,898,047	\$4,046,196,238	\$9,070,094,285	7,386	\$3,177,699,823	429	\$4,849,008,402	41	\$225,283,240
Stanhope (B)	1,557	\$602,241,781	\$448,941,800	\$1,051,183,581	1,449	\$547,646,500	66	\$250,585,937	7	\$136,583,953
Stillwater (Twp)	2,493	\$824,560,953	\$593,018,445	\$1,417,579,398	1,970	\$696,478,590	144	\$210,525,888	0	\$0
Sussex (B)	678	\$1,002,618,047	\$942,960,869	\$1,945,578,916	551	\$392,993,541	80	\$1,357,013,187	7	\$46,870,858
Vernon (Twp)	12,039	\$3,408,279,379	\$2,250,691,784	\$5,658,971,163	11,182	\$3,599,814,313	384	\$967,786,928	49	\$141,369,394
Walpack (Twp)	51	\$32,321,714	\$31,369,836	\$63,691,550	11	\$2,855,635	21	\$15,107,778	0	\$0
Wantage (Twp)	5,510	\$2,745,134,777	\$2,132,409,108	\$4,877,543,885	4,168	\$1,898,743,239	196	\$922,529,675	6	\$12,851,984
Sussex County (Total)	72,021	\$33,670,331,484	\$26,352,522,055	\$60,022,853,539	62,429	\$23,895,447,689	3,304	\$22,216,370,842	258	\$1,616,026,301

Source: New Jersey Geographic Information Network 2019
 B = Borough; RCV = Replacement Cost Value; T = Town; Twp = Township





Figure 3-8. Distribution of Residential Building Stock and Value Density in Sussex County

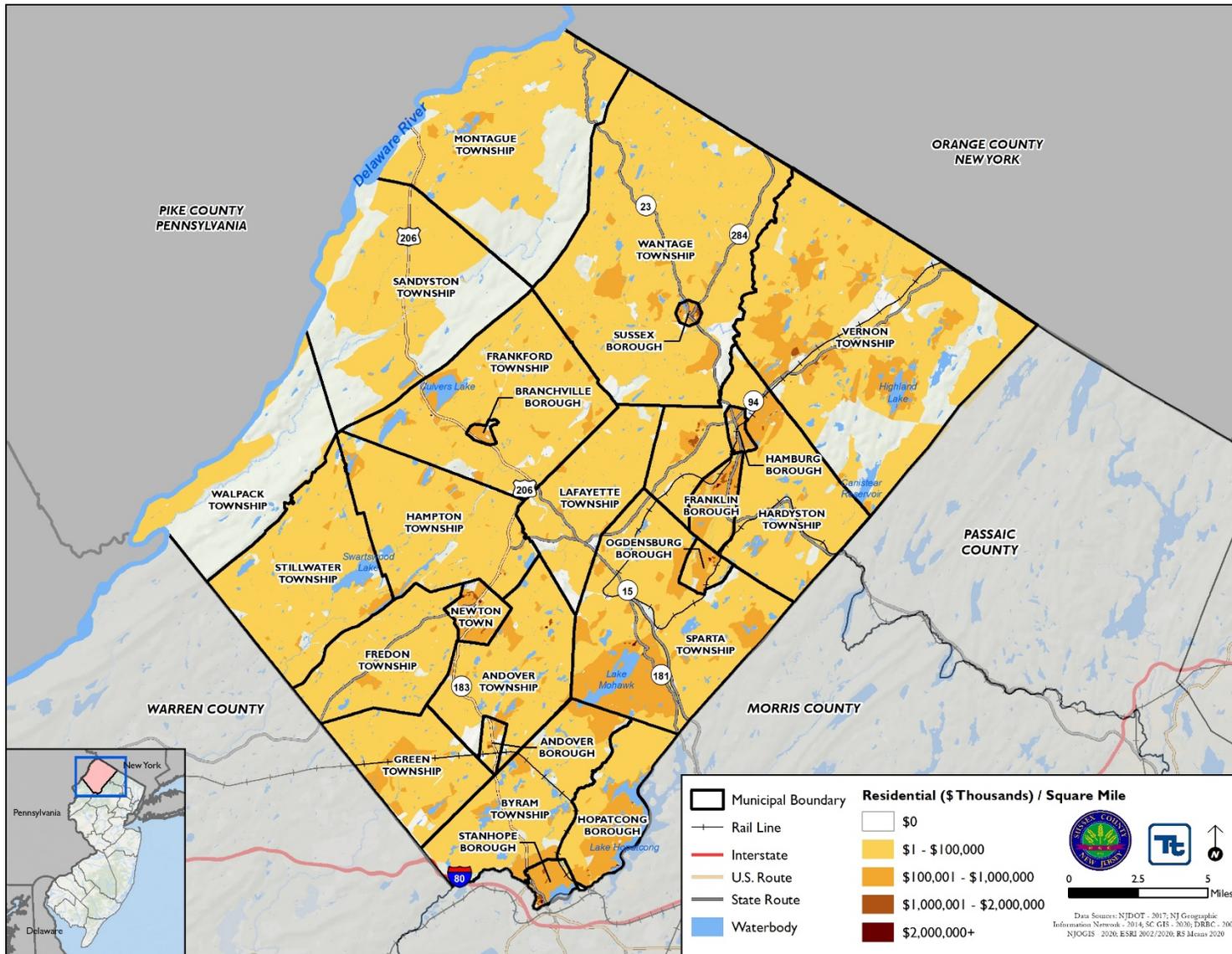




Figure 3-9. Distribution of Commercial Building Stock and Value Density in Sussex County

