



SECTION 3 COUNTY PROFILE

The County profile describes the general information (physical setting, population and demographics, general building stock, and land use and population trends) and critical facilities located within Essex 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).

3.1 PHYSICAL SETTING

Essex County is located in northern New Jersey, approximately 20 miles south of the New York State border, and 10 miles west of Manhattan. The County is bordered by Passaic County to the north, Bergen County to the east-northeast, Hudson County to the east, Union County to the south and Morris County to the west. The eastern and western borders of Essex County are defined by the Passaic River. The County is separated from Morris County by the eastern branch of the Passaic River. The southeast border of the County is situated on the Newark Bay with approximately 3.5 miles of shoreline (The County's topography is flat in the east and slowly rises toward the west upon the approach of the Watchung Mountains. The Watchung Mountains run roughly north south through the center of Essex County. To the west of the Watchung Mountain, the slope gently declines back to a flatter topography as it approaches the western branch of the Passaic River. The highest elevations in the County are located in three municipalities within the Watchung Mountain range: Essex Fells, North Caldwell and Verona, with the highest point of 691 feet above sea level. The lowest point in the County is located at Newark Bay in the City of Newark. The average elevation of the County is 300 feet above sea level.

Essex County is located within the Piedmont Province, which is one of the four major physiographic regions of New Jersey. The Piedmont Province has an area of approximately 1,600 square miles and makes up about one-fifth of the State. The Piedmont Province is mainly underlain by slightly folded and faulted sedimentary rocks of the Triassic and Jurassic age and igneous rocks of the Jurassic age (Dalton, 2003).

According to the New Jersey Geological Survey (NJGS), the Piedmont Province is a low rolling plain divided by a series of higher ridges. The width varies from approximately 16 miles near the New York border to over 30 miles at the Delaware River. The most prominent feature of the eastern portion of the province is the Palisades, which has a maximum elevation of 547 feet near Closter and provides views of the Hudson River and New York City. Near the Newark Bay, toward its boundary with the Coastal Plain Province, the elevation is at sea level (Dalton, 2003) (Figure 3-1).

Essex County consists of 22 municipalities, with an area over 127 square miles and a total population of 783,969. The County is New Jersey's second most densely populated county, with 6,211.5 persons per square mile, based on 2010 Census data (U.S. Census, 2013). It is an urban county with outlying suburban communities. Essex County includes the City of Newark, the largest municipality in the state by population. The Borough of Caldwell is the smallest municipality in the County in terms of land area, and Essex Fells has the lowest population in the County. Generally, the eastern portion of the County is more urban compared to the more suburban western portion of the County.

Newark Liberty International Airport is located in the City of Newark and is one of the three New York metropolitan airports (LaGuardia and JFK International Airport) operated by the Port Authority of New York & New Jersey (Port Authority). Additionally, the Port Authority operates the Port Newark-Elizabeth Marine Terminal in the County, the largest port facility on the east coast and third largest nationally. The Port Newark-Elizabeth Marine Terminal is located on the Newark Bay and serves as the principal container ship facility for goods entering and leaving the New York-New Jersey metropolitan area (Essex County, 2014).



Development throughout the County continued as alternate forms of travel were developed in the 1930's and 1940's to help workers commute from industrial Newark to less crowded outlying towns. Towns such as Irvington, East Orange, Orange and Bloomfield created trolley lines to facilitate workers commuting into and out of Newark. South Orange, Maplewood, Millburn, Glen Ridge and Montclair developed a commuter railcar system to transport its residents into and out of New York City. Development of the western portion of the County in towns such as Livingston, Fairfield, Roseland, Cedar Grove, Essex Fells and the Caldwell's, remained slow until the construction of Route 280, which provided an easier transportation route to and from eastern and western Essex County. This new access to the western portion of the County lead to the development of new industrial and professional office parks, hi-tech centers, and luxury homes, condominiums and townhouses (Essex County, 2013).

3.1.1 Topology and Geology

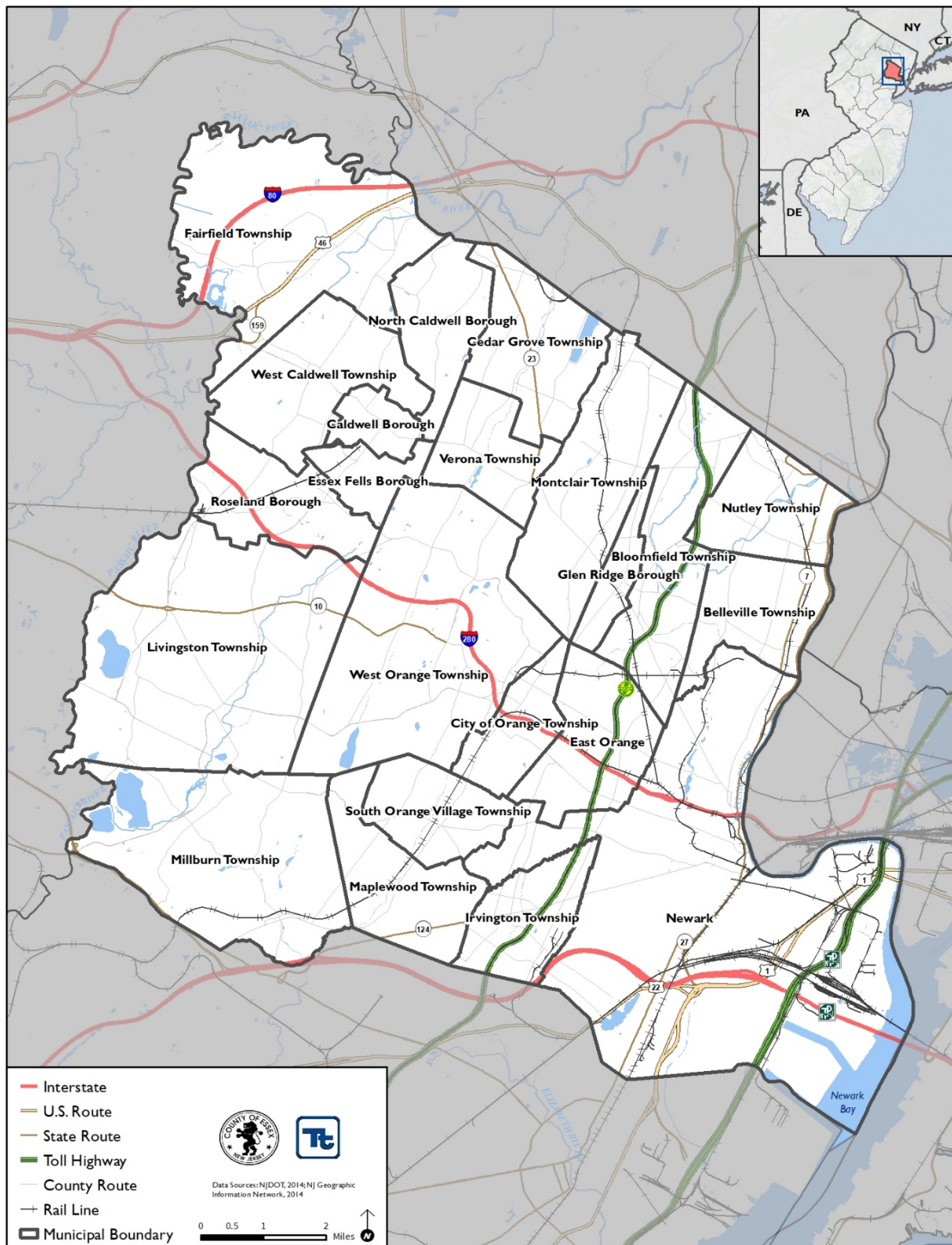
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Figure 3-1. Overview Map of Essex County, New Jersey





3.1.2 Hydrography and Hydrology

Numerous ponds, lakes, creeks, and rivers make up the waterscape of Essex County. The major waterways within the County include: Passaic River, Peckman River, Second River, Rahway River (east and west branches), and the Newark Bay.

Most of Essex County surface hydrology is linked to the Passaic River. The Passaic River is a 90-mile mud and sand bottom river that takes a course from Morris County to Newark Bay. It follows the Millington Gorge, forming the Paterson Falls, defining both the eastern and western boundaries of Essex County. The Passaic River and much of its associated wetlands are the remnants of a huge 11,000 year-old post-glacial lake originally centered in the wetland complexes of Morris County. The lake was the result of meltwater from the retreating Wisconsin Glacier (Essex County Environmental Resource Inventory 2007).

Watersheds come in all shapes and sizes and can cross municipal and county boundaries. Twenty watersheds make up the State of New Jersey. Essex County is located in three of the 20 watersheds: Arthur Kill (Watershed Management Area 7); Lower Passaic, Saddle River ((Watershed Management Area 4); and the Upper and Mid Passaic, Whippany, Rockaway (Watershed Management Area 6). These are represented in Figure 3-2 as Watershed Management Areas. Most of the Essex County land in the watershed has been developed. None of the streams or the Lower Passaic River itself is currently being used for drinking water supplies (Essex County Park, Recreation and Open Space Master Plan 2003).

The Arthur Kill Watershed Management Area 7 (WMA 7) is represented by large portions of Essex, Union, and Middlesex Counties. The mainstem of the Rahway River is 24 miles long, flowing from Union into the Arthur Kill near Linden. It is tidal from the Pennsylvania Railroad Bridge at Rahway down to the mouth. Key tributaries include the East Branch Rahway River, Woodbridge River, and Robinson's Branch. Major impoundments are the Middlesex Reservoir, Orange Reservoir, Lower and Upper Echo Lakes, and Diamond Mill Pond. The Elizabeth River is 11 miles long; much of it channelized for flood control purposes. Land uses in the Rahway and Elizabeth Watersheds are mainly residential, commercial and industrial (NJDEP 2012).

