12. HAZARDOUS MATERIALS

12.1 HAZARD PROFILE

12.1.1 Hazard Description

Hazardous materials are substances that are severely harmful to human health and the environment, as defined by the Environmental Protection Agency's (EPA) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (Superfund Law). This law created a tax on the chemical and petroleum industries and provided federal authority to respond directly to releases or threatened releases of hazardous materials that may endanger public health or the environment (U.S. EPA 2022). There are about 800 CERCLA hazardous materials. Additionally, there are approximately 1,500 known radionuclides, approximately 760 of which are listed individually (U.S. EPA 2022a). CERCLA defines the following as hazardous materials (U.S. EPA 2024):

- Any substance designated in section 311(b)(2)(A) of the Federal Water Pollution Control Act
- Any element, compound, mixture, solution, or substance designated in section 102 of CERCLA
- Any hazardous waste having the characteristics identified in section 3001 of the Solid Waste Disposal Act (unless that regulation under the Solid Waste Disposal Act has been suspended by act of Congress)
- Any toxic pollutant listed under section 307(a) of the Federal Water Pollution Control Act
- Any hazardous air pollutant listed under section 112 of the Clean Air Act
- Any imminently hazardous chemical substance or mixture with respect to which the Administrator of EPA has taken action pursuant to section 7 of the Toxic Substances Control Act, excluding petroleum, natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel

Hazardous materials come in the form of explosives, flammable and combustible substances, poisons, and radioactive materials. These types of substances are most often released because of transportation accidents or a chemical spill at a facility. Many products containing hazardous materials are also used and stored in homes. If released or misused, hazardous materials can cause death, serious injury, long-lasting health effects, and damage to structures and other properties, as well as the environment. Releases can occur because of human carelessness, intentional acts, or natural hazards. When caused by natural hazards, these incidents are secondary events. A hazardous materials event requires an urgent response to contain the material released and protect humans and the environment. Otherwise, the event could quickly escalate into a public health emergency.

Hazardous Materials Fixed Site

In response to concerns regarding health and environmental risks, Congress established the Superfund program in 1980 to clean up sites contaminated with hazardous materials. The Superfund program is administered by the EPA in cooperation with individual states. The New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program oversees the Superfund program for New Jersey (NJDEP 2013). CERCLA and the Superfund Amendments and Reauthorization Act (SARA; signed into law on October 17, 1986) require that a National Priorities List (NPL) of contaminated sites throughout the United States be maintained and revised at least annually (NJDEP 2013).

Nuclear Facilities

Nuclear incidents can be considered a type of hazard material release. Primary concerns following a nuclear incident are impacts on public health from direct exposure to a radioactive plume; inhalation of radioactive materials; ingestion of contaminated food and liquids; and long-term exposure to radioactive materials in the environment that may lead to acute (radiation sickness or death) or chronic (cancer) health effects (CDC 2019).

The Nuclear Regulatory Commission encourages the use of probabilistic risk assessments to estimate the potential risk to public health and safety considering the design, operation, and maintenance practices at nuclear power plants. Preparedness plans typically consider the Plume Exposure Pathway Emergency Planning Zone, which has a radius of 10 miles from the facility, and the Ingestion Exposure Pathway (IEP), which has a radius of 50 miles from each facility.

Hazardous Materials in Transit

Many products containing hazardous materials are shipped daily on highways, railroads, waterways, and pipelines. As defined in regulations by the U.S. Department of Transportation (DOT), a hazardous materials transportation incident is any event resulting in an uncontrolled release of materials during transport that can pose a risk to health, safety, and property. Hazardous materials in transit are regulated by DOT.

Transportation of hazardous materials on highways involves tanker trucks or trailers, and these are responsible for the greatest number of hazardous material release incidents. The State of New Jersey has 39,000 miles of highway, many of which are used to transport hazardous materials (State of New Jersey 2019). These roads cross rivers and streams at many points; hazardous material spills on roads have the potential to pollute watersheds that serve as domestic water supplies for parts of the state.

Potential also exists for hazardous material releases to occur along rail lines, as collisions and derailments of train cars can result in large spills. The adoption of hydraulic fracturing (“fracking”) to extract oil and gas has led to an increase in the production and shipment of energy products. Lack of pipelines connecting the energy-producing regions with refineries or ports, coupled with the flexibility that railroad transportation provides, have resulted in significant shipments of oil by rail. Major commodities shipped by rail include petrochemicals (including plastic pellets and crude oil), construction materials, food products, raw materials, and finished goods for manufacturers (NJDOT 2023).

Pipelines can transport hazardous liquids and flammable substances such as natural gas and petroleum. Incidents can occur when pipes corrode, when they are damaged during excavation, incorrectly operated, or damaged by other forces. In New Jersey, most large pipeline leaks have been caused by marine traffic or the anchors of ships affecting pipelines in waterways.

In addition, hazardous materials can be transported by aircraft or by watercraft. Crashes, spills of materials, and fires on these vessels can pose a hazard.

Regulatory Framework

SARA requires each state to establish a state emergency response commission (U.S. EPA 2023). New Jersey’s commission was established by executive order on February 13, 1987 (NJOEM 2023). SARA requires the commission to establish emergency planning districts to facilitate preparation and implementation of emergency plans (U.S. EPA 2023). These districts can be existing political subdivisions. In New Jersey, all municipalities and counties have been designated emergency planning districts (total of 588). The Local Emergency Planning Committee (LEPC) is the policy body for the emergency planning district (State of New Jersey 2022).

Under New Jersey's Toxic Catastrophe Prevention Act (N.J.S.A. 13:1K-19 et seq), certain industrial facilities using materials considered extraordinarily hazardous must take steps to prevent releases and protect public safety (NJDEP 2018). Under the New Jersey Spill Compensation and Control Act (N.J.S.A. 58:10-23.11), New Jersey has also mandated that facilities storing large quantities of hazardous materials take preventive measures to reduce the likelihood of a leak or discharge. These requirements include testing and inspection of storage tanks, training of employees, and emergency response planning. The Discharge Prevention Containment and Countermeasure program facilitates implementation of these requirements and administers regulations related to reporting of chemical and petroleum discharges (NJDEP 1976).

Fixed-site facilities that use, manufacture, or store hazardous materials in New Jersey must comply with the federal Emergency Planning and Community Right to Know Act of 1986 (EPCRA; Title III of the federal SARA law), which is linked to the New Jersey Worker and Community Right to Know Act (N.J.S.A. 34:5A). The State's Community Right to Know (CRTK) program collects, processes, and disseminates the chemical inventory, environmental release and materials accounting data required to be reported under these state and federal laws. This information is used by the public, emergency planners, and first responders to determine the chemical hazards in the community (NJDEP 2020).

New Jersey employers listed in the New Jersey CRTK regulations whose businesses are assigned codes in the North American Industry Classification System are required to submit surveys listing the environmental hazardous materials present at their facilities in quantities that exceed 500 pounds, unless the substance is on the EPCRA list of extremely hazardous materials with a lower reporting threshold. In addition, EPCRA requires owners and operators of federal facilities and private sector facilities that are subject to the Occupational Safety and Health Administration's Hazard Communication Standard to report their inventories of any chemical that requires a materials safety data sheet and is present on site in quantities that exceed 10,000 pounds, unless the chemical is an extremely hazardous material with a lower reporting threshold (NJDEP 2018).

Approximately 500 New Jersey companies are required to file annual federal Toxic Chemical Release Inventory (TRI) forms (companies with the equivalent of 10 or more full-time employees that manufacture, import, process or otherwise use toxic chemicals listed on the EPCRA Section 313 list in quantities that exceed specified thresholds). TRI Form R requires a list of environmental releases, on-site waste management, and off-site transfers. The simplified Form A Certification Statement requires only a list of chemicals. These companies are also required to submit to NJDEP a Release and Pollution Prevention Report (RPPR) listing quantities of environmental release, on-site waste management, waste transfer, and chemical throughput information. If these facilities are subject to pollution prevention planning requirements, then they are also required to report pollution prevention progress information on the RPPR (NJDEP 2018).

Sussex County Hazardous Materials Team

The Sussex County Hazardous Materials Team was developed to support the County in the response of any hazardous materials or chemical, biological, radiological, nuclear, and explosives incident. The team consists of approximately 20 full-time County employees who have completed the Hazardous Materials Technician course and is a collaborative effort between the County's Sheriff's Office, Office of the Prosecutor, Division of Public Works, and Department of Environmental and Public Health Services. It has been recognized by the NJDEP as a model program for hazardous materials response (Sussex County n.d.).