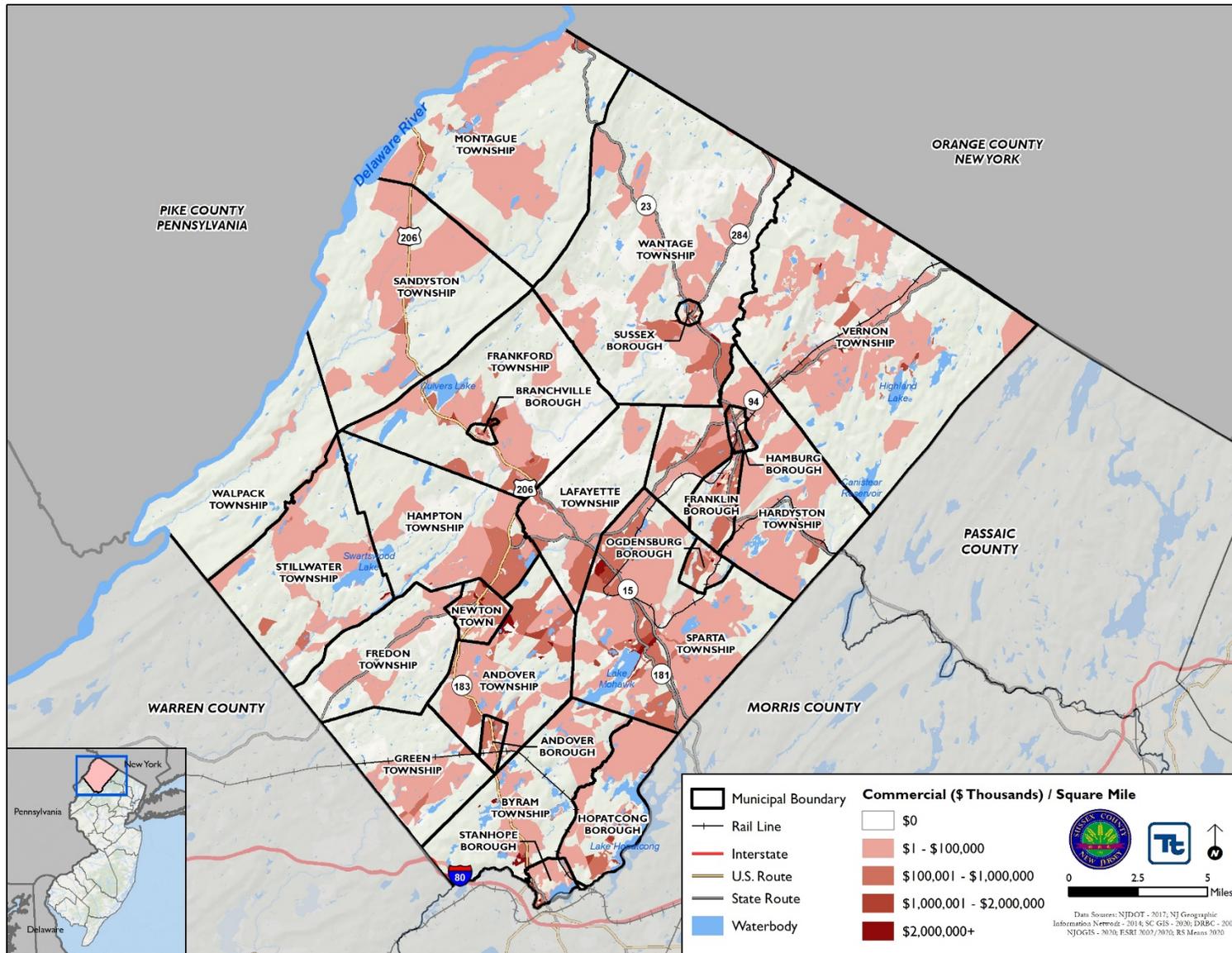
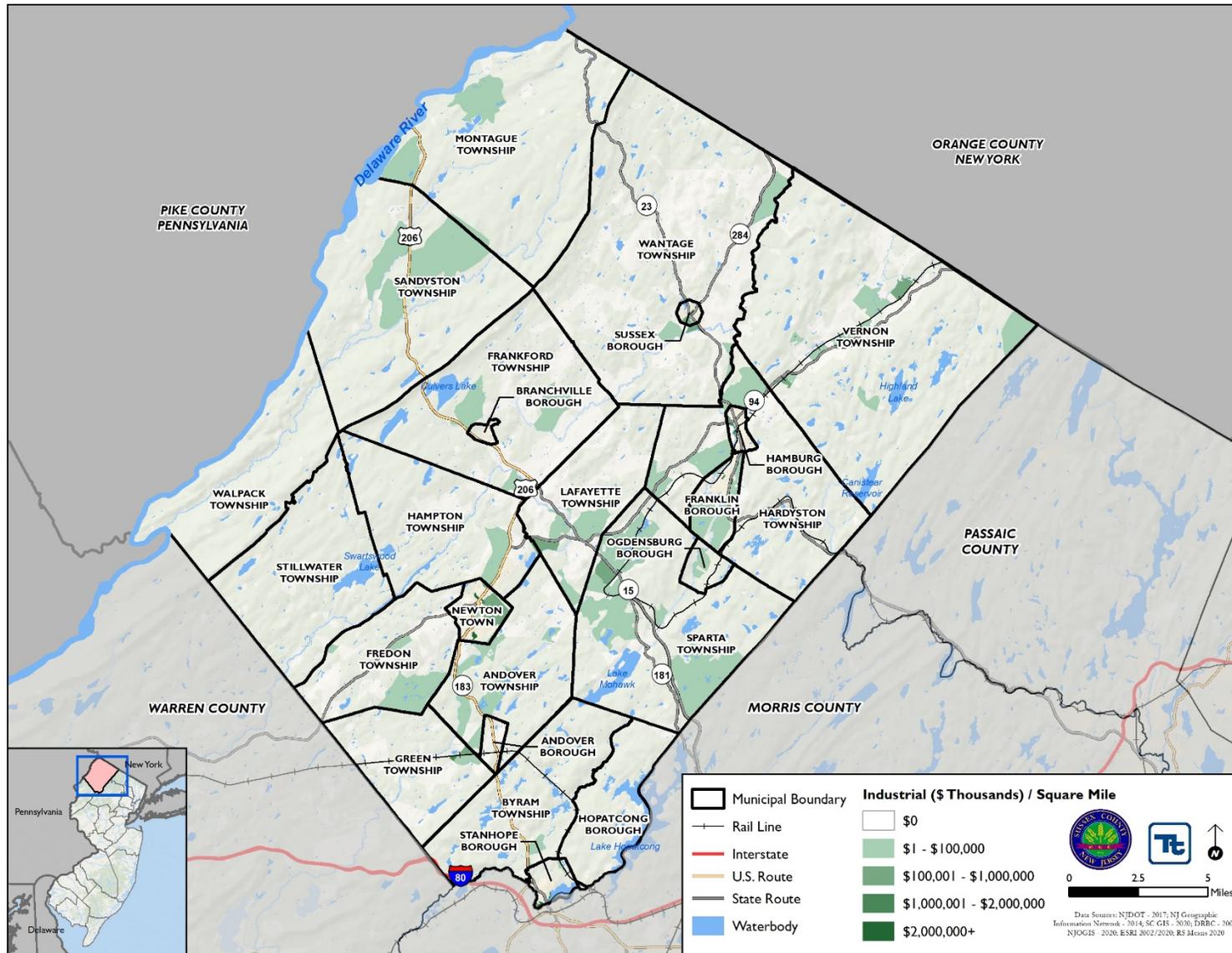