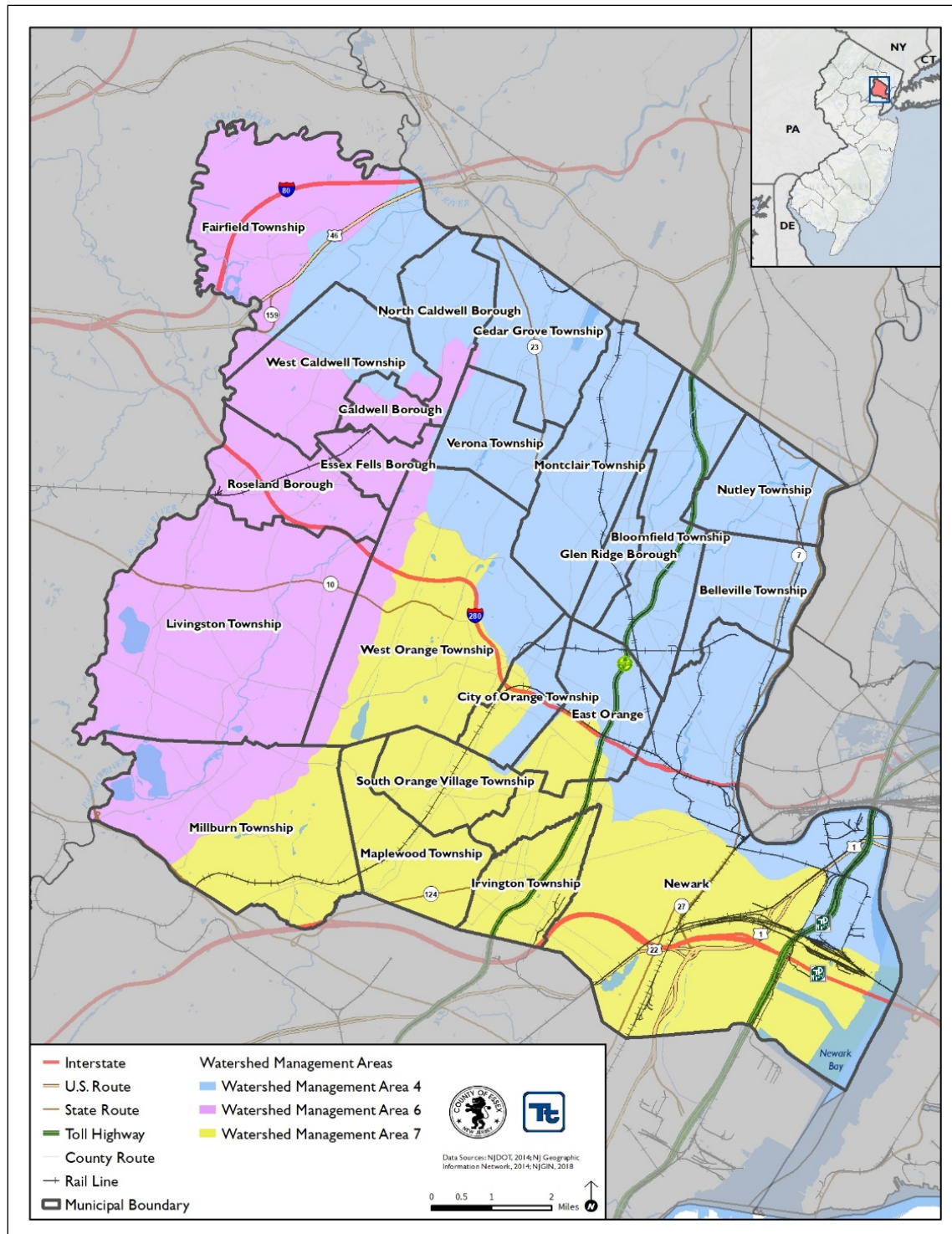
The Lower Passaic, Saddle Watershed Management Area 4 (WMA 4), includes the Lower Passaic River (from the Pompton River confluence downstream to the Newark Bay) and its tributaries, including the Saddle River. The drainage area is approximately 180 square miles and lies within the portions of Passaic, Essex, Hudson, Morris and Bergen Counties. The 129 square miles of land in the Lower Passaic River Watershed is primarily urban/suburban. As a result, water quality conditions along this 33-mile section of the Passaic River are poor, reflective of numerous point sources, significant nonpoint source contributions, and high sediment oxygen demands. Reflecting the area's industrialized history, the conditions are affected by the number of hazardous waste sites and contamination problems found in these areas. The Saddle River Watershed has a drainage area of 51 square miles. This watershed is extensively developed and contains many older cities and industrial centers including Newark, Paterson, Clifton, and East Orange. Like the Lower Passaic, the Saddle River's water quality is affected by its industrial past, current point sources of pollution and urban runoff (NJDEP, 2012).

The Upper and Mid-Passaic, Whippany, Rockaway Watershed Management Area 6 (WMA 6) represents the area drained by waters from the upper reaches of the Passaic River Basin. This includes the Passaic River from its headwaters in Morris County to the confluence of the Pompton River. Extensive suburban development and reliance upon ground water sources for water supply characterize this watershed. The Upper Passaic River represents a significant source of drinking water for a large portion of northeastern New Jersey. About one half of the land in this watershed is undeveloped or vacant with the rest primarily residential and commercial. This watershed has experienced key development in the more rural undeveloped areas (NJDEP, 2012). The land use patterns in the Rockaway River area are complex and include wooded/vacant areas, parklands, and residential development. There are also some areas having industrial and commercial uses. Suburban development is on the



rise. Urban/suburban development is causing the water quality of the Whippany River to be degraded. Runoff from construction activity, stormwater discharges, urban surfaces, and the loss of riparian vegetation are suspected of contributing to siltation in the river. This has resulted in reduction in the trout-holding capacity of the waterway.

Figure 3-2. Essex County Watershed Management Areas





3.1.3 Climate

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

Average annual precipitation ranges from approximately 40 inches along the southeast coast to 51 inches in the north-central portion of the State. Most areas in New Jersey average between 43 and 47 inches of precipitation annually. Snow typically falls from October 15 to April 30 in the Highlands and from around November 15 to April 15 in the southern counties. Most locations in New Jersey receive between 25 and 30 thunderstorms each year, with fewer storms near the coast than inland. New Jersey experiences measurable precipitation; approximately 120 days each year. The fall months are typically the driest, with an average of eight days of measurable precipitation. Other seasons average between nine and 12 days each month with measurable precipitation. New Jersey also has approximately five tornadoes each year, which generally tend to be weak (ONJSC nd).

The State of New Jersey is divided into five distinct climate zones. Distinct variations in the day-to-day weather between each of the climate zones is due to the geology, distance from the Atlantic Ocean, and prevailing atmospheric flow patterns. Essex County is located in the Central Climate Zone. The Central Zone has a northeast to southwest orientation, running from New York Harbor and the Lower Hudson River to the Great Bend of the Delaware River near the City of Trenton. The northern edge of the Central Zone is often the boundary between freezing and non-freezing precipitation in the State (ONJSC nd).

The climate in Essex County is temperate as the County experiences all four seasons. Average yearly temperatures are around 54°F with temperatures, on average, as low as 24°F in January and high temperatures topping out, on average, in July at 86°F. The average rainfall/precipitation for the County is between 44 and 48 inches a year and is distributed moderately-evenly each month at 3.1 to 4.7 inches per month, with no seasonable dry months or wet months.

3.1.4 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. An understanding of land use 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. For example, significant development in a hazard area increases the building stock and population exposed to that hazard.

Essex County contains a wide range of land uses and environmental resources. According to the United States Geologic Survey (USGS) 2016 National Land Cover Dataset most of the land in Essex County is classified as urban, forest, or water. The eastern portion of Essex County is primarily classified as urban with pockets of wetland area. Central Essex County has a concentration of forested land in addition to the urban areas. Western Essex County is comprised of urban, forest, and wetland land cover classifications. Wetlands cover a significant portion of Fairfield Township, West Caldwell Township, Roseland Borough, Livingston Township, and some of the northwestern edges of Millburn Township. Table 3-1 summarizes the Land Cover classifications throughout Essex County which is displayed in Figure 3-3 below.



Table 3-1. Land Cover Summary for Essex County

Land Cover Category	2016 NLCD Data	
	Acreage	Percent of Essex County
Agriculture	246	< 1%
Barren Land	38	< 1%
Forest	7,610	9.2%
Open Water	2,042	2.5%
Urban	66,156	79.7%
Wetlands	6,931	8.3%
Total	83,023	100%

Source: USGS 2019 (2016 NLCD)

Open Space

The County maintains greater than 6,000 acres of parkland that includes 28 parks, five reservations and various facilities. Essex County parks and reservations contain a wide range of facilities including open waters for fishing, boating and canoeing; opportunities for wildlife viewing; numerous fields and facilities for sports and recreation; interpretive trails; and walking and hiking paths. The largest wildlife preserves in the County are South Mountain and West Essex Park (Essex County Environmental Resource Inventor, 2007). Table 3-2 lists the parks, acreage and location in Essex County.