12.1.2 Location

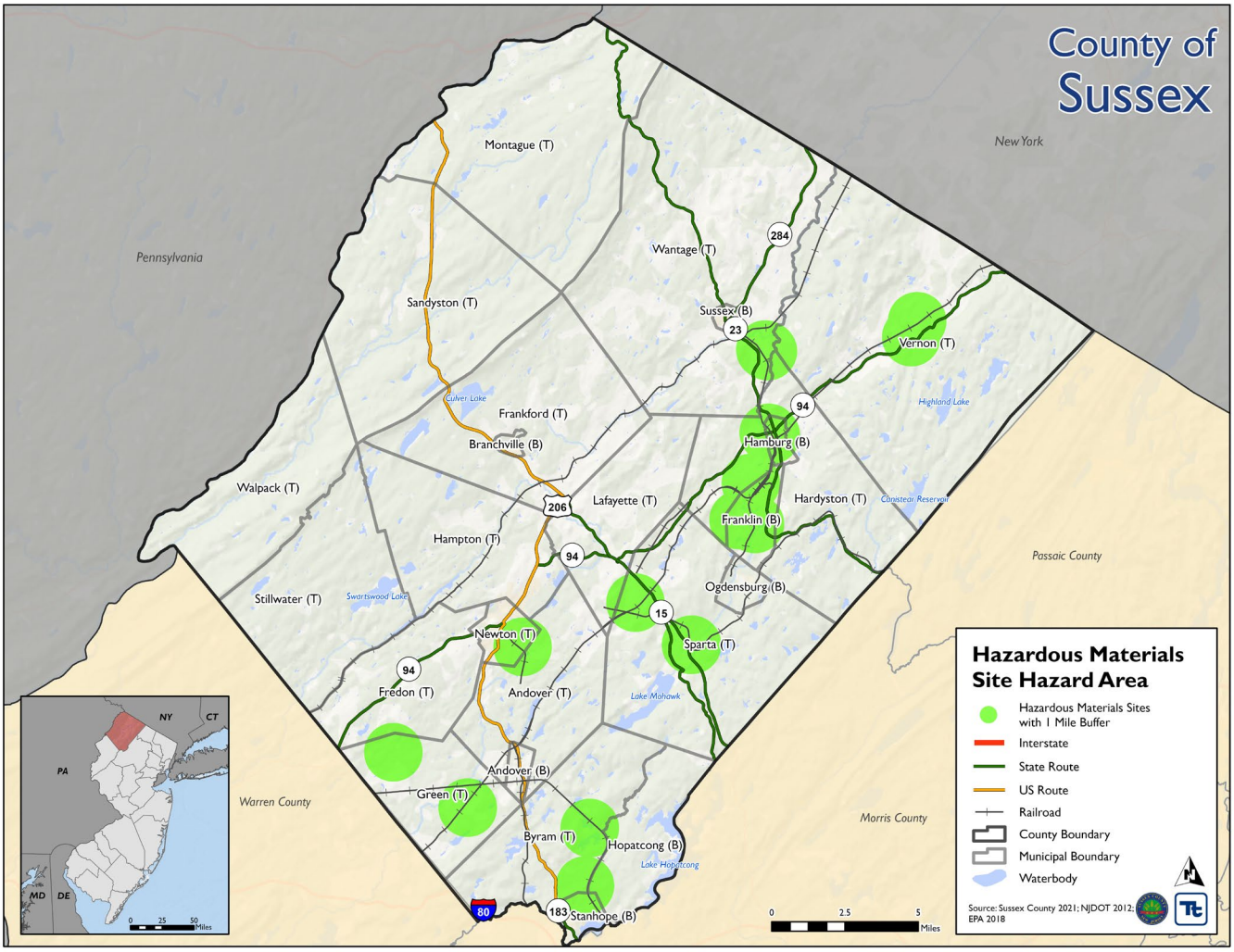
Hazardous Materials Fixed Site

The biennial EPA Hazardous Waste Report collects data on the generation, management, and minimization of hazardous waste. This report details data on the generation of hazardous waste from large quantity generators and data on waste management practices from treatment, storage, and disposal facilities. The 2021 biennial report lists seven facilities in Sussex County (U.S. EPA 2023).

The Superfund program locates the worst hazardous material sites based on the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database. CERCLIS indicates that Sussex County has 10 Superfund sites, three of which—in Sparta Township, Byram, and Franklin Borough—are on the National Priorities List (US EPA 2023).

Figure 12-1 displays hazardous materials fixed-site locations, identified through a critical facilities review by the County, with a one mile buffer to signify the area which may be directly impacted by an incident at these sites.

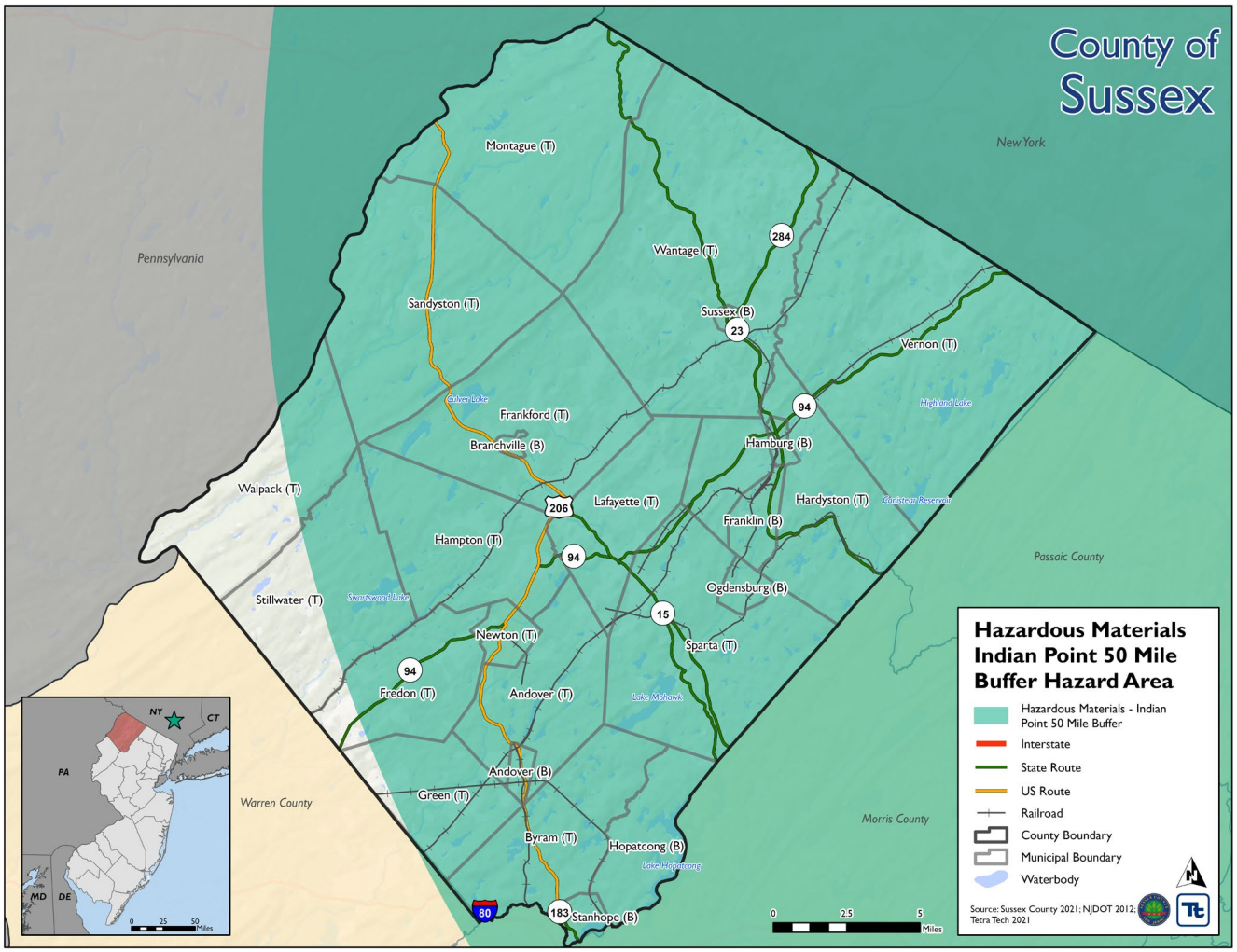
Figure 12-1. Hazardous Material Sites with One Mile Buffer in Sussex County



Nuclear Facilities

Although there are no nuclear facilities in Sussex County, the County is within the 50-mile IEP of the retired Indian Point Energy Center in Buchanan, New York, as shown in Figure 12-2 Indian Point Energy Center provided about 25 percent of the power for New York City and Westchester County, New York, before it stopped generated electricity in 2021 (US EIA 2021). Should an accident occur at that facility, the area within the IEP could receive some radioactive contamination. On October 26, 2023, the Nuclear Regulatory Commission granted Holtec Decommissioning International's request to revise the emergency preparedness plan for the Indian Point Energy Center to reflect the plant's decommissioning status.

Figure 12-2. Indian Point Energy Center's IEP



Hazardous Materials in Transit

In 2020, an estimated 11.9 million tons of domestic freight moved into, out of, or within Sussex County, by all modes of transportation (truck, rail, pipeline, water, and air). For domestic freight traveling to, from, or within Sussex County, 97 percent travels by truck, 2 percent by rail, and 1 percent by other modes (NJTPA 2020).

Roadways

Major highways in Sussex County over which hazardous materials are transported daily include U.S. Route 206 and State Highway 15. A portion of Interstate 80 runs through and near the southern portion of the County, and U.S. Route 209 runs parallel and close to the northwestern border of Sussex County although it does not enter County limits. Figure 12-3 shows major roadways in Sussex County, with a 1-mile buffer, indicating the extent of potential physical impacts. The miles of roads included in this definition of hazardous material hazard areas are summarized in Table 12-1. Out of the 1,333 miles of roads in the County, 121 miles are counted as potential hazardous materials hazard areas. The Township of Sparta has the greatest total length of roads included (20.8 miles), followed by the Township of Wantage (17.7 miles), and the Township of Hardyston (11.4 miles).