Figure 3-10. Distribution of Industrial Building Stock and Value Density in Sussex County





3.4 ECONOMY

As discussed in the FEMA Local Mitigation Handbook, after a natural hazard event, economic resiliency drives recovery. An understanding of the major employers and economic sectors in the County whose losses or inoperability would impact the community and its ability to recover from a disaster is essential. The following provides information regarding the economy in Sussex County.

Sussex County’s early industry and commerce were chiefly centered on agriculture, milling, and iron and zinc mining. The local economy expanded due to the introduction of the railroads, which helped the development of factories following the Civil War and continuing to the 1960s. In the second half of the twentieth century, the auto-dependent suburban areas surrounding New York City boomed. Highway infrastructure was set in place and formally rural areas were engulfed by the migration of the middle-class. However, by the 1970’s manufacturing began to move to the south, leaving factories out-of-business and vacant (Together New Jersey 2014).

Sussex County completed the Strategic Growth Plan Update in November 2014. The plan identified six focus areas: Tourism, Transportation, Housing, Industrial and Commercial Development, Reducing the Regulatory Burden, and Agriculture. Of these focus areas, Tourism, Transportation, and Housing were considered high priority, Industrial and Commercial Development and Reducing Regulatory Burden were considered medium priority, and Agriculture was considered low priority. These focus areas were assessed to 1) find existing conditions and trends; 2) identify key assets and resources, and; 3) highlight issues and process for securing economic growth. The report presented a total of 45 actions, which included recommended policy or legislative changes, additional studies to be performed, implementation strategies, and new specific projects (Sussex County 2014).

While manufacturing in the County has declined, the County is still home to several manufacturers including Ames Rubber Corp, a manufacturer of molded components, protective coatings, and dispensed gaskets for high-tech applications and ThorLabs, a manufacturer of high-tech components for the laser and fiber optics industry. Today, the fastest growing sectors of the economy are tourism and recreation. The industries represented by the 10 largest employers include recreation, healthcare, retail, education and government; refer to Table 3-9.

Table 3-9. Top Ten Sussex County Employers

Employer	Location	Employment	Industry
Crystal Springs Golf and Spa Resort	Vernon/Hardyston	2,000	Recreation
Newton Medical Center	Newton	1,200	Healthcare
Selective Insurance	Branchville	900	Insurance
Mountain Creek Resort	Vernon	800	Recreation
County of Sussex	Newton	500	Government
Ames Rubber Corp.	Hamburg	445	Manufacturing
Shop Rite Supermarkets	Newton	301	Retail
Andover Subacute and Rehab Center	Andover	300	Healthcare
Sussex County Community College	Newton	300	Education
Raider Express	Andover	250	Trucking/Logistics

Source: Sussex County 2014

According to the 2014 update of the Strategic Growth Plan, the largest employment sector in Sussex County is Education and Healthcare, followed by Trade, Transportation, and Utilities, and Leisure and Hospitality. Sussex





County appears to be under-represented in its share of employment in higher-paying industries such as Information, Financial Activities, and Business & Professional Services. These industries are typically considered export-based industries that bring money into the region and have a wealth creating impact on the local economy. The county is over-represented in lower paying industries such as Education and Healthcare, Leisure and Hospitality, and Personal Services. These industries are considered non-basic industries, and except for Leisure and Hospitality, do not bring money into the local economy and as a result have smaller multiplier impacts on the local economy (Sussex County 2014).

Sussex County employment has decreased in a majority of the industry sectors since 2000 with the exception of Education and Healthcare (25.8 percent), Leisure and Hospitality (28.5 percent), and Other Services (47.7 percent). All other industries are below their 2000 employment levels, with many industries significantly below, including Information (55.1 percent), Manufacturing (21.2 percent), and Professional and Business Services (20.8 percent) (Sussex County 2014).

3.5 DEVELOPMENT TRENDS AND NEW DEVELOPMENT

An understanding of population and 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. The DMA 2000 requires that communities consider land use trends, which can impact the need for, and priority of, mitigation options over time. Land use and development 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.

Local zoning and planning authority are provided for under the New Jersey Municipal Land Use Law, which gives municipalities zoning and planning authority. Refer to Sections 5 (Capability Assessment) and Section 9 (Jurisdictional Annexes) for further details on the planning and regulatory capabilities for the County and each municipality.

Sussex County is located partially in the New Jersey Highlands Region Preservation Area and partially in the Planning Area. The Highlands Region was officially formed in 2004 to support more regional approaches to land and water conservation, preservation, and management. The Region is found in New Jersey but also neighboring states of New York, Pennsylvania, and Connecticut. The County recognizes the unique value of the Highlands Area and seeks to protect and enhance it while ensuring that land use and development activities occur only in a manner and location that is consistent with the Highlands Regional Master Plan.

The Sussex County Economic Development Partnership (SCEDP) facilitates the recruitment, retention, and expansion of businesses that will complement and be consistent with the character and environment of the County. Additionally, the Sussex County Planning Board is responsible for approving site plan and subdivision applications within their jurisdiction. A development review committee reviews all applications and acts on behalf of the Planning Board.

The New Jersey Highlands Council has identified areas of existing development as well as areas of potential growth that may provide insight as to where potential new development may occur in Sussex County. These areas include the Existing Community Zone (both in-fill of new development and re-development) and Designated Centers; refer to Figure 3-9. The New Jersey Highlands Council assists with planning and considers hazard areas such as floodplains when evaluating new and re-development in the region. In addition, the NJDEP Sewer Service Areas are also shown. These areas show the planned method of wastewater disposal for specific areas, i.e. whether the wastewater will be collected to a regional treatment facility or treated on site and disposed of through a surface water discharge of groundwater discharge.