Table 3-2. Essex County Parks

County Park	Acreage	Municipality
Anderson	14.85	Montclair
Becker	147	Roseland
Belleville	32.70	Belleville
Branch Brook	359.72	Newark
Brookdale	121.41	Montclair
Eagle Rock Reservation	408.33	West Orange
Francis A. Byrne Golf Course	167.71	West Orange
Glenfield	20.01	Montclair
Grover Cleveland	41.61	Essex Fells
Hendricks Field Golf Course	124.99	Belleville
Hilltop Reservation	284.16	Cedar Grove
Independence	12.69	Newark
Irvington	24.38	Irvington
Ivy Hill	19.96	Newark
Kip's Castle Park	11	Verona and Montclair
Mills Reservation	157.19	Cedar Grove
Monte Irvin Orange Park	47.63	Orange
Riker Hill Complex	204.68	Livingston
Riverbank	10.77	Newark
South Mountain Reservation	2,047.14	West Orange



Table 3-2. Essex County Parks

County Park	Acreage	Municipality
Vailsburg	30.32	Newark
Verona	54.32	Verona
Walter Kidde Dinosaur	16	Roseland
Watsessing	69.67	Bloomfield
Weequahie	311.33	Newark
West Essex	1,361.33	Eagle Rock Ave. and Passaic River
West Side	31.36	Newark
Yanticaw	28.75	Nutley

Source: Essex County Environmental Resource Inventory, 2007

In addition to County parks, there are 176 municipal, school and private recreation and open space areas within Essex County. Of those, 70 are identified as municipal parks. The largest non-park open space areas are private golf courses, many of which are located in western Essex County. The remainder of these areas is recreation areas (picnic areas, campgrounds, lawns, cultural centers, etc.) and playgrounds (Essex County Environmental Resource Inventory 2007).

Forests

The Watchung Mountains contain the most forest area in the County. Deciduous forests are the dominant upland forest community, occupying approximately 9,620 acres (11.6%). Approximately 881 acres of the County are considered shrub forest. Coniferous forest in Essex County covers approximately 223 acres of land. These areas are typically small patches of planted coniferous stands comprised of various species in the County. Coniferous forest land can be found in the South Mountain reservation in the County (Essex County Environmental Resource Inventory 2007).

Recreational

Recreational coverage represents areas that include ball fields, golf courses, and similar areas dominated by maintained cool season grasses and utilized for sports activities. Recreational land use is scattered throughout the County. The largest recreational areas in Essex County are represented by golf courses (Essex County Environmental Resource Inventory 2007).

Urban Land

Urban land includes most of what normally would be considered developed land. Residential areas, commercial areas, services and institutions, industrial areas, and those developed for transportation and utilities are the primary land uses included in urban land. There are several other open land categories that are included with urban land. Developed recreation areas, whether a part of a park, educational facility, or private concern (e.g. golf course), are also considered a part of urban land. Also included are areas such as large, landscaped lawns in corporate businesses and service centers, parks, and residential areas (NJDEP 2014).

Urban land encompasses more area in Essex County than any other type of land use, approximately 66,156 acres of the County. It is the County's primary land use and includes residential land use as well. Areas classified as urban land have been altered, excavated, or disturbed to a significant extent and no longer have distinguishable morphologic features (Essex County Environmental Resource Inventory, 2007).



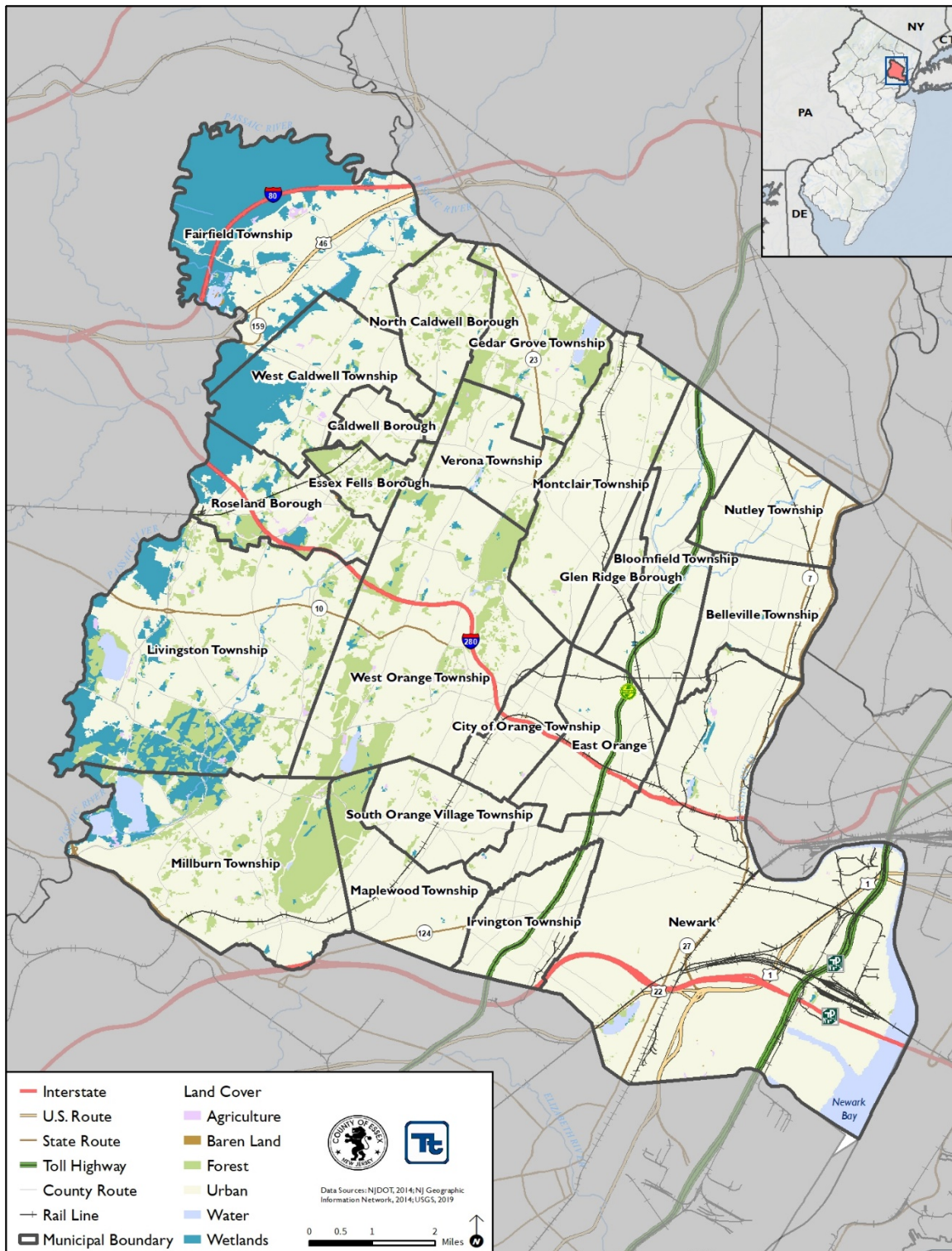
Wetlands

The largest wetland areas in Essex County are Great Piece Meadows and Hatfield Swamp, both of which are associated with the Passaic Meadows complex in northwestern Essex County. Forested wetland floodplains are mapped along the Passaic River in southwestern Essex County south of Hatfield Swamp from Willow Brook to the area around Canoe Brook Reservoir. Within southwest Essex County, wetlands are associated with Passaic River tributaries including Slough Brook, Canoe Brook and Taylor Brook in Millburn Township. In central Essex County, wetlands are primarily limited to smaller areas following creek corridors with some more extensive patches in Eagle Rock Reservation. Mapped wetlands within eastern Essex County are generally limited to small isolated patches (Essex County Environmental Resource Inventory, 2007).

Much of the wetland hydrology in Essex County is due to groundwater discharge to the surface or surface water runoff, in the form of sheet flow or flooding from adjacent open waters. Water tables are usually highest in the late winter and into early spring. During this period, water may pond or flood the wetlands for variable periods. In May or June, the water table usually begins to drop to its lowest levels, which occur in September or October. Fluctuations relate mainly to rainfall patterns, temperatures, and rates of evapotranspiration (the rate of water uptake from vegetation) (Essex County Environmental Resource Inventory, 2007).



Figure 3-3. 2016 Land Cover for Essex County





3.1.5 Land Use Trends

Although there has been a slight decrease in the County's population since 2000, there has been growing demand for housing in urban centers spurred by the emergence of the millennial's demand for housing. This has led to the redevelopment of many of the urban cores and revitalization of many of the State's older cities. Successful redevelopment projects in sections of the County including, the Ironbound section of Newark, downtown South Orange and downtown Montclair have facilitated mixed use growth, inclusive of residential development. This trend of urbanized living with proximity to a diversity of cultural activities and public transportation options has also enticed older generations to relocate to urban centers further increasing the demand for housing in these areas. The continued redevelopment in the urban areas of the County proximate to public transportation will likely remain an important component of the future development of the County.

According to the 2013 Essex County Transportation Plan, approximately 270 acres of new development has been approved and may begin construction in the near future. Much of this development will be in the form of redevelopment of existing developed properties. Many of the future development projects in the County are Transit Oriented Development (TOD) projects which are mixed-use developments that are proximate to transportation hubs. Where the information was available, specific development projects are listed in each municipality's annex in Section 9 (Jurisdictional Annexes).