Figure 12-3. Major Roadways in Sussex County, with 1-Mile Buffer

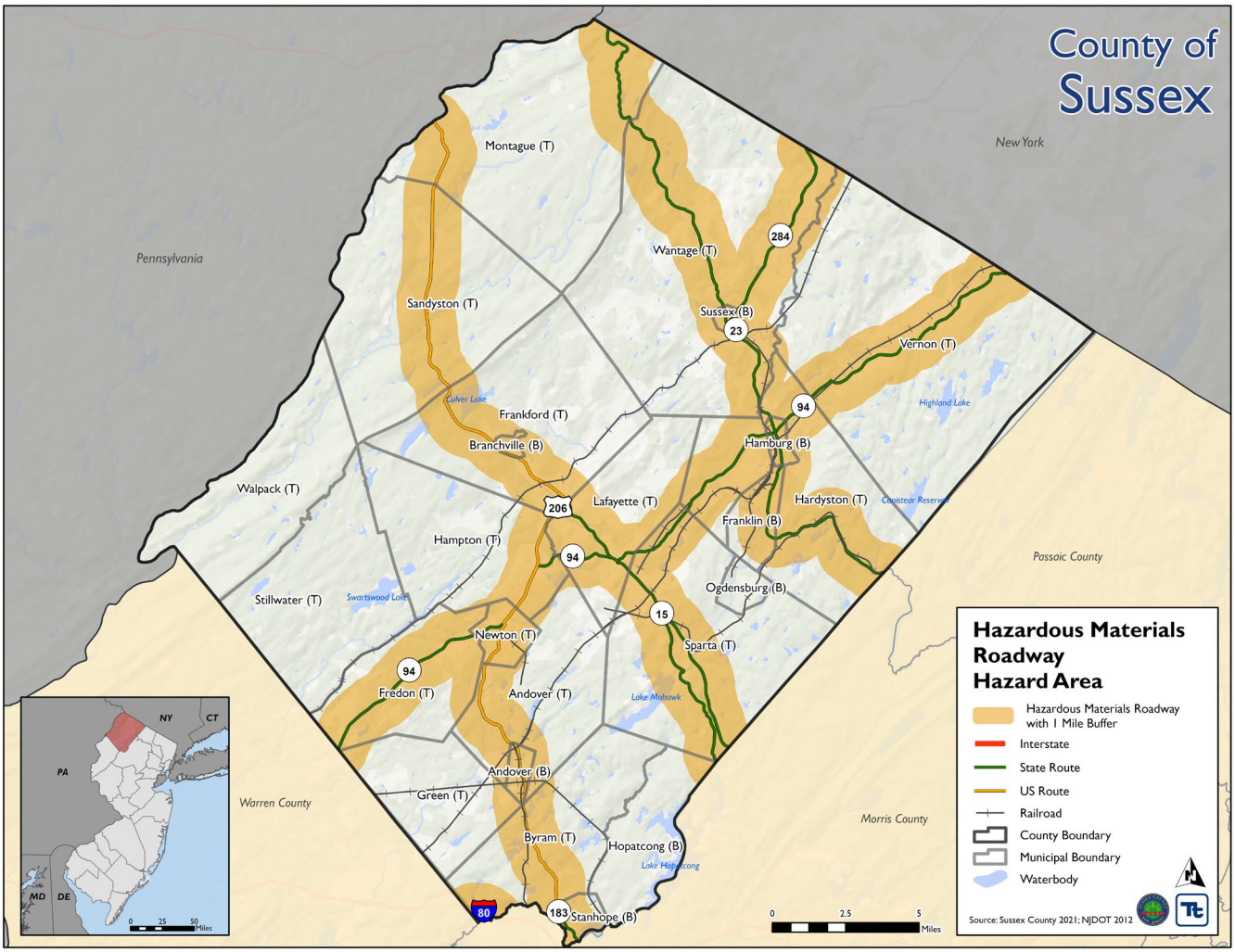


Table 12-1. Total Roadway Miles that Generate the Hazardous Materials Roadway 1 Mile Buffer Hazard Area

	Total Roadway Miles	Roadway Included in the 1 Mile Roadway Buffer Hazardous Materials Hazard Area	
		Roadway Miles	% of Jurisdiction Total
Andover (B)	7.0	2.3	33.1%
Andover (Twp)	68.3	3.2	4.7%
Branchville (B)	7.1	1.2	16.6%
Byram (Twp)	70.1	5.4	7.7%
Frankford (Twp)	98.5	6.3	6.4%
Franklin (B)	27.3	2.8	10.2%
Fredon (Twp)	50.9	6.3	12.4%
Green (Twp)	49.6	0.0	0.0%
Hamburg (B)	11.5	2.6	22.3%
Hampton (Twp)	52.5	4.4	8.3%
Hardyston (Twp)	64.4	11.4	17.8%
Hopatcong (B)	80.0	0.0	0.0%
Lafayette (Twp)	44.3	6.1	13.7%
Montague (Twp)	57.2	6.6	11.5%
Newton (T)	30.3	3.6	11.8%
Ogdensburg (B)	14.8	0.0	0.0%
Sandyston (Twp)	51.9	7.2	13.9%
Sparta (Twp)	139.1	20.8	15.0%
Stanhope (B)	17.6	2.6	14.8%
Stillwater (Twp)	60.3	0.0	0.0%
Sussex (B)	9.1	1.5	16.5%
Vernon (Twp)	126.8	8.7	6.9%
Walpack (Twp)	20.2	0.0	0.0%
Wantage (Twp)	174.2	17.7	10.2%
Sussex County (Total)	**1,333.2**	**120.7**	**9.1%**

Source: Sussex County 2021, 2023

Railways

There are freight rail lines in Sussex County, operated by regional and short line railroads. Figure 12-4 shows the locations of the railways, with a 1-mile buffer to represent the extent of potential physical impacts.

Pipelines

New Jersey has an extensive network of natural gas and petroleum pipelines. Figure 12-5 shows the extent and locations of natural gas pipelines in Sussex County.