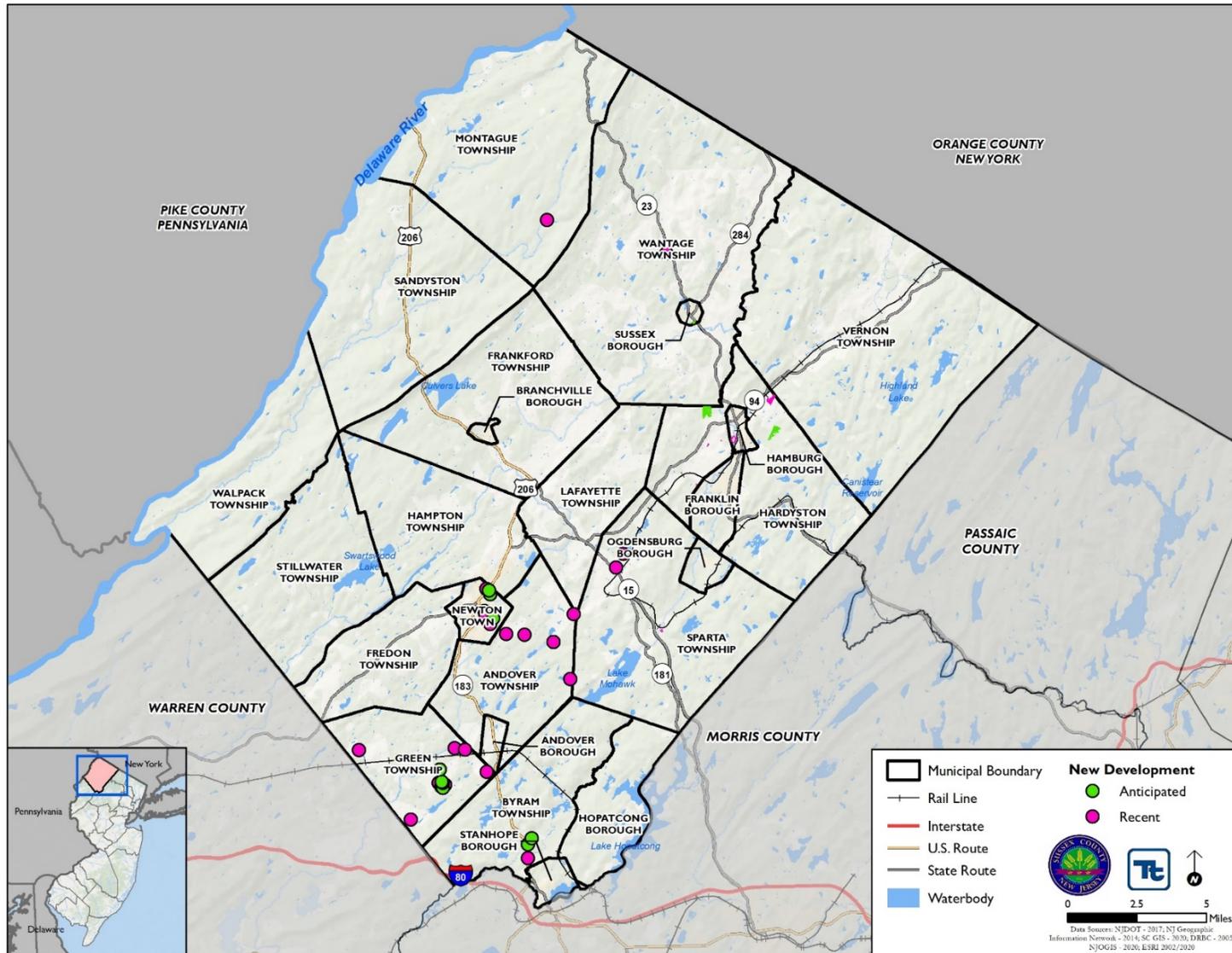


According to the Sussex County Department of Planning and Economic Development website, there has been a total of 308 permits for new residential buildings from 2015 to 2017 with the largest increase in multi-family use; more recent data is not posted at this time (<https://www.sussex.nj.us/documents/planning/residential-building-permits-2010-2017.pdf>). New development that has occurred in the last five years within the County and potential future development in the next five years has been identified by each municipality. An exposure analysis was conducted to determine the relationship between the identified potential new development and natural hazard areas evaluated in the HMP update. The results of this spatial analysis have been reviewed with each jurisdiction and are documented in Table 9.X-2 in each jurisdiction annex. In addition, the summary of this analysis and hazard-specific maps are included at the end of each vulnerability assessment (Section 4 – Risk Assessment). Figure 3-9 illustrates the potential new development identified by each jurisdiction, as well as Highlands Existing Community Zones, Designated Centers and Sewer Service Areas which are areas of potential future growth in Sussex County.

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Figure 3-11. Areas of Potential Growth and Development in Sussex County





3.6 CRITICAL FACILITIES AND LIFELINES

Critical facilities and infrastructure are necessary for a community’s response to and recovery from natural hazard events. Critical facilities include essential facilities, transportation systems, lifeline utility systems, high potential loss facilities and hazardous material facilities. Transportation systems include roadways, bridges, airways, and waterways. Utility systems include potable water, wastewater, oil, natural gas, electric power facilities, and emergency communication systems.

A comprehensive inventory of critical facilities in Sussex County was updated from the 2016 HMP. The Sussex County DEM, Sussex County Division of Planning and individual municipalities provided additional information regarding new, existing, and closed critical facilities.

Critical facilities and infrastructure provide services and functions essential to a community, especially during and after a disaster. As defined for this HMP, critical facilities include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities and hazardous material facilities.

A **community lifeline**, a type of critical facility, enables the continuous operation of government functions and critical business and is essential to human health and safety or economic security.