3.2 POPULATION AND DEMOGRAPHICS

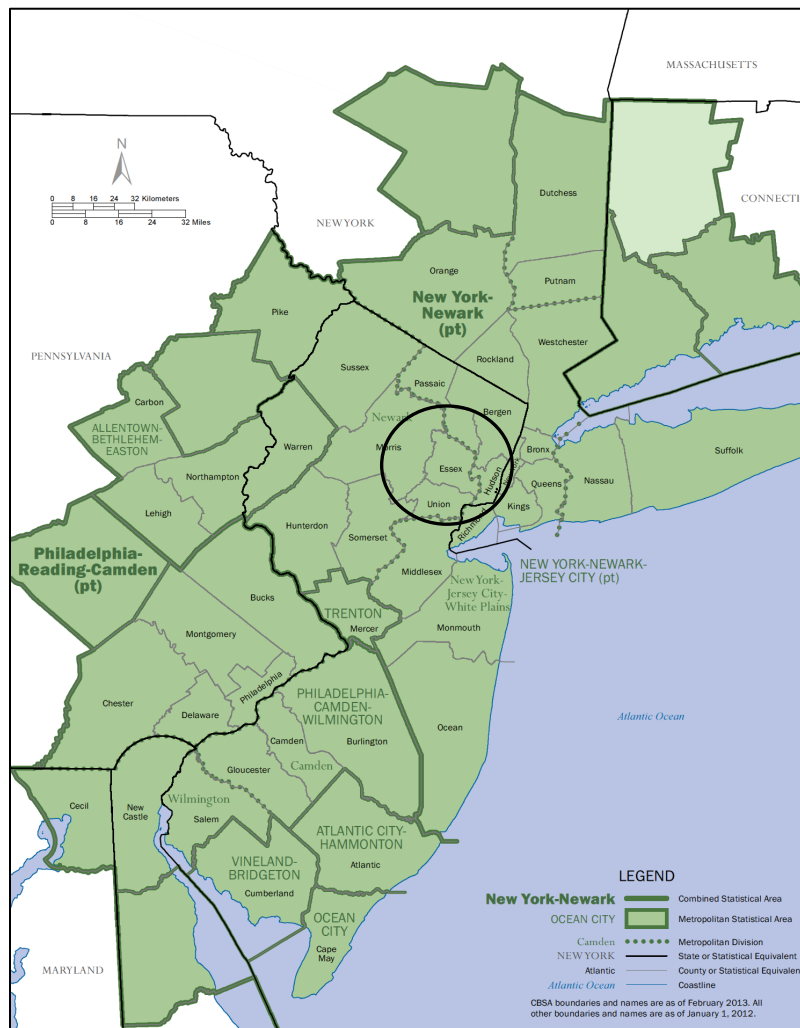
According to the 2013-2017 American Community Survey 5-Year Estimates, Essex County had a population of 800,401 people which represents a slight increase from the 2010 U.S. Census population of 793,633 people; refer to Table 3-3. Overall, Essex County has experienced population growth between the 2010 Decennial Census and the 2013-2017 American Community Survey 5-Year Estimates. The City of Newark is the largest municipality by population with an estimated population of 282,803 persons. The smallest municipality by population is the Borough of Essex Fells. The Borough of North Caldwell saw the largest population increase with 7.3 percent population growth, followed by the Township of Maplewood with 3.5 percent population increase. The Borough of Essex Fells was the only municipality to experience population decrease in Essex County between 2010 and 2017, but the decrease was only 0.9 percent. Figure 3-5 below illustrates the distributions of population throughout Essex County based on the Census Bureau's census block geography.

Essex County is urbanized and developed with a population density of 6,174 people per square mile. The Census Bureau classifies 'urban' as all territory, population, and housing units located within an urbanized area (UA) or an urban cluster (UC). With a population of over 300,000 and a population density of over 1,000 people per square mile, Essex County is considered an urban area.

Essex County is one of the 23 counties in the New York–Northern New Jersey–Long Island NY-NJ-PA Metropolitan Statistical Area, which is the most populous metropolitan area in the United States and the fourth most populous in the world. The largest urbanized area in the United States is at the heart of the metropolitan area, the New York-Newark, NY-NJ-CT Urbanized Area (with an estimated 2018 population of 18,776,233 by the U.S. Census), which includes Essex County (U.S. Census Bureau). Based on commuting patterns, the Census Bureau also defines a wider functional metropolitan area, the *New York-Newark-Bridgeport, NY-NJ-CT-PA* Combined Statistical Area with an estimated population of 23,522,861 (as of 2018). This metropolitan area is made up of various divisions as shown on Figure 3-4.



Figure 3-4. New York-Northern New Jersey-Long Island, NY-NJ-PA Metropolitan Statistical Area



Source: U.S. Census, 2014

Note: Essex County is located in the Newark-Union, NJ-PA Metropolitan Division (circle)



Table 3-3. Essex County Population Statistics

Municipality	U.S. Census 2010							American Community Survey 2013-2017						
	Total	Pop. 65+	% Pop. 65+	Population Under 5	% Under 5	Low-Income Pop.*	% Low-Income Pop.	Total*	Pop. 65+*	% Pop. 65+	Population Under 5	% Under 5	Pop. Poverty**	% Below Poverty Level
Township of Belleville	35,926	4,263	11.9%	2,193	6.1%	2,827	7.9%	36,383	4,600	12.6%	2,147	5.9%	3,529	9.7%
Township of Bloomfield	47,315	5,665	12.0%	3,006	6.4%	3,747	7.9%	48,892	6,586	13.5%	3,031	6.2%	4,009	8.2%
Borough of Caldwell	7,822	1,257	16.1%	362	4.6%	545	7.0%	8,032	1,338	16.7%	393	4.9%	578	7.2%
Township of Cedar Grove	12,411	2,947	23.7%	602	4.9%	431	3.5%	12,638	3,289	26.0%	488	3.9%	240	1.9%
City of East Orange	64,270	7,572	11.8%	4,650	7.2%	9,798	15.2%	65,151	8,254	12.7%	4,193	6.4%	12,444	19.1%
Borough of Essex Fells	2,113	341	16.1%	120	5.7%	11	0.5%	2,095	378	18.0%	103	4.9%	21	1.0%
Township of Fairfield	7,466	1,528	20.5%	356	4.8%	230	3.1%	7,671	1,653	21.5%	449	5.9%	31	0.4%
Borough of Glen Ridge	7,527	718	9.5%	549	7.3%	78	1.0%	7,668	773	10.1%	427	5.6%	291	3.8%
Township of Irvington	53,926	4,829	9.0%	4,240	7.9%	7,324	13.6%	54,715	5,928	10.8%	4,268	7.8%	12,639	23.1%
Township of Livingston	29,366	4,942	16.8%	1,671	5.7%	792	2.7%	29,955	5,579	18.6%	1,380	4.6%	689	2.3%
Township of Maplewood	23,867	2,623	11.0%	1,849	7.7%	867	3.6%	24,706	2,867	11.6%	1,869	7.6%	1,334	5.4%
Township of Millburn	20,149	2,275	11.3%	1,240	6.2%	427	2.1%	20,387	2,492	12.2%	1,397	6.9%	489	2.4%
Township of Montclair	37,669	4,266	11.3%	2,191	5.8%	2,184	5.8%	38,572	4,678	12.1%	2,394	6.2%	3,086	8.0%
City of Newark	277,140	23,699	8.6%	20,924	7.5%	40,752	14.7%	282,803	27,341	9.7%	21,115	7.5%	80,033	28.3%
Borough of North Caldwell	6,183	870	14.1%	350	5.7%	93	1.5%	6,637	1,245	18.8%	156	2.4%	133	2.0%
Township of Nutley	28,370	4,115	14.5%	1,520	5.4%	2,241	7.9%	28,829	4,810	16.7%	1,634	5.7%	1,528	5.3%
City of Orange Township	30,134	3,364	11.2%	2336	7.8%	3,986	13.2%	30,731	4,161	13.5%	2,420	7.9%	7,375	24.0%
Borough of Roseland	5,819	1,282	22.0%	258	4.4%	226	3.9%	5,907	1,456	24.6%	229	3.9%	219	3.7%
Township of South Orange Village	16,198	1,705	10.5%	1,024	6.3%	710	4.4%	16,503	1,930	11.7%	827	5.0%	1,749	10.6%
Township of Verona	13,332	2,570	19.3%	771	5.8%	881	6.6%	13,585	2,697	19.9%	847	6.2%	380	2.8%
Township of West Caldwell	10,759	2,094	19.5%	551	5.1%	437	4.1%	10,932	2,462	22.5%	565	5.2%	328	3.0%
Township of West Orange	46,207	7,362	15.9%	3,056	6.6%	2,978	6.4%	47,609	8,277	17.4%	2,472	5.2%	3,618	7.6%
Essex County (TOTAL)	783,969	90,287	11.5%	53,819	6.9%	81,565	10.4%	800,401	102,794	12.8%	52,804	6.6%	133,667	16.7%



Source: U.S. Census 2010, 2018 (U.S. Census Bureau); HAZUS-MH v4.2 (for 2010 U.S. Census low income data)