Figure 12-4. Major Railways in Sussex County, with 1-Mile Buffer

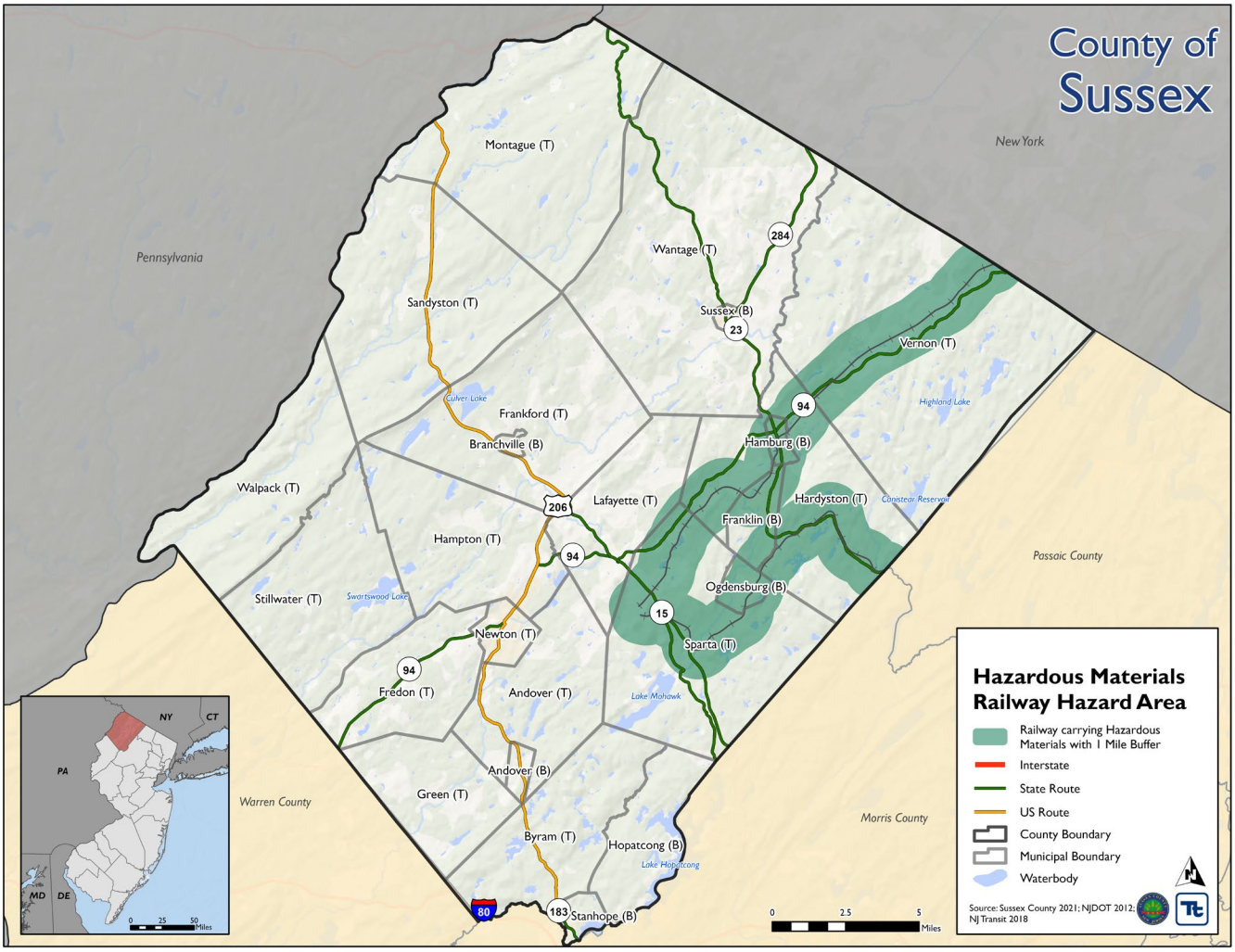
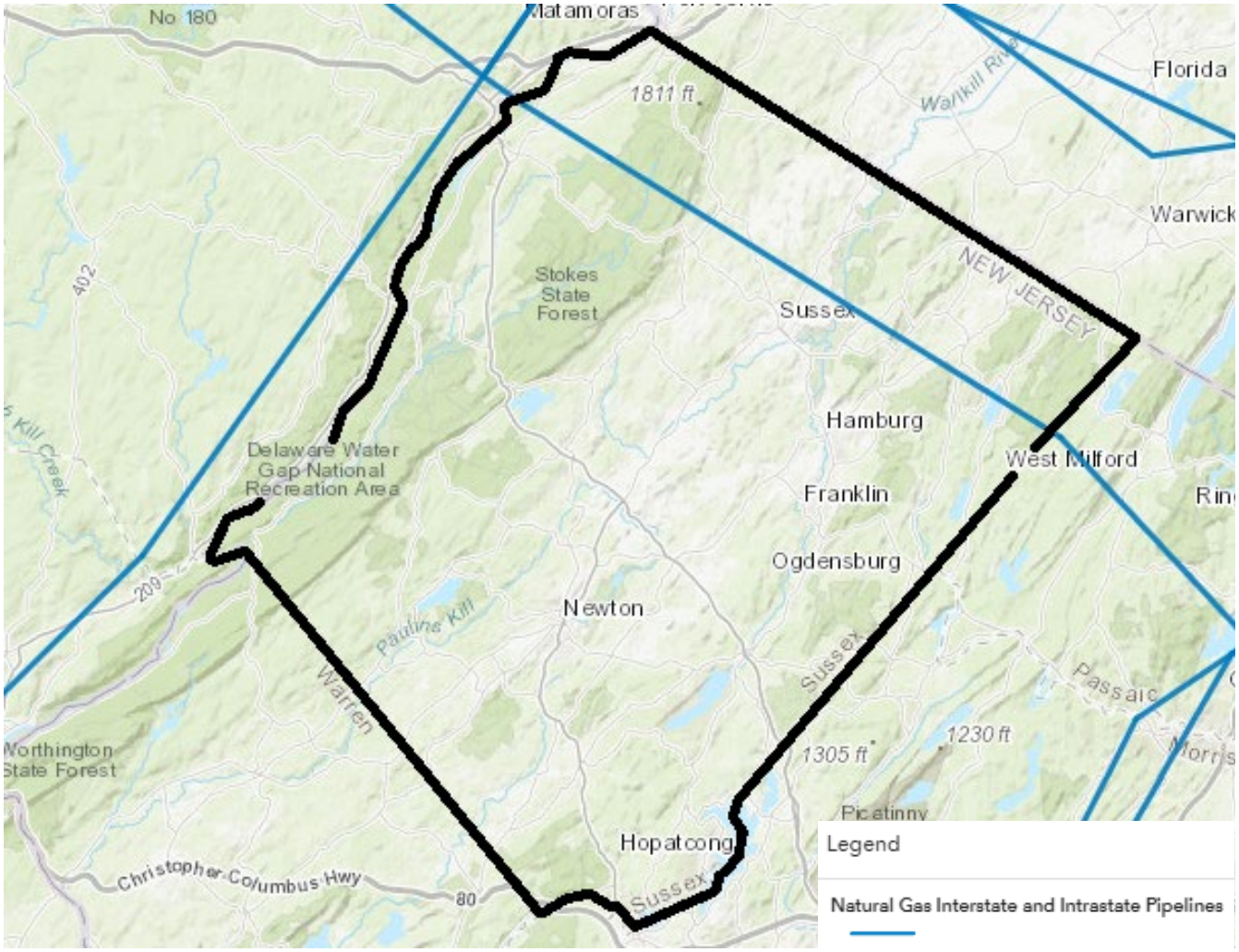


Figure 12-5. Pipelines in Sussex County



Source: USEIA 2023
Note: Sussex County is outlined in a boldened, black line

12.1.3 Extent

Hazardous materials can include toxic chemicals, radioactive substances, infectious substances, and hazardous wastes. Their release can contaminate air, water, and soils, possibly resulting in death and/or injuries. Such releases can affect nearby populations and contaminate critical or sensitive environmental areas. The extent of a hazardous materials release will depend on whether it is from a fixed or mobile source, the size of the release, the toxicity and properties of the substance, the duration of the release, and the environmental conditions (wind, precipitation, terrain, etc.). Dispersion can take place rapidly when the hazardous material is transported by water and wind.

Mitigating conditions for hazardous materials releases are precautionary measures taken in advance to reduce the impact of a release on the surrounding environment. Primary and secondary containment or shielding by sheltering-in-place measures protects people and property from the harmful effects of a hazardous materials release. Exacerbating conditions, characteristics that can enhance or magnify the effects of a hazardous materials release, include the following:

- Weather conditions, which affect how the hazard occurs and develops
- Micro-meteorological effects of buildings and terrain, which alters dispersion of hazardous materials
- Non-compliance with applicable codes (such as building or fire codes)
- Maintenance failures (such as fire protection and containment features), which can substantially increase the damage to the facility itself and to surrounding buildings

The severity of the incident depends on the type of substance released and the distance and related response time for emergency response teams. Areas nearest to the release are at greatest risk. However, depending on the agent, a release can travel great distances or remain present in the environment for a long time—even centuries.

The occurrence of a hazardous materials incident can be sudden and without any warning, such as an explosion, or it may slowly develop, as in the case of a leaking container. Facilities that store extremely hazardous materials are required to notify local officials when an incident occurs. Local emergency responders and emergency management officials determine whether they need to evacuate the public or advise them to shelter in place. The warning time for incidents associated with hazardous materials in transit varies based on the nature and scope of the incident. If an explosion does not occur immediately following an accident, officials may have time to warn adjacent neighborhoods and facilitate appropriate protective actions.

12.1.4 Previous Occurrences

FEMA Major Disaster and Emergency Declarations

Sussex County has not been included in any major disaster (DR) or emergency (EM) declarations for hazardous materials-related events (FEMA 2024).

USDA Declarations

The U.S. Secretary of Agriculture is authorized to designate counties as disaster areas to make emergency loans from the U.S. Department of Agriculture (USDA) to producers suffering losses in those counties and in contiguous counties. Since the previous Sussex County HMP, Sussex County has not been included in any USDA hazardous materials-related agricultural disaster declarations (USDA 2024).

Previous Events

Known hazardous materials events that impacted Sussex County between January 2020 and June 2024 are discussed in Table 12-2. For events prior to 2020, refer to the 2021 Sussex County HMP.

12.1.5 Probability of Future Occurrences

Probability Based on Previous Occurrences

Information on previous hazardous materials occurrences in the County was used to calculate the probability of future occurrence of such events, as summarized in Table 12-3. Based on historical records and input from the Steering Committee, the probability of occurrence for hazardous materials in the County is considered “rare.”

Hazardous material incidents can occur anytime and anywhere in Sussex County. Incidents can be sudden without any warning or develop slowly. Small spills, both fixed site and in-transit, occur throughout the year and the

probability of these events is high. The risk of major incidents in a given year is rare. It is likely that the County will continue to experience direct and indirect impacts of hazardous material incidents annually.

Table 12-2. Hazardous Materials Events in Sussex County (2020 to 2024)

Event Date	FEMA Declaration or State Proclamation Number	Sussex County included in declaration?	Location Impacted	Description
2020	N/A	N/A	Sussex County	In 2020, 284 pounds of chemicals (ethylene oxide and lead) were released on-site in Sussex County. There were no reports of off-site releases.
2021	N/A	N/A	Sussex County	In 2021, 95 pounds of chemicals (ethylene oxide and lead) were released on-site in Sussex County. There were no reports of off-site releases.
2022	N/A	N/A	Sussex County	In 2022, 204 pounds of chemicals (ethylene oxide and lead) were released on-site in Sussex County. There were no reports of off-site releases.
June 22, 2022	N/A	N/A	Town of Newton	More than 100 gallons of cooking oil were spilled from a truck in the Town of Newton.

Source: U.S. EPA 2023; Daily Mail 2022; FEMA 2023

Table 12-3. Probability of Future Hazardous Materials Events in Sussex County

Hazard Type	Number of Occurrences Between 1996[a] and 2023	Percent Chance of Occurring in Any Given Year
Hazardous Materials (fixed site)	57	100%
Hazardous Materials (in-transit)	43	100%
Total	100	100%

Sources: U.S. EPA 2023; Daily Mail 2022

a. Events prior to 1996 are not included because sources of earlier data are not considered to be complete.

Effect of Climate Change on Future Probability

Projected warming temperatures across New Jersey (see Section 3.3.4) can lead to excessive heat that may have adverse effects on aging structures and/or infrastructure. Excessive heat on structures or containers containing hazardous materials may alter the material properties.