An enhancement to the 2021 HMP was the identification of community lifelines across Sussex County. Sussex County’s definition for a lifeline aligns with FEMA: “a type of critical facility that provides indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, or economic security.” Identifying community lifelines will help government officials and stakeholders to prioritize, sequence, and focus response efforts towards maintaining or restoring the most critical services and infrastructure within their respective jurisdiction(s). Identifying potential impacts to lifelines can help to inform the planning process and determining priorities in the event an emergency occurs; refer to Appendix E for the FEMA fact sheet on lifelines. Overall, there are 590 critical facilities in Sussex County all of which are identified as community lifelines. This inventory is used for the risk assessment in Section 4.

The inventory developed for the HMP update 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.



3.6.1 ESSENTIAL FACILITIES

This section provides information on emergency facilities, hospital and medical facilities, schools, shelters, and senior care and living facilities. As stated above, these assets provide indispensable services that need to remain in operation before, during and after natural hazard events. Refer to Section 9 (Jurisdictional Annexes) for mitigation strategies identified by plan participants to reduce future impacts to vulnerable essential facilities and lifelines. Figure 3-11 illustrates the inventory of these essential facilities in Sussex County.

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 for the purposes of this Plan, emergency facilities include police, fire, emergency medical services (EMS) and emergency operations centers (EOC).

Emergency Facilities

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

Each municipality is responsible for maintaining its own fire department with the exception of Walpack Township who has a shared agreement with the Sandyston Township Volunteer Fire Department. Andover Township, Byram Township, Franklin Borough, Hamburg Borough, Hardyston Township, Hopatcong Borough, Newton Town, Ogdensburg Borough, Sparta Township, Stanhope Borough, and Vernon Township all maintain their own police department and provide support to surrounding municipalities. All of the municipalities also maintain their own emergency medical service facilities with the exception of Andover Borough, Branchville Borough, Hamburg Borough, Hampton Township, Sandyston Township, Sussex Borough, and Walpack Township.

Overall, there are 12 enforcement facilities, 65 fire and EMS facilities, and 9 EOCs in Sussex County.

Hospital and Medical Facilities

Sussex 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 Newton Memorial Hospital in Newton Town and Saint Claire’s Hospital in Sussex Borough. Additionally, adult care and long-term care facilities are located in Andover Borough, Andover Township, Hampton Township, Hopatcong Borough, Newton Town, and Sparta Township.

Schools

More than 50 schools, ranging from elementary to post-secondary education, service the County. Schools can function as shelters in times of need and are important resource for the community. Several municipalities have their own school systems, while several others are serviced by regional school districts. The primary higher education school in Sussex County is Sussex County Community College in Newton.

There is a total of 54 education facilities located in the County.



Shelters

There were 29 shelters identified within the County during this planning process; many of which are schools, community centers, and municipal buildings.

Senior Care and Living Facilities

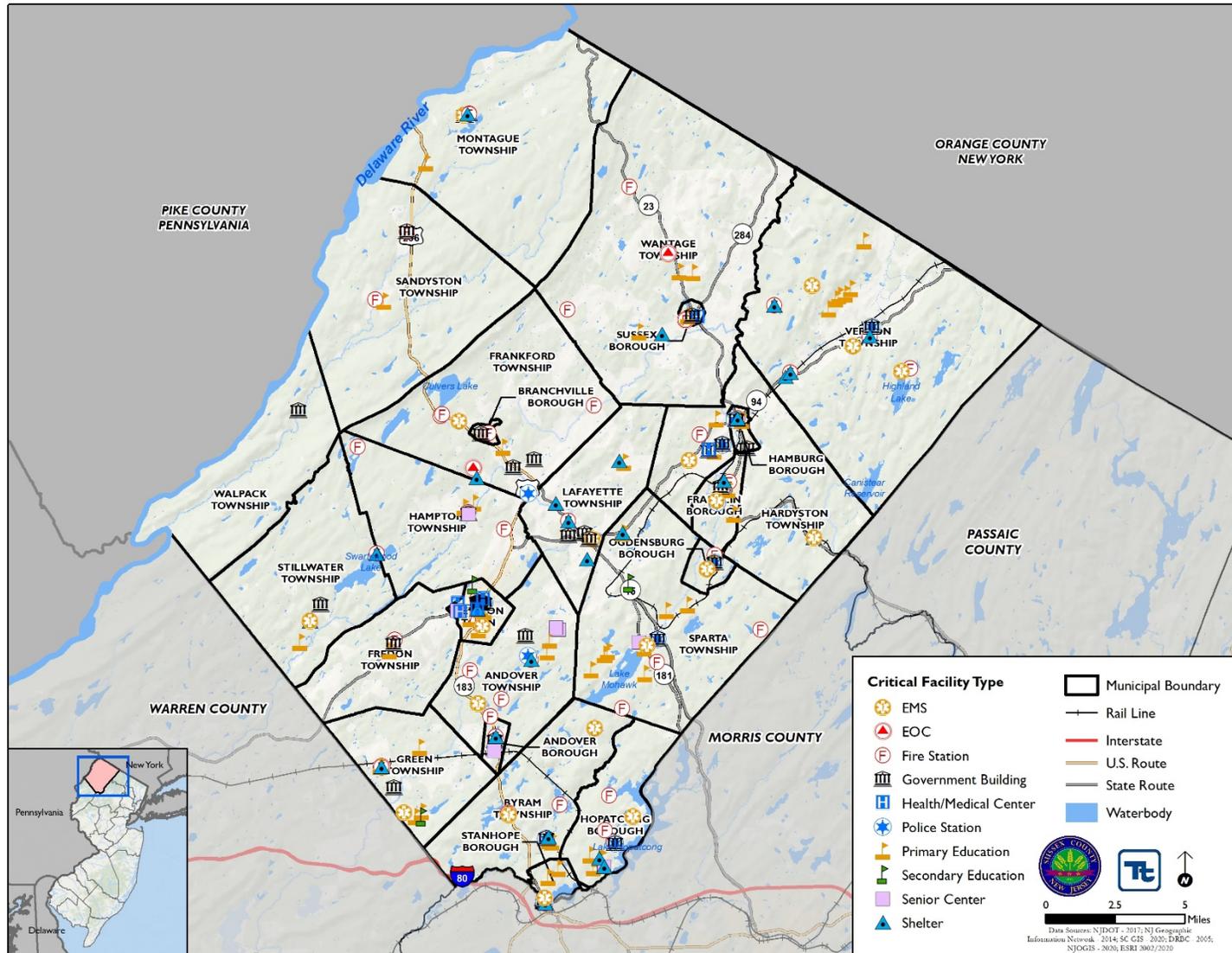
It is important to identify and account for senior facilities, as they are highly vulnerable to the potential impacts of disasters. Understanding the location and numbers of these types of facilities can help manage effective response plan post disaster. There are seven senior facilities located in the inventory for the risk assessment.