Note: Pop. = population

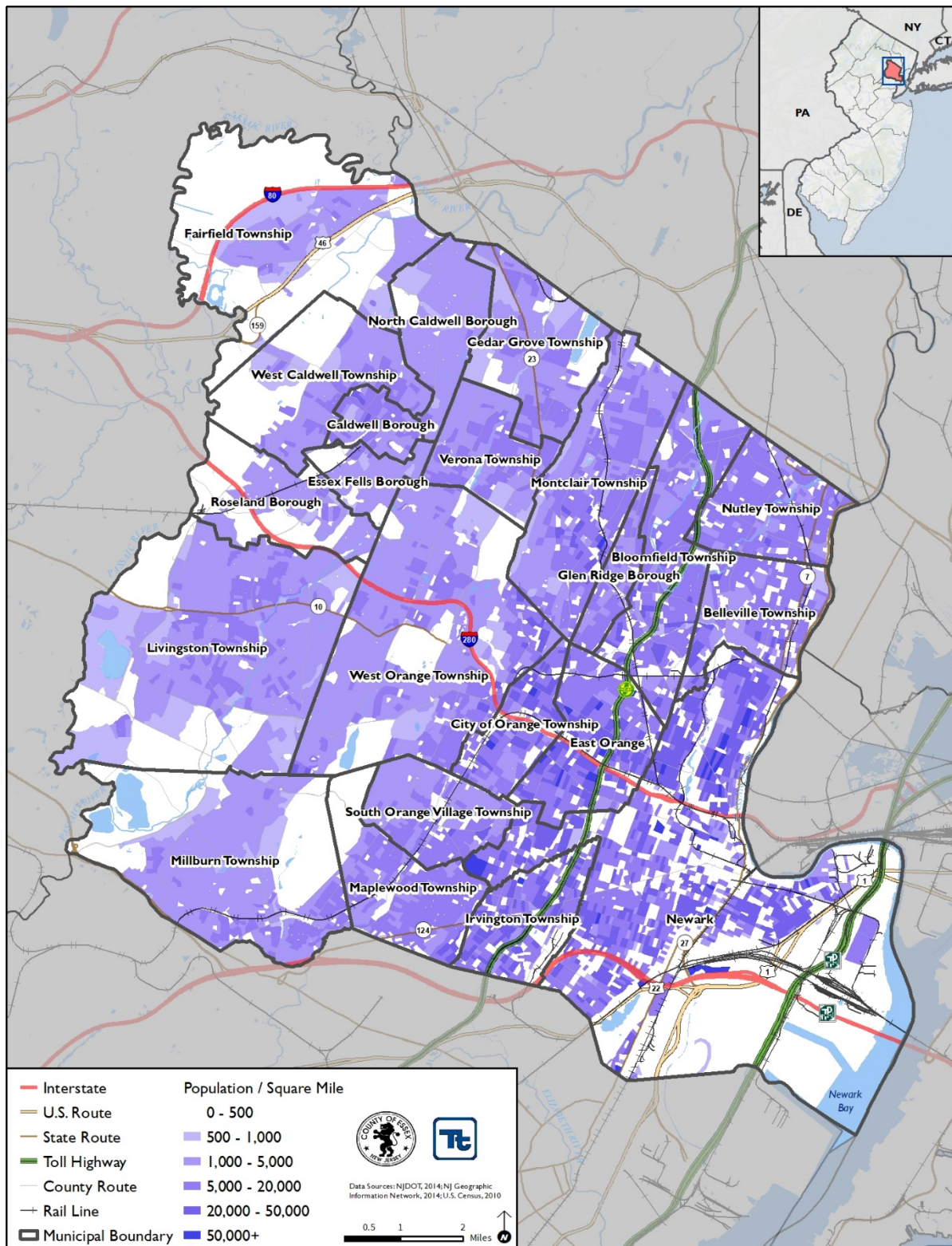
* Low income population from HAZUS-MH v4.2 is the total of individuals with income \$0-\$10,000 and \$10,000-\$20,000 and \$20,000-\$30,000/year .

**Low income population from the 2013-2017 ACS 5-Year Estimate is provided as percentage (%) of the municipal population, therefore the value displayed are calculated based on the percentage provided.

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





3.2.1 Vulnerable Populations

Socially vulnerable populations can be more susceptible to hazard events, based on a number of factors including their physical and financial ability to react or respond during a hazard and the location and construction quality of their housing. Vulnerable population exposure to the hazards of concern identified in Essex County was evaluate for the following (1) the elderly (persons aged 65 and over), (2) those living in low-income households, (3) individuals with a disability, and (4) people who speak English less than “very well.” Identifying concentrations of vulnerable populations can assist communities in targeting preparedness, response and mitigation actions.

Age

Children are considered vulnerable to hazard events because they are dependent on others to safely access resources during emergencies and may experience increased health risks from hazard exposure. 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. The elderly also are more likely to live in senior care and living facilities where emergency preparedness occurs at the discretion of facility operators

According to the 2013-2017 American Community Survey 5-Year Estimates, the median age in Essex County was 37.3 years. Of the estimated 2017 population, 52,804 (6.6 percent) of the County’s population is under the age of 5 and 102,794 people (12.8 percent) of the County’s total population were age 65 and older. Figure 3-6 and Figure 3-6 shows the distribution of persons under the age of 5 and over 65 in purple and orange respectively based on the United States Census Bureau’s census block geography.

Income

The Census data for household income provided in HAZUS-MH includes three ranges (\$0-10,000, \$10,000-\$20,000, and \$20,000-\$30,000/year) that were totaled to provide the “low-income” data used for the HMP update. This does not correspond exactly with the “poverty” thresholds established for 2010 by the U.S. Census Bureau, which identifies households with two adults and two children with an annual household income below \$22,113 per year as “low income” in the United States. This difference is not believed to be significant for the purposes of this planning effort.

The 2013-2017 American Community Survey 5-Year Estimates provides that the median household income in Essex County was \$57,365, and the per capita income was \$35,133. The 2017 poverty threshold identified by U.S. Census Bureau identifies households with two adults and two children with an annual household income below \$24,858 per year as *low income* (U.S. Census 2017). There are approximately 69,188 households in Essex County reported as having an annual income of less than \$25,000 (U.S. Census 2018). The 2013-2017 American Community Survey 5-Year Estimates indicates a total of 133,667 (16.7 percent) persons below the poverty level residing in the County. Figure 3-6 shows the distribution of low-income persons in red based on the United States Census Bureau’s census tract geography.

Physically or Mentally Disabled

According to the Centers for Disease Control, “Persons with a disability include those who have physical, sensory, or cognitive impairment that might limit a major life activity (Centers for Disease Control 2015).” Cognitive impairments can increase the level of difficulty that individuals might face during an emergency and reduce an individual’s capacity to receive, process, and respond to emergency information or warnings. Individuals with a physical or sensory disability can face issues of mobility, sight, hearing, or reliance on specialized medical equipment. According to the 2013-2017 American Community Survey, 95,957 (12.2 percent) residents in Essex County are living with a disability. Figure 3-6 shows the geographic distribution of

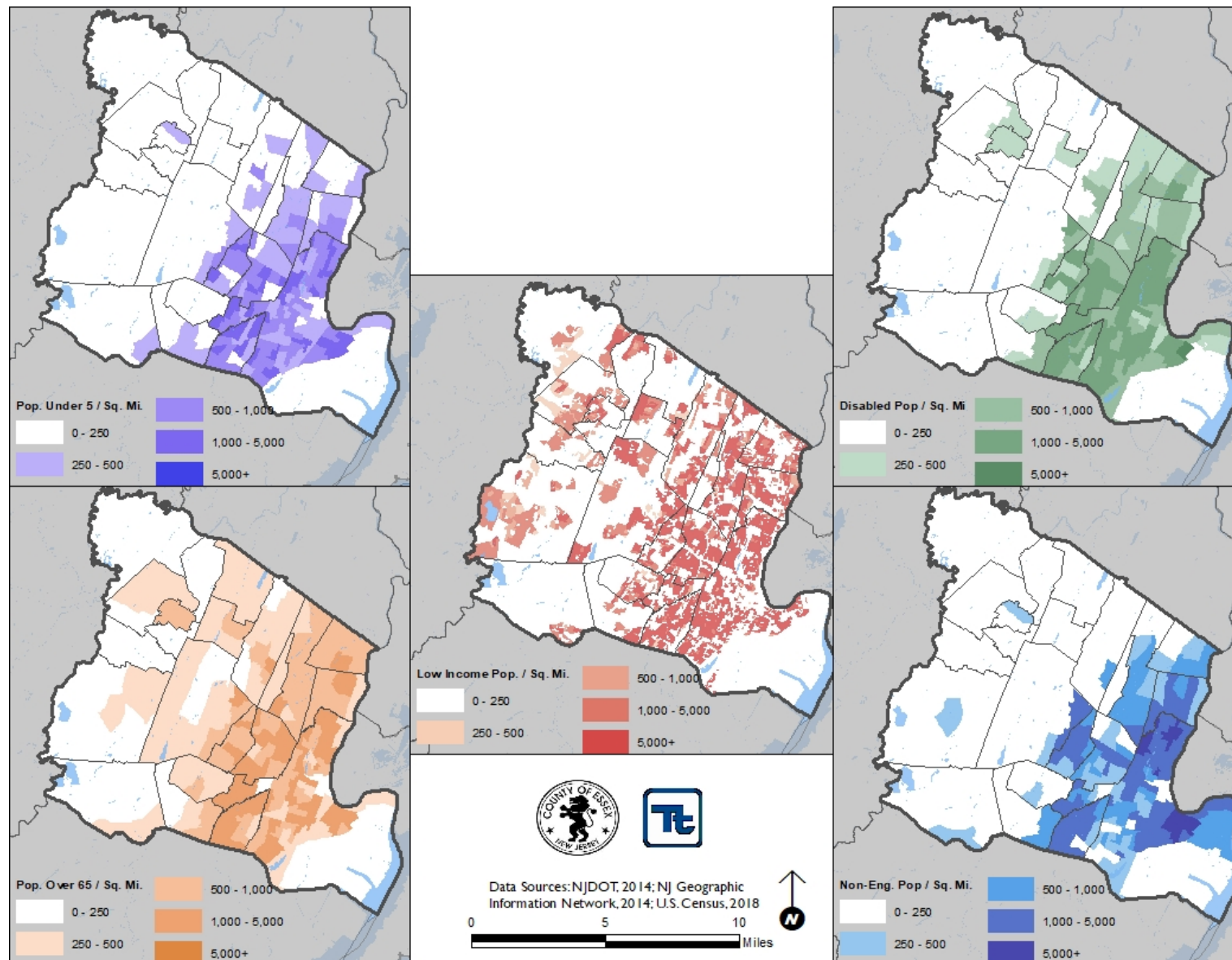


disabled individuals throughout Essex County, including individuals living with hearing, vision, cognitive, ambulatory, self-care, and independent living difficulties in green based on the United States Census Bureau's census tract geography.