In addition, hazardous materials stored at fixed locations in the floodplain may experience an increase in flood events due to the projected changes in increased precipitation events. Hazardous material sites near rivers are tentatively at the highest risk because extreme storms and higher water levels could release pollution into the environment. Many of these sites were built in locations believed to be removed from potential contamination or exposure-increasing factors. However, development, floodplain boundary change, and an increase in extreme events from climate change are increasing the possibility that water may reach hazardous material sites.

12.1.6 Cascading Impacts on Other Hazards

In the worst cases, a hazardous materials event would not be able to be controlled for hours to days, with materials being dispersed into the air and/or absorbed into the groundwater. Persons could inhale the material, which would cause adverse side effects and potable water could become contaminated, leading to a water advisory. Hundreds or thousands of persons, up to a few miles from the incident site, may need medical attention due to the inhalation of the material; responders would need to rotate operational periods and perform decontamination operations to maintain security and safe working conditions. A release may induce secondary hazards such as infrastructure deterioration or failure, water quality and supply concerns, transportation delays, and accidents.

A key part of maintaining control during a hazardous material event is to keep the public calm, and share clear, concise, and relevant information to the public through a verified method. A hazardous materials event can quickly escalate to public panic if correct information is not dispersed.

12.2 VULNERABILITY AND IMPACT ASSESSMENT

The vulnerability assessment for the hazardous materials hazard used the following defined hazard areas:

- 1-mile buffer around hazardous materials sites
- 1-mile buffer around hazardous materials rail routes
- 1-mile buffer around hazardous materials roadway routes
- 50-mile buffer around the Indian Point Energy Center

Centroids that intersected the hazard boundaries were totaled to estimate the building county, RCV, and population vulnerable to the hazardous materials hazard areas.

12.2.1 Life, Health, and Safety

Hazardous materials releases can lead to injury, illnesses, and/or death to involved persons and those living in the impacted areas. A chemical incident may also include an explosion, with additional injuries and deaths being caused by the pressure wave from the explosion. Biological agents may cause disease, depending on the nature of the agent involved, transmissibility, at-risk populations, incubation period, time before detection, and other factors. Radioactive materials can cause significant health effects in individuals, especially if the materials are taken into the body. Large releases of chemical or radiological materials can leach into soils and travel with wind, contaminating sources of potable water, crops, and livestock, and leading to a reduced local food supply.

Overall Population

Depending on the type and quantity of chemicals released and the weather conditions, a hazardous materials release can affect large areas that cross jurisdictional boundaries. Given the numerous locations of hazardous materials sites in Sussex County, the entire County is considered vulnerable to this hazard. People most at risk are those located along railways routes because of the quantities of chemicals transported on these major routes.

Table 12-4 summarizes population vulnerability to hazardous material incidents by jurisdiction. There are 26,521 persons, 19,930 persons, 68,535 persons, and 142,717 persons living within 1 mile of railways, 1 mile of hazardous material sites, 1 mile of roadways, and 50 miles of the Indian Point Energy Center, respectively. The Township of Vernon has the greatest number of people living within 1 mile of railways and 50 miles of the Indian Point Energy

Center, with 7,728 and 22,358 persons, respectively. The Town of Newton has the greatest number of people living within 1 mile of a hazardous material site and within 1 mile of a roadway, with 5,117 and 8,373 persons, respectively.

Table 12-4. Estimated Number of Persons Living in Hazardous Materials Hazard Areas

	Total Population	Within 1 Mile of Hazardous Materials Rail Route		Within 1 Mile of a Hazardous Materials Site		Within 1 mile of Hazardous Materials Roadway Routes		Within 50 Miles of Indian Point Energy Center	
		Number of People	Percent of Total	Number of People	Percent of Total	Number of People	Percent of Total	Number of People	Percent of Total
Andover (B)	595	0	0.0%	0	0.0%	594	99.8%	594	100%
Andover (Twp)	5,996	0	0.0%	600	10.0%	1,570	26.2%	5,995	100%
Branchville (B)	791	0	0.0%	0	0.0%	791	100%	791	100%
Byram (Twp)	8,028	0	0.0%	1,660	20.7%	4,632	57.7%	8,027	100%
Frankford (Twp)	5,302	0	0.0%	0	0.0%	2,453	46.3%	5,301	100%
Franklin (B)	4,912	4,748	96.7%	3,982	81.1%	4,615	94.0%	4,912	100%
Fredon (Twp)	3,235	0	0.0%	42	1.3%	2,787	86.2%	3,051	94.3%
Green (Twp)	3,627	0	0.0%	1,043	28.8%	152	4.2%	3,387	93.4%
Hamburg (B)	3,266	3,265	100.0%	2,906	89.0%	3,265	100%	3,265	100%
Hampton (Twp)	4,893	0	0.0%	0	0.0%	1,760	36.0%	4,892	100%
Hardyston (Twp)	8,125	5,217	64.2%	1,115	13.7%	6,923	85.2%	8,124	100%
Hopatcong (B)	14,362	0	0.0%	257	1.8%	0	0.0%	14,362	100%
Lafayette (Twp)	2,358	93	3.9%	105	4.5%	1,454	61.7%	2,358	100%
Montague (Twp)	3,792	0	0.0%	0	0.0%	961	25.3%	3,791	100%
Newton (T)	8,374	0	0.0%	5,117	61.1%	8,373	100%	8,373	100%
Ogdensburg (B)	2,258	2,168	96.0%	0	0.0%	0	0.0%	2,258	100%
Sandyston (Twp)	1,977	0	0.0%	0	0.0%	1,573	79.6%	1,976	100%
Sparta (Twp)	19,600	3,302	16.8%	1,263	6.4%	8,307	42.4%	19,599	100%
Stanhope (B)	3,526	0	0.0%	1,027	29.1%	3,365	95.4%	3,525	100%
Stillwater (Twp)	4,004	0	0.0%	0	0.0%	0	0.0%	2,943	73.5%
Sussex (B)	2,024	0	0.0%	0	0.0%	2,024	100%	2,024	100%
Vernon (Twp)	22,358	7,728	34.6%	684	3.1%	7,762	34.7%	22,358	100%
Walpack (Twp)	7	0	0.0%	0	0.0%	0	0.0%	1	14.3%
Wantage (Twp)	10,811	0	0.0%	129	1.2%	5,174	47.9%	10,810	100%
Sussex County (Total)	**144,221**	**26,521**	**18.4%**	**19,930**	**13.8%**	**68,535**	**47.5%**	**142,717**	**99.0%**

Source: U.S. Census Bureau 2020, 2021; NJGIN 2023; Sussex County 2021, 2023; Tetra Tech; CDC/ATSDR 2020

Socially Vulnerable Population

Older adults and young children may be more at risk due to limited mobility, communication, and dependency on others. Exposure to hazardous materials may affect those who have compromised immune systems and additional medical needs. Communities of color, certain immigrant groups, low-income groups, and those with limited English proficiency are more at risk because they may live in locations that are prone to hazardous materials exposure. Similarly, they may have limited financial resources and experience cultural, language, and citizenship barriers that may restrict communication and access to emergency information relating to hazardous materials (EPA 2023).

Table 12-5 presents the estimated socially vulnerable populations located within 1 mile of a hazardous materials site area. The following are the largest socially vulnerable populations in this hazard area:

- The Town of Newton has the highest population over 65 (1,092), the largest disabled population (730), and the greatest population of individuals living in poverty (447).
- The Borough of Franklin has the highest population under the age of 5 (184).
- The Borough of Hamburg has the largest population of non-English speaking persons (295).

Table 12-6 presents the estimated socially vulnerable populations located within 1 mile of hazardous materials rail routes. The following are the largest socially vulnerable populations in this hazard area:

- The Township of Vernon has the highest population over 65 (1,274), and the greatest population of individuals living in poverty (303), and the largest population under the age of 5 (342).
- The Borough of Franklin has the highest disabled population (822).
- The Borough of Hamburg has the largest population of non-English speaking persons (332).

Table 12-7 presents the estimated socially vulnerable populations located within 1 mile of a hazardous materials roadway. The following are the largest socially vulnerable populations in this hazard area:

- The Town of Newton has the highest population over 65 (1,787), the largest disabled population (1,196), and the greatest population of individuals living in poverty (732).
- The Township of Sparta has the highest population under the age of 5 (491).
- The Borough of Hamburg has the largest population of non-English speaking persons (332).

Table 12-8 presents the estimated socially vulnerable populations located within 50 miles of Indian Point. The following are the largest socially vulnerable populations in this hazard area:

- The Township of Vernon has the highest population over 65 (3,686), the largest disabled population (2,317), and the greatest population of individuals living in poverty (877).
- The Township of Sparta has the highest population under the age of 5 (1,159).
- The Borough of Hopatcong has the largest population of non-English speaking persons (339).