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 37 additional government facilities located in the County.



Figure 3-12. Essential Facilities in Sussex County





3.6.2 TRANSPORTATION SYSTEMS

One of the County’s strongest assets is its transportation infrastructure. Air and land are available and major roadways include Interstate 80, State Routes 15, 23, 94, 181, and 284, and US Route 206. There are three private airports in the County, and 29 bus and park and ride locations. Figure 3-13 illustrates the transportation facilities in Sussex County.

Three organizations provide limited public transportation services within Sussex County, between Sussex County and Morris County, and extended service to Newark and New York. New Jersey Transit (NJ Transit) provides bus service for County residents. Sussex County Transit provides deviated fixed route and demand response service for the general public and paratransit mobility options for elderly or disabled residents. Lakeland Bus Lines, under contract with NJ Transit, provides service between Sussex County and adjacent counties as well as commuter service to Newark and New York. There are also private agencies in the County that provide transportation for their clients who are either elderly or disabled (Sussex County 2005).

Bus Service

The NJ Transit provides bus service to Sussex County residents. The NJ Transit directly operates some of the services that they provide and contracts out to local providers for other services. The NJ Transit provides one bus route in Sussex County through its Wheels program. The Sparta Diamond Express bus provides peak hour service between Sparta Township and Parsippany (Sussex County 2005).

Lakeland Bus Lines, Inc. operates five routes that are available to County residents under contract by the NJ Transit. Two of the five routes are operated inside Sussex County. One is a local circulator and the other is a commuter service to New York City. The other three routes provide commuter service to New York City starting in Dover (Sussex County 2005).

Sussex County Transit provides both fixed route and demand response services in the County. The fixed routes are open to the public but the demand response paratransit service is only available to senior citizens and persons with disabilities (Sussex County 2005).

Rail Service

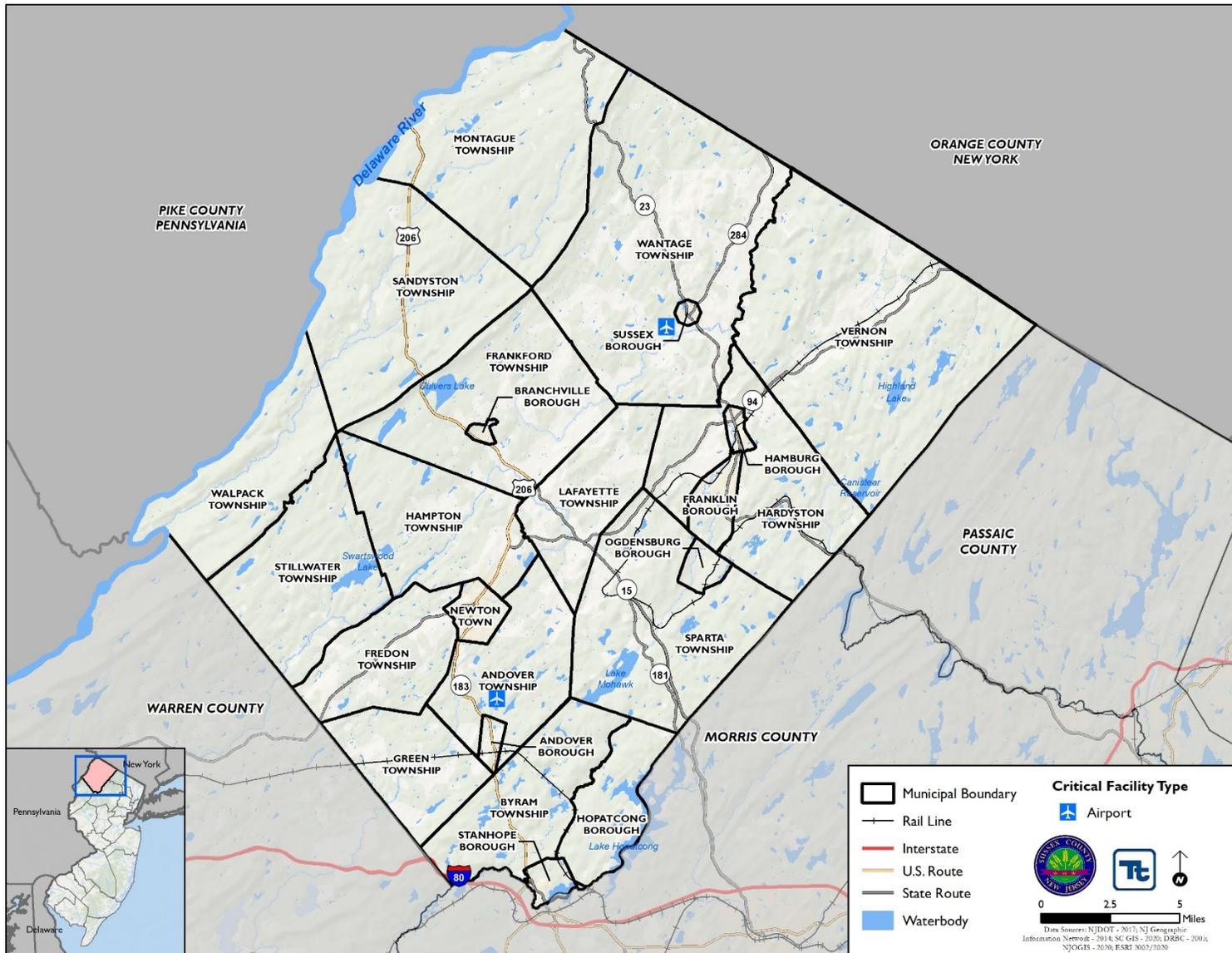
Passenger rail service does not enter Sussex County; residents travel to Morris and Warren Counties to use rail service (Sussex County 2005). The County maintains a freight rail that is operated by regional and short line railroads.