Non-English Speakers

Individuals who are not fluent or working proficiency in English are considered vulnerable to hazard event impacts because they may have difficulty understanding emergency alert information. Cultural differences also can add complexity to how information is being conveyed to populations with limited proficiency of English (Centers for Disease Control 2015). According to the 2013-2017 American Community Survey, 109,897 persons (14.7 percent) of the County's population over the age of 5 are reported as speaking English "less than very well." Figure 3-6 shows the geographic distribution of individuals who speak English less than "very well" in blue based on the United States Census Bureau's census tract geography.

Figure 3-6. Distribution of Socially Vulnerable Populations in Essex County, New Jersey





3.2.2 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.

Essex County's population increased between 1990 and 2000 by approximately 2 percent. From 2000 to 2010 Essex County's population slightly decreased by approximately 1.2 percent. According to the 2013-2017 American Community Survey 5-Year Estimates, Essex County's total population is approximately 800,401 people, which is 2 percent increase from the 2010 population of 783,969 persons. Table 3-4 displays the change in population from 1990 to 2017 in Essex County.

Table 3-4. Essex County Population Trends, 1990 to 2017

Year	Population	Change in Population	Percent (%) Population Change
1990	778,206	-72,910	-8.6%
2000	793,633	15,427	2.0%
2010	783,969	-9,664	-1.2%
2011*	781,668	-2,301	-0.3%
2012*	783,840	2,172	0.3%
2013*	785,853	2,013	0.3%
2014*	789,616	3,763	0.5%
2015*	791,609	1,993	0.3%
2016*	792,586	977	0.1%
2017*	800,401	7,815	1.0%

Source: U.S. Census Bureau, 2000, 2010-2018

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

*Population values from 2011-2017 represent the American Community Survey 5-Year Estimates products from the U.S. Census Bureau

Between 2010 and 2017, all but one of Essex County's municipalities experienced an increase in population. The Borough of North Caldwell experienced the largest increase in population (7.3 percent). The Borough of Essex Fells was the only municipality to experience a population decrease; a decrease of 18 persons or 0.9 percent of the Borough's total population. Table 3-5 reports the 2010 and the 2013-2017 American Community Survey 5-Year Estimates population and the change in population for each respective municipality.

Table 3-5. Population Change by Municipality (2010-2017)

Municipality	2010 Census	2017 ACS	Change in Population	Percent (%) Population Change
Township of Belleville	35,926	36,383	457	1.3%
Township of Bloomfield	47,315	48,892	1,577	3.3%
Borough of Caldwell	7,822	8,032	210	2.7%
Township of Cedar Grove	12,411	12,638	227	1.8%
City of East Orange	64,270	65,151	881	1.4%



Municipality	2010 Census	2017 ACS	Change in Population	Percent (%) Population Change
Borough of Essex Fells	2,113	2,095	-18	-0.9%
Township of Fairfield	7,466	7,671	205	2.7%
Borough of Glen Ridge	7,527	7,668	141	1.9%
Township of Irvington	53,926	54,715	789	1.5%
Township of Livingston	29,366	29,955	589	2.0%
Township of Maplewood	23,867	24,706	839	3.5%
Township of Millburn	20,149	20,387	238	1.2%
Township of Montclair	37,669	38,572	903	2.4%
City of Newark	277,140	282,803	5,663	2.0%
Borough of North Caldwell	6,183	6,637	454	7.3%
Township of Nutley	28,370	28,829	459	1.6%
City of Orange Township	30,134	30,731	597	2.0%
Borough of Roseland	5,819	5,907	88	1.5%
Township of South Orange Village	16,198	16,503	305	1.9%
Township of Verona	13,332	13,585	253	1.9%
Township of West Caldwell	10,759	10,932	173	1.6%
Township of West Orange	46,207	47,609	1,402	3.0%

Source: U.S. Census Bureau 2010, 2018

The North Jersey Transportation Planning Authority (NJTPA) generates regional forecasts for population, households, and employment every four years, as part of updating its Regional Transportation Plan. Overall, it is projected that the County will reach a population of 909,020 in the year 2045, which is a 15-percent population increase. The Borough of Essex Fells is projected to have the highest population increase with a projected change of 28.8 percent. The Borough of North Caldwell is projected to have the lowest population increase with a projected population change of 6.7 percent. Table 3-6 displays the population, household, and employment projections for each municipality within Essex County.



Table 3-6. NJTPA Population and Employment Forecast (2015-2045)

Municipality Name	2015 Population	2045 Population	Annualized % Population Change 2015-2045	2015 Households	2045 Households	Annualized % Household Change 2015-2045	2015 Employment	2045 Employment	Annualized % Employment Change 2015-2045	Projected Population Change % (2015-2045)*
Township of Belleville	35,989	41,246	0.5%	13,626	16,018	0.5%	9,360	11,120	0.6%	14.6%
Township of Bloomfield	47,462	55,005	0.5%	18,704	22,327	0.6%	12,987	15,935	0.7%	15.9%
Borough of Caldwell	7,834	8,972	0.5%	3,417	4,009	0.5%	2,420	2,847	0.5%	14.5%
Township of Cedar Grove	12,442	14,364	0.5%	4,601	5,440	0.6%	5,099	5,772	0.4%	15.4%
City of East Orange	64,458	71,358	0.3%	25,385	28,971	0.4%	15,104	18,084	0.6%	10.7%
Borough of Essex Fells	2,122	2,733	0.8%	741	1,000	1.0%	280	475	1.8%	28.8%
Township of Fairfield	7,490	8,645	0.5%	2,691	3,178	0.6%	23,960	25,148	0.2%	15.4%
Borough of Glen Ridge	7,543	8,589	0.4%	2,519	2,935	0.5%	1,098	1,368	0.7%	13.9%
Township of Irvington	54,118	59,045	0.3%	20,486	22,977	0.4%	8,945	10,905	0.7%	9.1%
Township of Livingston	29,449	34,385	0.5%	10,162	12,183	0.6%	22,575	24,634	0.3%	16.8%
Township of Maplewood	23,925	27,523	0.5%	8,382	9,951	0.6%	6,271	7,567	0.6%	15.0%
Township of Millburn	20,195	22,947	0.4%	6,930	8,100	0.5%	16,947	18,305	0.3%	13.6%
Township of Montclair	37,788	44,553	0.6%	15,349	18,688	0.7%	21,043	24,172	0.5%	17.9%
City of Newark	282,102	328,809	0.5%	97,269	118,483	0.7%	157,852	180,960	0.5%	16.6%
Borough of North Caldwell	6,196	6,612	0.2%	2,128	2,330	0.3%	306	447	1.3%	6.7%
Township of Nutley	28,439	33,531	0.6%	11,509	13,972	0.6%	10,787	15,472	1.2%	17.9%
City of Orange Township	30,200	34,720	0.5%	11,395	13,481	0.6%	7,007	8,776	0.8%	15.0%
Borough of Roseland	5,836	6,673	0.4%	2,385	2,790	0.5%	12,693	13,399	0.2%	14.4%
Township of South Orange Village	16,245	18,650	0.5%	5,611	6,686	0.6%	7,676	8,673	0.4%	14.8%
Township of Verona	13,352	15,373	0.5%	5,407	6,379	0.6%	4,486	5,211	0.5%	15.1%
Township of West Caldwell	10,789	12,001	0.4%	3,980	4,558	0.5%	10,129	10,870	0.2%	11.2%
Township of West Orange	46,314	53,287	0.5%	17,079	20,174	0.6%	15,687	18,193	0.5%	15.1%

Source: North Jersey Transportation Planning Authority Approved Demographic and Employment Forecasts 2017

Note: Projected population change percentage was calculated based off of the values displayed in the 2015 and 2045 Population columns.



3.3 GENERAL BUILDING STOCK

The 2013-2017 American Community Survey 5-Year Estimates data identifies 280,327 households (315,186 housing units) in Essex County. The 2010 U.S. Census reported 283,712 households (312,954 housing units) in Essex County. The County experienced an 0.7 percent increase in housing units from 2010 to 2017, but a 1.2 percent decrease in the number of households. The U.S. Census defines household as all the persons who occupy a housing unit, and a housing unit as a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Therefore, you may have more than one household per housing unit. The median price of a single-family home in Essex County was estimated at \$362,300 (U.S. Census, 2018).

For the plan update, the default general building stock in HAZUS-MH was updated and replaced with a custom-building inventory for Essex County; refer to Section 4.2 (Methodology and Tools) for further details regarding the data used to develop the inventory. There are 162,388 structures included in the custom-building inventory. The total replacement cost value of the structures is an estimated \$73 billion. Estimated content value was calculated by using 50-percent of the residential improvement value, and 100-percent of the non-residential improvement values. Using this methodology, there is approximately \$51 billion in contents within these improved properties. The total replacement cost of structure and contents value in Essex County combined is \$125 billion. Approximately 88-percent of the total buildings in the County are classified as residential, 5.3-percent of buildings are classified as commercial, and 1.1-percent of buildings are classified as industrial. Table 3-7 presents building stock statistics by general occupancy class for residential, commercial, and industrial buildings in Essex County.