Table 12-5. Estimated Number of Vulnerable Persons Located within 1 mile of Hazardous Materials Site Area

	Estimated Number of Vulnerable Persons Located within 1 mile of Hazardous Materials Site Area				
	Persons Over 65	Persons Under 5	Non-English Speaking Persons	Persons with a Disability	Persons in Poverty
Andover (B)	0	0	0	0	0
Andover (Twp)	137	24	0	52	26
Branchville (B)	0	0	0	0	0
Byram (Twp)	230	92	21	126	36
Frankford (Twp)	0	0	0	0	0
Franklin (B)	951	184	106	689	231
Fredon (Twp)	8	1	0	3	2
Green (Twp)	212	35	14	135	43
Hamburg (B)	401	127	295	213	154
Hampton (Twp)	0	0	0	0	0
Hardyston (Twp)	225	44	13	126	63
Hopatcong (B)	35	10	6	27	11
Lafayette (Twp)	22	7	1	11	8
Montague (Twp)	0	0	0	0	0
Newton (T)	1,092	159	124	730	447
Ogdensburg (B)	0	0	0	0	0
Sandyston (Twp)	0	0	0	0	0
Sparta (Twp)	169	74	8	99	48
Stanhope (B)	141	65	0	88	8
Stillwater (Twp)	0	0	0	0	0
Sussex (B)	0	0	0	0	0
Vernon (Twp)	112	30	2	70	26
Walpack (Twp)	0	0	0	0	0
Wantage (Twp)	23	4	1	17	9
Sussex County (Total)	3,758	856	591	2,386	1,112

Source: U.S. Census Bureau 2020, 2021; NJGIN 2023; Sussex County 2021, 2023; EPA 2018; CDC/ATSDR 2020

Table 12-6. Estimated Number of Vulnerable Persons Located within 1 mile of Hazardous Materials Rail Routes

	Estimated Number of Vulnerable Persons Located within 1 mile of Hazardous Materials Rail Routes				
	Persons Over 65	Persons Under 5	Non-English Speaking Persons	Persons with a Disability	Persons in Poverty
Andover (B)	0	0	0	0	0
Andover (Twp)	0	0	0	0	0
Branchville (B)	0	0	0	0	0
Byram (Twp)	0	0	0	0	0
Frankford (Twp)	0	0	0	0	0
Franklin (B)	1,135	220	126	822	275
Fredon (Twp)	0	0	0	0	0
Green (Twp)	0	0	0	0	0
Hamburg (B)	451	143	332	240	174
Hampton (Twp)	0	0	0	0	0
Hardyston (Twp)	1,054	206	64	594	297
Hopatcong (B)	0	0	0	0	0
Lafayette (Twp)	20	6	1	10	7
Montague (Twp)	0	0	0	0	0
Newton (T)	0	0	0	0	0
Ogdensburg (B)	359	69	39	186	121
Sandyston (Twp)	0	0	0	0	0
Sparta (Twp)	441	195	22	261	127
Stanhope (B)	0	0	0	0	0
Stillwater (Twp)	0	0	0	0	0
Sussex (B)	0	0	0	0	0
Vernon (Twp)	1,274	342	32	801	303
Walpack (Twp)	0	0	0	0	0
Wantage (Twp)	0	0	0	0	0
Sussex County (Total)	**4,734**	**1,181**	**616**	**2,914**	**1,304**

Source: U.S. Census Bureau 2020, 2021; NJGIN 2023; Sussex County 2021, 2023; NJ Transit 2018

Table 12-7. Estimated Number of Vulnerable Persons Located within 1 mile of a Hazardous Materials Roadway

	Estimated Number of Vulnerable Persons Located within 1 mile of a Hazardous Materials Roadway				
	Persons Over 65	Persons Under 5	Non-English Speaking Persons	Persons with a Disability	Persons in Poverty
Andover (B)	80	27	13	62	31
Andover (Twp)	358	63	0	137	69
Branchville (B)	163	39	28	83	34
Byram (Twp)	641	256	59	351	102
Frankford (Twp)	462	108	0	255	68
Franklin (B)	1,103	214	123	799	267
Fredon (Twp)	549	112	24	253	151
Green (Twp)	31	5	2	19	6
Hamburg (B)	451	143	332	240	174
Hampton (Twp)	415	72	35	265	125
Hardyston (Twp)	1,399	274	85	788	394
Hopatcong (B)	0	0	0	0	0
Lafayette (Twp)	315	104	20	156	123
Montague (Twp)	213	53	20	100	44
Newton (T)	1,787	260	202	1,196	732
Ogdensburg (B)	0	0	0	0	0
Sandyston (Twp)	253	87	0	179	60
Sparta (Twp)	1,111	491	56	656	319
Stanhope (B)	461	214	0	290	28
Stillwater (Twp)	0	0	0	0	0
Sussex (B)	297	86	7	347	365
Vernon (Twp)	1,280	344	32	804	304
Walpack (Twp)	0	0	0	0	0
Wantage (Twp)	935	179	50	713	393
Sussex County (Total)	**12,304**	**3,131**	**1,088**	**7,693**	**3,789**

Source: U.S. Census Bureau 2020, 2021; NJGIN 2023; Sussex County 2021, 2023

Table 12-8. Estimated Number of Vulnerable Persons Located within 50 miles of Indian Point

	Estimated Number of Vulnerable Persons Located within 50 miles of Indian Point				
	Persons Over 65	Persons Under 5	Non-English Speaking Persons	Persons with a Disability	Persons in Poverty
Andover (B)	80	27	13	62	31
Andover (Twp)	1,369	242	0	525	265
Branchville (B)	163	39	28	83	34
Byram (Twp)	1,112	444	103	609	178
Frankford (Twp)	999	234	0	552	147
Franklin (B)	1,173	228	130	850	285
Fredon (Twp)	601	123	26	277	166
Green (Twp)	690	116	45	439	140
Hamburg (B)	451	143	332	240	174
Hampton (Twp)	1,155	201	98	737	347
Hardyston (Twp)	1,642	321	100	924	463
Hopatcong (B)	2,002	600	339	1,517	631
Lafayette (Twp)	510	170	33	253	200
Montague (Twp)	843	211	82	394	175
Newton (T)	1,787	260	202	1,196	732
Ogdensburg (B)	373	71	41	193	127
Sandyston (Twp)	318	110	0	224	75
Sparta (Twp)	2,621	1,159	134	1,550	753
Stanhope (B)	484	225	0	303	30
Stillwater (Twp)	762	71	0	407	201
Sussex (B)	297	86	7	347	365
Vernon (Twp)	3,686	991	95	2,317	877
Walpack (Twp)	1	0	0	0	0
Wantage (Twp)	1,954	374	104	1,490	821
Sussex County (Total)	**25,073**	**6,446**	**1,912**	**15,489**	**7,217**

Source: U.S. Census Bureau 2021; NJGIN 2023; Sussex County 2021, 2023; Tetra Tech

12.2.2 General Building Stock

Potential losses to the general building stock caused by a hazardous material releases may include inaccessibility, loss of service, contamination and/or potential structural and content losses if an explosion occurs. Table 12-9 through Table 12-12 show building exposure to hazardous material incidents by jurisdiction. Table 12-13 and Table 12-14 show buildings in the hazardous materials incident hazard areas by general occupancy.

Table 12-9. Estimated Number and Total Replacement Cost Value of Structures Located within 1 mile of Hazardous Materials Site Area

	Jurisdiction Total Buildings		Number of Buildings		Replacement Cost Value	
	Count	Replacement Cost Value	Count	% of Jurisdiction Total	Value	% of Jurisdiction Total
Andover (B)	326	$693,607,785	0	0.0%	$0	0.0%
Andover (Twp)	2,577	$4,012,892,721	263	10.2%	$804,337,256	20.0%
Branchville (B)	426	$598,388,025	0	0.0%	$0	0.0%
Byram (Twp)	3,676	$3,162,144,221	742	20.2%	$451,197,262	14.3%
Frankford (Twp)	3,529	$3,491,793,002	0	0.0%	$0	0.0%
Franklin (B)	2,058	$2,227,977,138	1,698	82.5%	$2,067,118,882	92.8%
Fredon (Twp)	1,615	$1,542,422,915	27	1.7%	$33,484,113	2.2%
Green (Twp)	1,697	$1,821,582,866	502	29.6%	$525,212,341	28.8%
Hamburg (B)	1,593	$1,809,235,911	1,423	89.3%	$1,728,577,305	95.5%
Hampton (Twp)	2,761	$2,474,023,610	0	0.0%	$0	0.0%
Hardyston (Twp)	4,401	$3,681,458,622	683	15.5%	$857,718,698	23.3%
Hopatcong (B)	8,004	$3,432,619,930	161	2.0%	$91,727,771	2.7%
Lafayette (Twp)	1,463	$2,142,628,709	46	3.1%	$77,321,216	3.6%
Montague (Twp)	2,175	$1,659,675,649	0	0.0%	$0	0.0%
Newton (T)	2,676	$5,699,120,026	1,627	60.8%	$3,236,382,923	56.8%
Ogdensburg (B)	992	$954,409,603	0	0.0%	$0	0.0%
Sandyston (Twp)	1,526	$1,350,071,503	0	0.0%	$0	0.0%
Sparta (Twp)	8,127	$10,316,900,290	786	9.7%	$3,422,727,220	33.2%
Stanhope (B)	1,552	$1,228,753,628	441	28.4%	$235,450,332	19.2%
Stillwater (Twp)	2,487	$1,611,608,776	0	0.0%	$0	0.0%
Sussex (B)	677	$2,187,092,184	0	0.0%	$0	0.0%
Vernon (Twp)	12,039	$6,816,863,576	547	4.5%	$682,796,127	10.0%
Walpack (Twp)	51	$68,015,712	0	0.0%	$0	0.0%
Wantage (Twp)	5,509	$5,527,803,803	130	2.4%	$602,351,644	10.9%
Sussex County (Total)	**71,937**	**$68,511,090,204**	**9,076**	**12.6%**	**$14,816,403,090**	**21.6%**

Source: Sussex County 2023; NJOGIS, Civil Solutions, Spatial Data Logic; RS Means 2022; EPA 2018