Sussex County Skylands Ride

The Sussex County Skylands Ride is a transportation service that provides five transportation services for Sussex County residents. During the week, the Skylands Connect service runs between the Sussex-Wantage Library and Hampton Township with stops in Hamburg Borough, Franklin Borough, Ogdensburg Borough, Sparta Township, and Newton Town; the Skylands Connect Saturday service is also provided and follows the same route. Skylands New Freedom services is offered on weekdays and runs between the Newton Park & Ride and Netcong train station. Skylands On-Request is provided to senior citizens, veterans, people with disabilities, and residents going to work, school, or training. The Shopper’s Service provides scheduled transportation to various stores in the County. Depending on the day, the service is provided to varying communities throughout the County (Sussex County 2020).



Figure 3-13. Transportation Facilities in Sussex County





3.6.3 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

Sussex County has a network of communication facilities and cell towers. These facilities are controlled by both public and private institutions. The County identified six essential communication facilities for the purposes of this plan.

Potable Water

There are community water supply systems in Sussex County that serve municipalities, places with higher density development, and some lake communities. Twenty-one of the County's municipalities are partially or fully served by public water. The Townships of Lafayette, Sandyston, and Walpack do not have public water supply systems (Wastewater Management Plan 2017).

Approximately 95-percent of Sussex County residents rely on groundwater for consumption. It is pumped to County residents from aquifers through either private on-site wells, community wells, or municipal wells (Natural Resources Inventory 2014).

There are five surface water bodies that are used for potable water supply purposes in Sussex County:

- Morris Lake in Sparta Township – used by the Town of Newton
- Lake Rutherford in Wantage Township – used by the Borough of Sussex
- Branchville Reservoir in Frankford Township – used by the Borough of Branchville
- Franklin Pond in the Borough of Franklin – used by the Borough as an emergency water supply
- Lake Hopatcong – used as emergency water supply for several municipalities
- Canistear Reservoir in Vernon Township – located on the Newark water supply management lands
- Heaters Pond in Ogdensburg – used as an emergency water supply

(Natural Resources Inventory 2014).

The County identified ten potable water pumps, two potable water treatment facilities, and 12 wells as critical assets for the purposes of this planning effort.

Wastewater Facilities

The Sussex County Municipal Utilities Authority (SCMUA) operates the largest sewer treatment plant, located in Hardyston Township. The SCMUA also operates other wastewater facilities in the County, including the Hampton Commons facility in Hampton Township. Additionally, the Town of Newton is the owner and operator of its own wastewater treatment plant. The Musconetcong Sewer Authority owns and operates a wastewater treatment plant located in Mount Olive (Morris County), which provides sewer service into Stanhope, Byram, and Hopatcong in Sussex County and portions of Morris County. There are smaller treatment plants located throughout the County that serve schools, commercial, and industrial sites. There are no combined sewers in Sussex County (Wastewater Management Plan 2017).



Table 3-10. Wastewater Districts, Franchise Areas and Municipalities

Wastewater Utility	Municipalities
Sussex County Municipal Utilities Authority	Andover Borough, Andover Twp., Branchville, Frankford, Franklin, Green, Hamburg, Hardyston, Lafayette, Montague, Ogdensburg, Sandyston, Sparta, Stillwater, Sussex, Vernon, Walpack, Wantage
Musconetcong Sewer Authority District	Byram, Hopatcong, Stanhope
Hardyston Township Municipal Utilities Authority	All of Hardyston Township, except Aqua NJ area
Town of Newton	Newton
Aqua NJ – Walkkill (owns Walkkill Sewer Company)	Portion of Hardyston Township
Andover Utility Company Inc.	Portion of Andover Township
Montague Sewer Company (owned by Utilities Inc.)	Portion of Montague
Vernon Township Municipal Utilities Authority	Portion of Vernon Township

Source: Sussex County Wastewater Management Plan 2017

The County identified three wastewater treatment plants and 14 wastewater pump stations identified as critical.