Table 3-7. Number of Buildings and Improvement Value by General Occupancy Class

Municipality	All Occupancies				Residential		Commercial		Industrial	
	Count	RCV (Structure Only)	RCV (Contents Only)	Total RCV (Structure + Contents)	Count	Total RCV (Structure + Contents)	Count	Total RCV (Structure + Contents)	Count	Total RCV (Structure + Contents)
Township of Belleville	7,910	\$2,698,371,020	\$1,784,879,118	\$4,483,250,138	7,279	\$2,740,475,708	357	\$652,508,025	106	\$689,435,812
Township of Bloomfield	11,720	\$3,668,749,043	\$2,352,340,844	\$6,021,089,887	10,903	\$3,949,224,597	468	\$1,035,039,905	23	\$180,373,161
Borough of Caldwell	1,738	\$711,283,402	\$471,921,579	\$1,183,204,981	1,525	\$718,085,469	121	\$179,064,829	0	\$0
Township of Cedar Grove	3,944	\$1,812,062,362	\$1,195,983,423	\$3,008,045,785	3,643	\$1,848,236,818	127	\$258,578,794	43	\$409,346,827
City of East Orange	7,908	\$3,661,597,262	\$2,429,169,650	\$6,090,766,912	7,164	\$3,697,282,838	386	\$868,105,632	34	\$155,254,899
Borough of Essex Fells	766	\$337,961,118	\$189,668,544	\$527,629,662	716	\$444,877,721	7	\$16,158,273	0	\$0
Township of Fairfield	3,121	\$3,280,911,340	\$2,801,908,028	\$6,082,819,367	2,410	\$1,437,009,936	264	\$1,144,523,441	295	\$3,084,965,050
Borough of Glen Ridge	2,256	\$694,958,216	\$400,516,047	\$1,095,474,263	2,179	\$883,326,507	21	\$79,855,000	0	\$0
Township of Irvington	7,934	\$3,187,766,948	\$2,197,071,869	\$5,384,838,816	7,150	\$2,972,085,238	416	\$804,704,169	103	\$805,195,796
Township of Livingston	9,795	\$4,683,896,484	\$3,007,480,327	\$7,691,376,811	9,231	\$5,029,248,470	278	\$1,178,303,530	42	\$231,013,392
Township of Maplewood	6,738	\$2,187,933,750	\$1,387,461,850	\$3,575,395,600	6,366	\$2,401,415,698	219	\$523,721,327	23	\$126,884,560
Township of Millburn	6,437	\$3,227,413,370	\$2,014,153,766	\$5,241,567,136	6,035	\$3,639,778,812	241	\$941,235,812	43	\$180,888,294
Township of Montclair	9,436	\$3,592,077,078	\$2,253,899,052	\$5,845,976,130	8,645	\$4,014,534,076	531	\$840,037,607	4	\$13,753,523
City of Newark	43,085	\$22,631,425,110	\$18,339,124,315	\$40,970,549,425	33,549	\$12,876,902,385	3,662	\$6,634,946,442	974	\$7,477,529,170
Borough of North Caldwell	2,095	\$1,092,780,064	\$634,987,378	\$1,727,767,442	2,010	\$1,373,378,058	13	\$37,018,019	2	\$11,238,510
Township of Nutley	7,945	\$2,394,461,023	\$1,447,092,699	\$3,841,553,722	7,431	\$2,842,104,973	369	\$570,093,785	16	\$40,822,569
City of Orange Township	3,890	\$2,049,714,805	\$1,471,150,904	\$3,520,865,708	3,195	\$1,735,691,703	349	\$717,480,738	25	\$92,400,329
Borough of Roseland	1,794	\$1,141,841,136	\$813,646,144	\$1,955,487,279	1,567	\$984,584,977	75	\$259,646,418	26	\$147,611,682
Township of South Orange Village	4,188	\$1,776,332,135	\$1,101,042,051	\$2,877,374,186	3,916	\$2,025,870,251	125	\$197,079,511	5	\$15,132,547
Township of Verona	4,113	\$1,371,207,640	\$842,130,973	\$2,213,338,613	3,841	\$1,587,230,002	169	\$324,706,785	10	\$24,452,220
Township of West Caldwell	3,730	\$2,040,415,478	\$1,492,629,342	\$3,533,044,820	3,458	\$1,643,358,407	131	\$385,512,019	73	\$1,204,333,072
Township of West Orange	11,845	\$5,124,878,158	\$3,233,905,700	\$8,358,783,858	10,682	\$5,672,917,373	389	\$1,170,913,430	27	\$153,979,701
Essex County	162,388	\$73,368,036,940	\$51,862,163,602	\$125,230,200,542	142,895	\$64,517,620,015	8,718	\$18,819,233,493	1,874	\$15,044,611,113

Source: New Jersey Office of Information Technology, Office of GIS 2019



The 2013-2017 American Community Survey 5-Year Estimates data identified that the majority of housing units (34.8% or 97,473 units) in Essex County are single-family detached units. The 2016 U.S. Census Bureau's County Business Patterns data identified 18,763 business establishments employing 289,030 people in Essex County. The retail trade industry has the greatest number of establishments in the County (a total of 2,676). This is followed by the health care and social assistance industry with 2,490 establishments and the professional, scientific, and technical services industry with 2,151 establishments (U.S. Census, 2018).

Figure 3-14 through Figure 3-16 show the distribution and exposure density of residential, commercial and industrial buildings in Essex County. The densities are shown in units of \$1,000,000 (\$M) per square mile. Viewing exposure distribution maps, such as Figure 3-7 through Figure 3-9, can assist communities in visualizing areas of high exposure and in evaluating aspects of the study area in relation to the specific hazard risks.



Figure 3-7. Distribution of Residential Building Stock and Value Density in Essex County

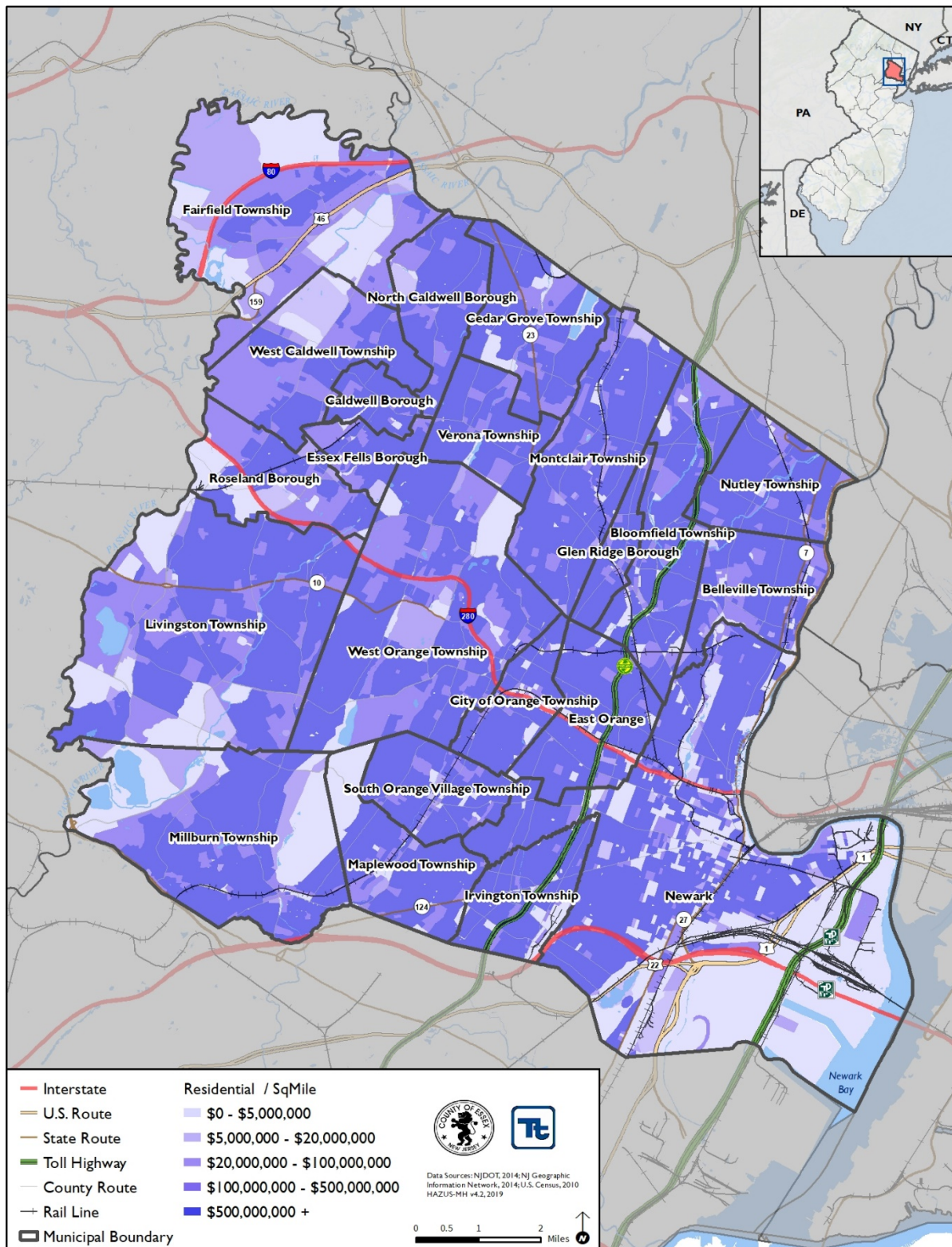




Figure 3-8. Distribution of Commercial Building Stock and Exposure Density in Essex County