Table 12-10. Estimated Number and Total Replacement Cost Value of Structures Located within 1 mile of Hazardous Materials Rail Routes

	Jurisdiction Total Buildings		Number of Buildings		Replacement Cost Value	
	Count	Replacement Cost Value	Count	% of Jurisdiction Total	Value	% of Jurisdiction Total
Andover (B)	326	$693,607,785	0	0.0%	$0	0.0%
Andover (Twp)	2,577	$4,012,892,721	0	0.0%	$0	0.0%
Branchville (B)	426	$598,388,025	0	0.0%	$0	0.0%
Byram (Twp)	3,676	$3,162,144,221	0	0.0%	$0	0.0%
Frankford (Twp)	3,529	$3,491,793,002	0	0.0%	$0	0.0%
Franklin (B)	2,058	$2,227,977,138	1,994	96.9%	$2,183,300,039	98.0%
Fredon (Twp)	1,615	$1,542,422,915	0	0.0%	$0	0.0%
Green (Twp)	1,697	$1,821,582,866	0	0.0%	$0	0.0%
Hamburg (B)	1,593	$1,809,235,911	1,593	100%	$1,809,235,911	100%
Hampton (Twp)	2,761	$2,474,023,610	0	0.0%	$0	0.0%
Hardyston (Twp)	4,401	$3,681,458,622	2,890	65.7%	$2,421,898,750	65.8%
Hopatcong (B)	8,004	$3,432,619,930	0	0.0%	$0	0.0%
Lafayette (Twp)	1,463	$2,142,628,709	69	4.7%	$76,927,663	3.6%
Montague (Twp)	2,175	$1,659,675,649	0	0.0%	$0	0.0%
Newton (T)	2,676	$5,699,120,026	0	0.0%	$0	0.0%
Ogdensburg (B)	992	$954,409,603	953	96.1%	$934,085,340	97.9%
Sandyston (Twp)	1,526	$1,350,071,503	0	0.0%	$0	0.0%
Sparta (Twp)	8,127	$10,316,900,290	1,725	21.2%	$4,503,801,053	43.7%
Stanhope (B)	1,552	$1,228,753,628	0	0.0%	$0	0.0%
Stillwater (Twp)	2,487	$1,611,608,776	0	0.0%	$0	0.0%
Sussex (B)	677	$2,187,092,184	0	0.0%	$0	0.0%
Vernon (Twp)	12,039	$6,816,863,576	4,335	36.0%	$2,637,476,847	38.7%
Walpack (Twp)	51	$68,015,712	0	0.0%	$0	0.0%
Wantage (Twp)	5,509	$5,527,803,803	0	0.0%	$0	0.0%
Sussex County (Total)	**71,937**	**$68,511,090,204**	**13,559**	**18.8%**	**$14,566,725,603**	**21.3%**

Source: Sussex County 2023; NJOGIS, Civil Solutions, Spatial Data Logic; RS Means 2022; NJ Transit 2018

Table 12-11. Estimated Number and Total Replacement Cost Value of Structures Located within 1 mile of a Hazardous Materials Roadway

	Jurisdiction Total Buildings		Number of Buildings		Replacement Cost Value	
	Count	Replacement Cost Value	Count	% of Jurisdiction Total	Value	% of Jurisdiction Total
Andover (B)	326	$693,607,785	326	100%	$693,607,785	100%
Andover (Twp)	2,577	$4,012,892,721	736	28.6%	$861,821,876	21.5%
Branchville (B)	426	$598,388,025	426	100%	$598,388,025	100%
Byram (Twp)	3,676	$3,162,144,221	2,121	57.7%	$2,283,729,143	72.2%
Frankford (Twp)	3,529	$3,491,793,002	1,629	46.2%	$1,767,203,202	50.6%
Franklin (B)	2,058	$2,227,977,138	1,934	94.0%	$2,151,147,719	96.6%
Fredon (Twp)	1,615	$1,542,422,915	1,387	85.9%	$1,340,461,176	86.9%
Green (Twp)	1,697	$1,821,582,866	83	4.9%	$152,650,513	8.4%
Hamburg (B)	1,593	$1,809,235,911	1,593	100%	$1,809,235,911	100%
Hampton (Twp)	2,761	$2,474,023,610	1,003	36.3%	$1,084,646,912	43.8%
Hardyston (Twp)	4,401	$3,681,458,622	3,754	85.3%	$3,351,412,648	91.0%
Hopatcong (B)	8,004	$3,432,619,930	34	0.4%	$9,324,954	0.3%
Lafayette (Twp)	1,463	$2,142,628,709	896	61.2%	$1,461,199,058	68.2%
Montague (Twp)	2,175	$1,659,675,649	608	28.0%	$686,250,273	41.3%
Newton (T)	2,676	$5,699,120,026	2,676	100%	$5,699,120,026	100%
Ogdensburg (B)	992	$954,409,603	0	0.0%	$0	0.0%
Sandyston (Twp)	1,526	$1,350,071,503	1,116	73.1%	$999,421,828	74.0%
Sparta (Twp)	8,127	$10,316,900,290	3,730	45.9%	$7,335,511,735	71.1%
Stanhope (B)	1,552	$1,228,753,628	1,483	95.6%	$1,175,327,249	95.7%
Stillwater (Twp)	2,487	$1,611,608,776	0	0.0%	$0	0.0%
Sussex (B)	677	$2,187,092,184	677	100%	$2,187,092,184	100%
Vernon (Twp)	12,039	$6,816,863,576	4,311	35.8%	$2,484,604,684	36.4%
Walpack (Twp)	51	$68,015,712	0	0.0%	$0	0.0%
Wantage (Twp)	5,509	$5,527,803,803	2,657	48.2%	$2,829,792,993	51.2%
Sussex County (Total)	**71,937**	**$68,511,090,204**	**33,180**	**46.1%**	**$40,961,949,893**	**59.8%**

Source: Sussex County 2023; NJOGIS, Civil Solutions, Spatial Data Logic; RS Means 2022

Table 12-12. Estimated Number and Total Replacement Cost Value of Structures Located within 50 miles of Indian Point

	Jurisdiction Total Buildings		Number of Buildings		Replacement Cost Value	
	Count	Replacement Cost Value	Count	% of Jurisdiction Total	Value	% of Jurisdiction Total
Andover (B)	326	$693,607,785	326	100%	$693,607,785	100%
Andover (Twp)	2,577	$4,012,892,721	2,577	100%	$4,012,892,721	100%
Branchville (B)	426	$598,388,025	426	100%	$598,388,025	100%
Byram (Twp)	3,676	$3,162,144,221	3,676	100%	$3,162,144,221	100%
Frankford (Twp)	3,529	$3,491,793,002	3,529	100%	$3,491,793,002	100%
Franklin (B)	2,058	$2,227,977,138	2,058	100%	$2,227,977,138	100%
Fredon (Twp)	1,615	$1,542,422,915	1,478	91.5%	$1,388,349,664	90.0%
Green (Twp)	1,697	$1,821,582,866	1,558	91.8%	$1,674,075,648	91.9%
Hamburg (B)	1,593	$1,809,235,911	1,593	100%	$1,809,235,911	100%
Hampton (Twp)	2,761	$2,474,023,610	2,761	100%	$2,474,023,610	100%
Hardyston (Twp)	4,401	$3,681,458,622	4,401	100%	$3,681,458,622	100%
Hopatcong (B)	8,004	$3,432,619,930	8,004	100%	$3,432,619,930	100%
Lafayette (Twp)	1,463	$2,142,628,709	1,463	100%	$2,142,628,709	100%
Montague (Twp)	2,175	$1,659,675,649	2,175	100%	$1,659,675,649	100%
Newton (T)	2,676	$5,699,120,026	2,676	100%	$5,699,120,026	100%
Ogdensburg (B)	992	$954,409,603	992	100%	$954,409,603	100%
Sandyston (Twp)	1,526	$1,350,071,503	1,526	100%	$1,350,071,503	100%
Sparta (Twp)	8,127	$10,316,900,290	8,127	100%	$10,316,900,290	100%
Stanhope (B)	1,552	$1,228,753,628	1,552	100%	$1,228,753,628	100%
Stillwater (Twp)	2,487	$1,611,608,776	1,685	67.8%	$946,003,696	58.7%
Sussex (B)	677	$2,187,092,184	677	100%	$2,187,092,184	100%
Vernon (Twp)	12,039	$6,816,863,576	12,039	100%	$6,816,863,576	100%
Walpack (Twp)	51	$68,015,712	30	58.8%	$29,319,049	43.1%
Wantage (Twp)	5,509	$5,527,803,803	5,509	100%	$5,527,803,803	100%
Sussex County (Total)	**71,937**	**$68,511,090,204**	**70,838**	**98.5%**	**$67,505,207,993**	**98.5%**

Source: Sussex County 2023; NJOGIS, Civil Solutions, Spatial Data Logic; RS Means 2022; Tetra Tech

Table 12-13. Buildings in the Hazardous Sites and Rail Routes Hazardous Materials Hazard Areas by General Occupancy Class