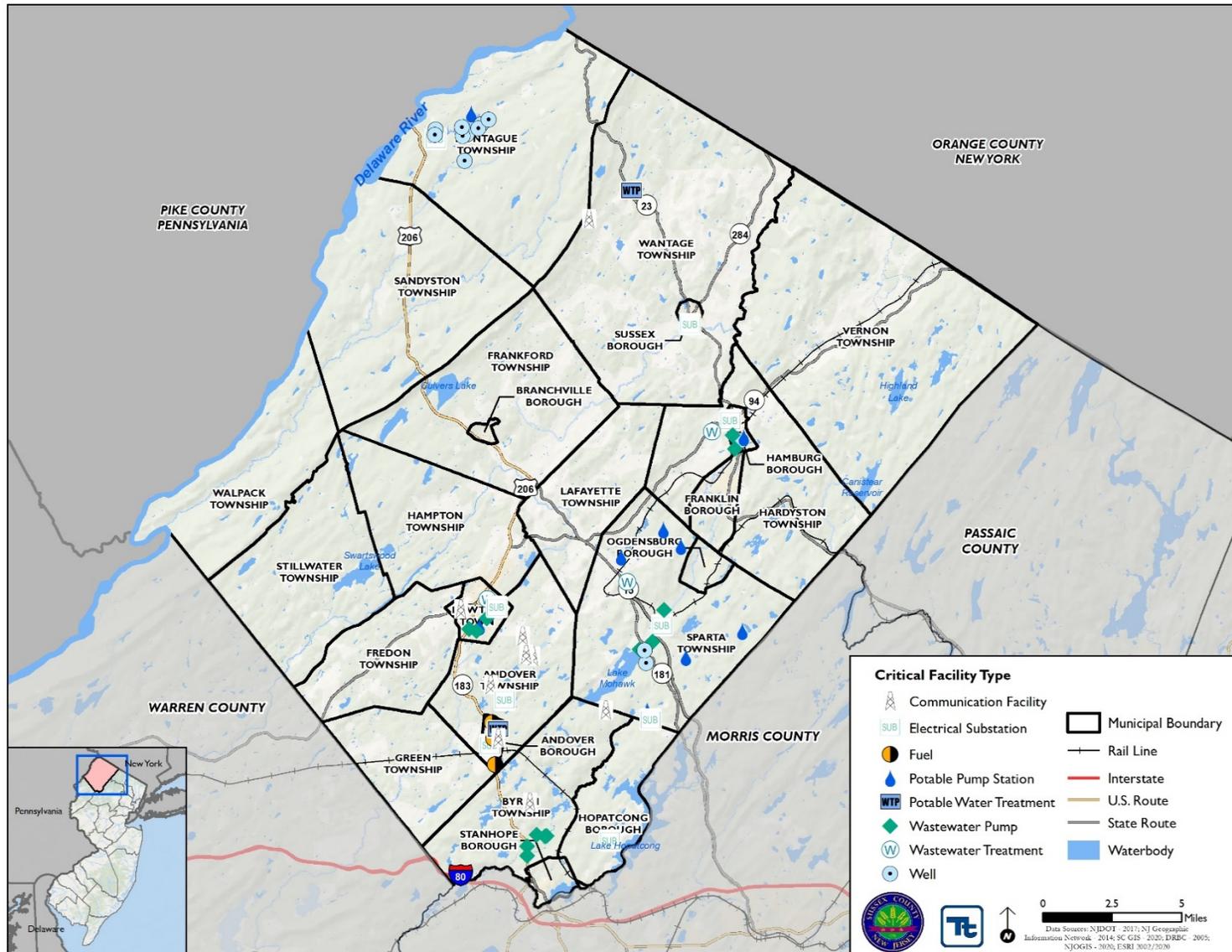
Energy Resources

JCP&L is the primary electric and gas utility company in Sussex County with Sussex Rural Electric Cooperative also providing electric to many of the communities. A portion of the Susquehanna-Roseland line, owned by PSE&G, runs through Fredon, Andover Township, Byram, and Hopatcong in southern Sussex County (PSE&G). There were seven electric substations identified by the County as critical assets.

Figure 3-13 illustrates the general location of the utility lifelines in Sussex County.



Figure 3-14. Utilities in Sussex County





3.6.4 HIGH-POTENTIAL LOSS FACILITIES

High-potential loss facilities include dams and hazardous material sites. Figure 3-15 displays the general locations of dams and hazmat sites in the County and 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 239 dams located in Sussex County, 40 of which are classified with a high-hazard potential.

3.6.5 OTHER FACILITIES

The Planning Partnership identified additional facilities (user-defined facilities) as critical. These facilities include one correctional facility, 21 DPW sites, seven food pantries, and three post offices. Figure 3-16 illustrates the general locations of these facilities.



Figure 3-15. High-Potential Loss Facilities in Sussex County

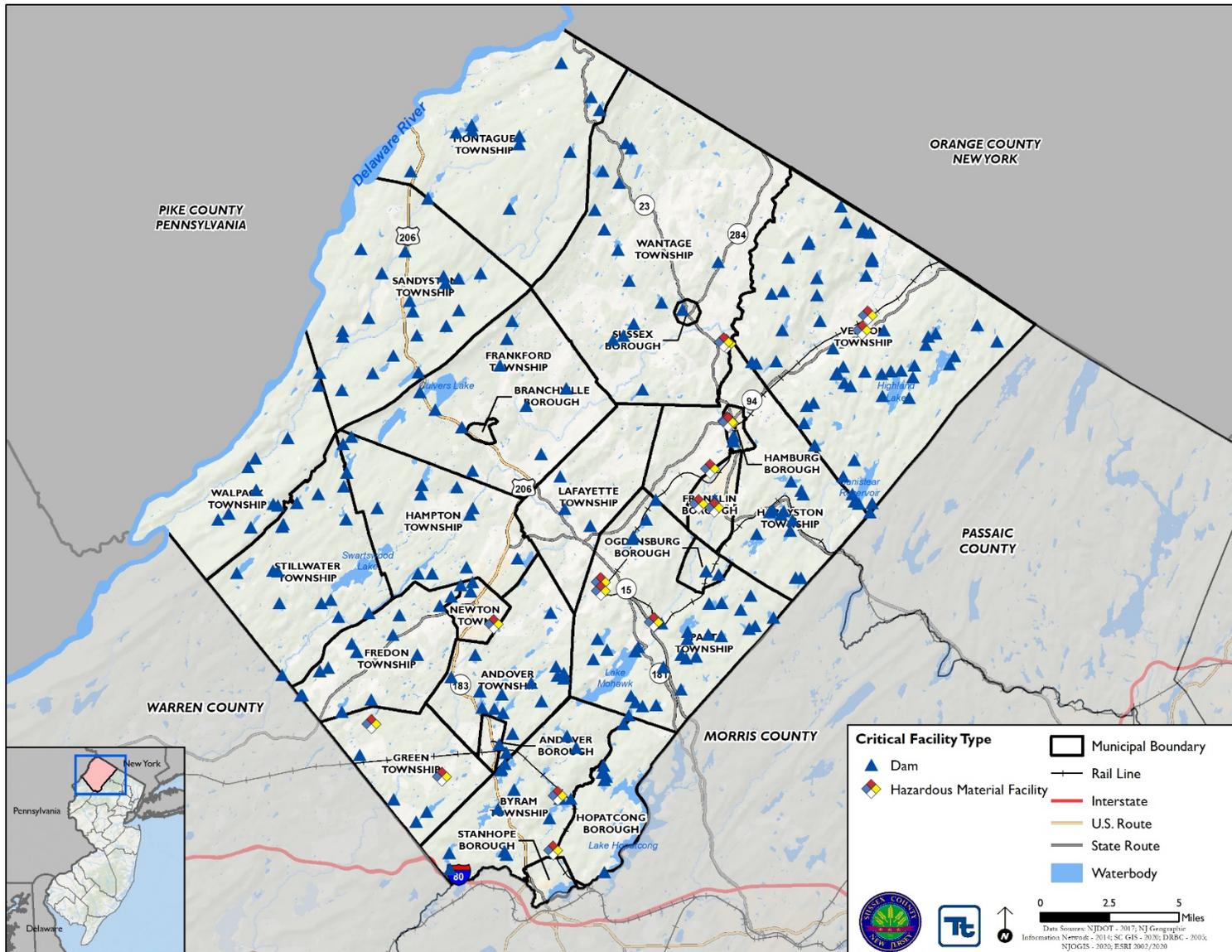




Figure 3-16. Other Critical Facilities in Sussex County