	Buildings within 1 mile of Hazardous Materials Site Area				Buildings within 1 mile of Hazardous Materials Rail Routes			
	Residential	Commercial	Industrial	Other[a]	Residential	Commercial	Industrial	Other[a]
Andover (B)	0	0	0	0	0	0	0	0
Andover (Twp)	215	23	4	21	0	0	0	0
Branchville (B)	0	0	0	0	0	0	0	0
Byram (Twp)	692	11	1	38	0	0	0	0
Frankford (Twp)	0	0	0	0	0	0	0	0
Franklin (B)	1,465	153	8	72	1,747	166	10	71
Fredon (Twp)	16	0	0	11	0	0	0	0
Green (Twp)	396	4	2	100	0	0	0	0
Hamburg (B)	1,311	86	8	18	1,473	94	8	18
Hampton (Twp)	0	0	0	0	0	0	0	0
Hardyston (Twp)	544	66	15	58	2,545	147	16	182
Hopatcong (B)	137	8	0	16	0	0	0	0
Lafayette (Twp)	43	1	1	1	38	0	1	30
Montague (Twp)	0	0	0	0	0	0	0	0
Newton (T)	1,372	186	15	54	0	0	0	0
Ogdensburg (B)	0	0	0	0	874	49	0	30
Sandyston (Twp)	0	0	0	0	0	0	0	0
Sparta (Twp)	475	191	28	92	1,241	247	36	201
Stanhope (B)	422	3	1	15	0	0	0	0
Stillwater (Twp)	0	0	0	0	0	0	0	0
Sussex (B)	0	0	0	0	0	0	0	0
Vernon (Twp)	342	120	13	72	3,863	268	27	177
Walpack (Twp)	0	0	0	0	0	0	0	0
Wantage (Twp)	50	50	1	29	0	0	0	0
Sussex County (Total)	**7,480**	**902**	**97**	**597**	**11,781**	**971**	**98**	**709**

Source: Sussex County 2023; NJOGIS, Civil Solutions, Spatial Data Logic; EPA 2018; NJ Transit 2018; Tetra Tech

a. Other = Government, Religion, Agricultural, and Education

Table 12-14. Buildings in the Hazardous Roadways and Indian Point Hazardous Materials Incident Hazard Areas by General Occupancy Class

	Buildings within 1 mile of Hazardous Materials Roadway Routes				Buildings within 50 miles of Indian Point			
	Residential	Commercial	Industrial	Other[a]	Residential	Commercial	Industrial	Other[a]
Andover (B)	234	69	2	21	234	69	2	21
Andover (Twp)	562	54	7	113	2,146	157	14	260
Branchville (B)	339	71	1	15	339	71	1	15
Byram (Twp)	1,930	92	2	97	3,345	111	2	218
Frankford (Twp)	1,286	164	5	174	2,779	179	6	565
Franklin (B)	1,698	166	8	62	1,807	166	10	75
Fredon (Twp)	1,047	43	5	292	1,146	43	6	283
Green (Twp)	58	1	2	22	1,285	29	4	240
Hamburg (B)	1,473	94	8	18	1,473	94	8	18
Hampton (Twp)	830	81	1	91	2,307	104	1	349
Hardyston (Twp)	3,377	172	19	186	3,963	190	19	229
Hopatcong (B)	0	34	0	0	7,643	184	0	177
Lafayette (Twp)	592	93	18	193	960	98	25	380
Montague (Twp)	474	55	5	74	1,870	94	7	204
Newton (T)	2,245	286	19	126	2,245	286	19	126
Ogdensburg (B)	0	0	0	0	910	52	0	30
Sandyston (Twp)	870	70	7	169	1,093	89	7	337
Sparta (Twp)	3,122	383	33	192	7,366	427	41	293
Stanhope (B)	1,382	65	6	30	1,448	66	7	31
Stillwater (Twp)	0	0	0	0	1,454	88	0	143
Sussex (B)	554	80	6	37	554	80	6	37
Vernon (Twp)	3,880	260	21	150	11,176	402	36	425
Walpack (Twp)	0	0	0	0	2	21	0	7
Wantage (Twp)	1,998	151	3	505	4,174	192	6	1,137
Sussex County (Total)	**27,951**	**2,484**	**178**	**2,567**	**61,719**	**3,292**	**227**	**5,600**

Source: Sussex County 2023; NJOGIS, Civil Solutions, Spatial Data Logic; EPA 2018; NJ Transit 2018; Tetra Tech

a. Other = Government, Religion, Agricultural, and Education

The general building stock exposure analysis estimates indicate the following:

- There are 9,076 buildings with $14.8 billion in value within 1 mile of hazardous material sites.
- There are 13,559 buildings with $14.5 billion in value within 1 mile of railways.
- There are 33,180 buildings with $40.9 billion in value within 1 mile of roadways.
- There are 70,838 buildings with $67.5 billion in value within 50 miles of the Indian Point Energy Center.
- The Borough of Franklin has the greatest number of buildings within 1 mile of hazardous material sites (1,698).
- The Township of Vernon has the greatest number of buildings within 1 mile of railways (4,335).
- The Township of Vernon has the greatest number of buildings within 1 mile of roadways (4,311).
- The Township of Vernon has the greatest number of buildings within 50 miles of the Indian Point Energy Center (12,039).
- The residential occupancy is the most exposed to the hazardous material hazard:
  - 82 percent of the buildings within 1 mile of a hazardous materials site
  - 87 percent of the buildings within 1 mile of railway
  - 84 percent of the buildings within 1 mile of roadway
  - 87 percent of the buildings within 50 miles of Indian Point

12.2.3 Community Lifelines and Other Critical Facilities

Potential losses to critical assets caused by a hazardous material incident may include inaccessibility, loss of service, contamination and/or potential structural and content losses if an explosion occurs. Hazardous materials that get into waterways can contaminate drinking water supplies.

12.2.4 Economy

A significant hazardous materials release in an urban area may force businesses to close for an extended period because of contamination or direct damage caused by an explosion, if one occurred. As businesses close and tourists are prohibited from entering the affected area, tourism may decline and public perception of the area may be permanently affected. The closure of waterways, railroads, airports, or highways as a result of a hazardous materials release would impact the ability to deliver goods and services. Potential impacts may be local, regional, or statewide, depending on the magnitude of the event and the level of service disruptions. Radiological contamination of agriculture, livestock, or production can lead to loss of commerce with other regions of the state, country, and world.

12.2.5 Natural, Historic and Cultural Resources

Natural

Some hazardous materials can be toxic to plants and animals, damaging their habitats and food sources. Radioactive materials released into the environment could enter the food chain and ultimately contaminate the human food supply. Nuclear impacts on the environment are similar to those of radioactive materials; however, the extent of impacts can be larger due to the number of miles it can impact.

Hazardous materials that get into waterways can be deadly to aquatic species. Hazardous materials can also leach into soils and travel with wind, having impacts on the localized habitat.

Historic

Unless a hazard materials release is directly on or adjacent to an historic resource site the site, a hazardous materials incident is unlikely to affect the resource. If the incident is on or near the site, a release can pose a serious long-term threat to the resource.

Cultural

Unless a hazard materials release is directly on or adjacent to a cultura resource site the site, a hazardous materials incident is unlikely to affect the resource. If the incident is on or near the site, a release can pose a serious long-term threat to the resource.

Cultural events often take place in outdoor areas. A hazardous materials incident could impact the participants or visitors at these events and festivals or result in the event or festival becoming postponed or cancelled.

12.3 CHANGE OF VULNERABILITY SINCE 2021 HMP

This HMP evaluated vulnerability based on hazard areas defined by buffers around railways, hazardous material fixed sites, roadways, and the Indian Point Energy Center. The previous plan update did not use these hazard areas for the vulnerability assessment.

Overall, the County's vulnerability to the hazardous material hazard has not changed, and the entire County will continue to be vulnerable to this hazard. Any change in vulnerability since the previous HMP would be attributed to changes in population density and new development. This updated HMP used updated building stock and critical asset inventories to assess the County's risk to these assets. The building inventory was updated using RSMeans 2022 values, which are more current and reflect replacement cost rather than the building stock improvement values reported in the 2021 HMP. Further, the 2021 5-year population estimates from the American Community Survey were used to evaluate the population exposed to the hazard areas.

12.4 FUTURE CHANGES THAT MAY AFFECT RISK

Understanding future changes that affect vulnerability can assist in planning for future development and ensure establishment of appropriate mitigation, planning, and preparedness measures. The following sections examine potential conditions that may affect hazard vulnerability.

12.4.1 Potential or Planned Development

Any areas of growth could be impacted by the hazardous materials hazard. Development near hazardous materials fixed-site facilities and transportation routes increase the County's overall risk. Therefore, the County should take precautions with the location of new development and the development's proximity to hazardous material fixed sites and transportation routes. The County may also want to consider implementing designs into new development that enables improved evacuation or protection from residual impacts from the hazardous materials.

12.4.2 Projected Changes in Population

The New Jersey Department of Labor and Workforce Development produced population projections by County from 2014 to 2019, 2024, 2029, and 2034. According to these projections, Sussex County is projected to have a decrease in population in the upcoming years. These projection totals include a population of 140,400 by 2024, 137,300 by 2029, and 136,600 by 2034 (State of New Jersey 2017). Any changes in the density of population can impact the number of persons living near hazardous materials fixed-site facilities and transportation routes.

12.4.3 Climate Change

As temperatures change, excessive heat on containers that contain hazardous materials may alter their material properties. In addition, hazardous materials stored at fixed locations in the floodplain may experience an increase in flood events due to projected increases in precipitation events, magnitude, and frequency. Extreme weather conditions may make in-transit hazardous material releases more likely as transportation accidents are more likely to occur.