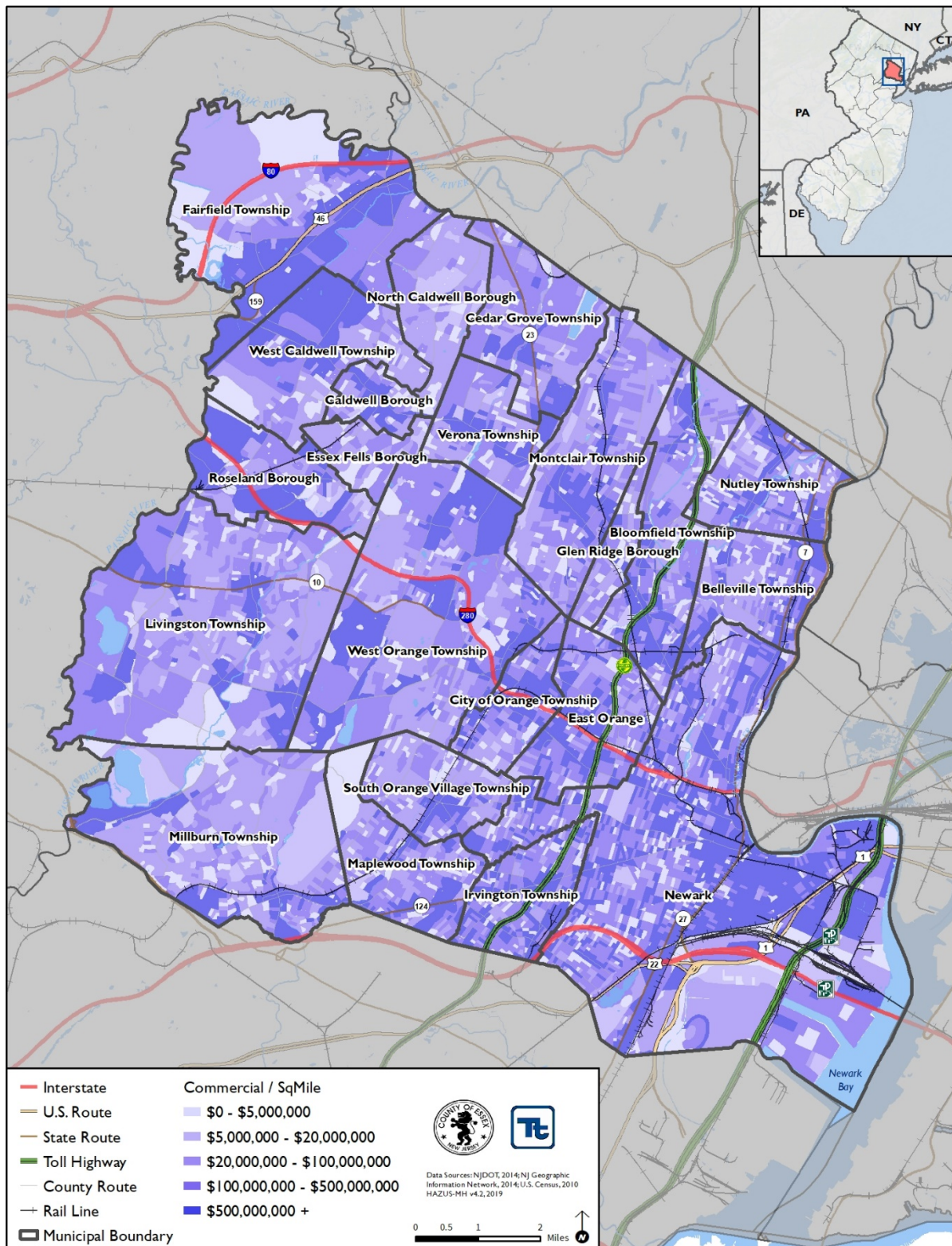
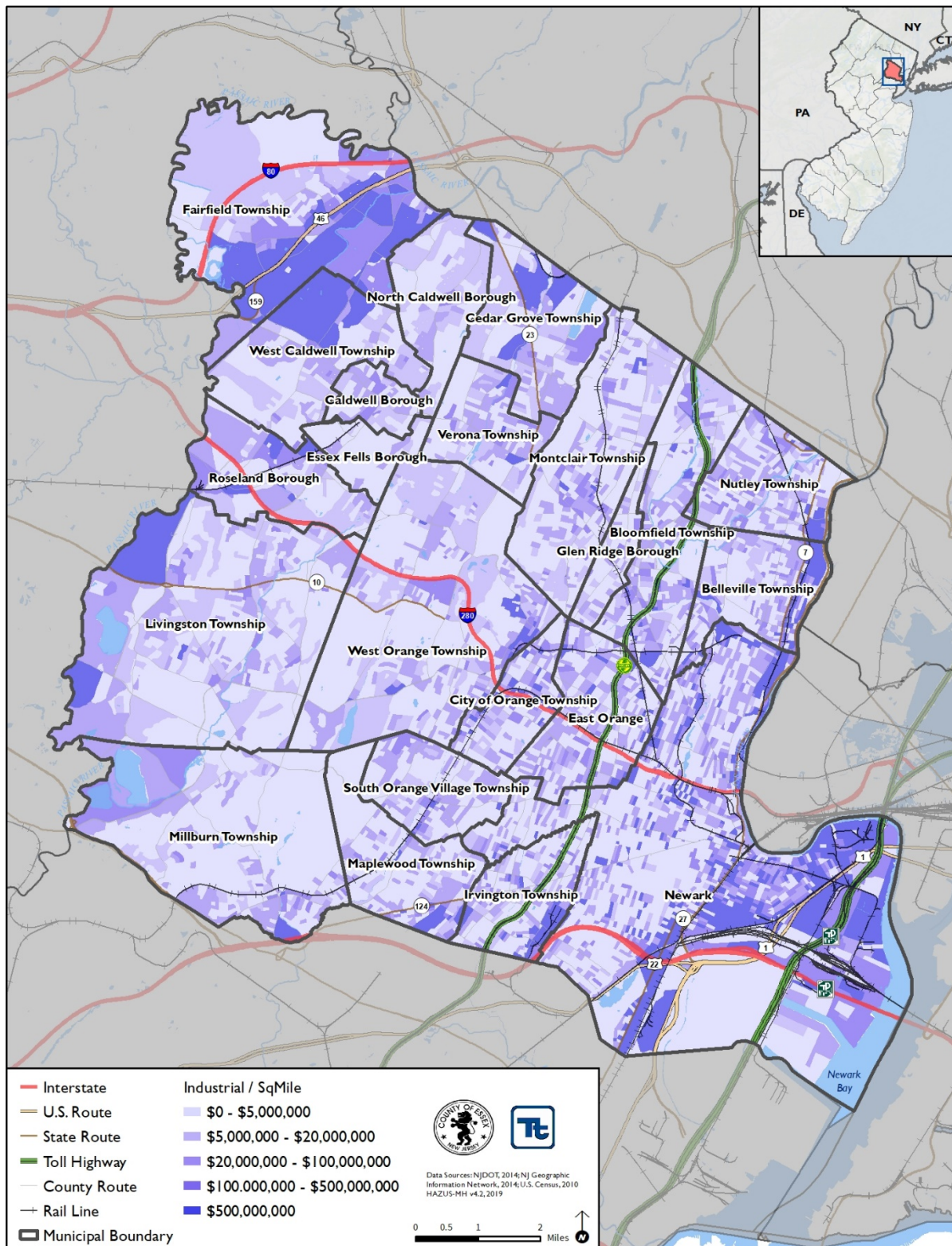




Figure 3-9. Distribution of Industrial Building Stock and Value Density in Essex County





3.4 DEVELOPMENT TRENDS AND NEW DEVELOPMENT

Essex County is highly developed and built out with approximately 80% of the land cover within the County being classified as Urban area. Because of this build out within the County, redevelopment of existing land to maximize community needs is becoming the growing focus. The Together North Jersey (TNJ) created a regional Comprehensive Economic Development Strategy (CEDs) for the North Jersey Region. This plan identifies regional economic development strategies. Strategies within this plan include providing incentives for targeted job creation, private sector investment in underutilized land for mixed-use development, using the regional transportation and utility system for future investment, and leveraging the strategic location and infrastructure as a source of economic growth (TNJ, 2015). The Essex County 2015-2019 Consolidated Plan and 2018 One Year Action Plan identifies goal and objectives within the County which will be funded through CDBG, HOME, and ESG grant funding. The top goal identified in the plan was to “create and retain affordable housing units” with the total estimate construction or rehabilitation of 34 housing units (Essex County, 2015).

Each municipality identified areas of recent development and proposed development in their community which were then geocoded using the provided address or Parcel ID. Potential future development in the County as identified by each municipality is noted in Table 3-8 and Figure 3-10. Refer to Section 4.3 for a discussion regarding the spatial relationship between the proposed new development and the hazards of concern.



Table 3-8. Potential New Development in Essex County

Municipality	Property Name	Type	Number of Structures	Address/Block and Lot	Description/Status
Township of Belleville	Former Essex County Property	Mixed-Use	Unknown	570 Belleville Ave.	Recently Sold
Township of Belleville	Former Roche Diagnostic	Mixed-Use	Unknown	11 Franklin Ave.	In Progress
Township of Belleville	Former School #1	Mixed-Use	Unknown	190 Cortland St.	In Progress
Township of Belleville	Liquid Carbonic	Mixed-Use	Unknown	666 Washington Ave.	On Hold
Township of Belleville	Senior Citizen Housing	Residential	Unknown	125 Franklin Ave.	In Progress
Township of Bloomfield	192 Bloomfield, LLC	Mixed-Use	312 units	B: 64 L: 1, 4	App/Rej.
Township of Bloomfield	Glenwood Village Redevelopment	Mixed-Use	224 units/60000 SF Commercial	B: 228 L: 1, 4, 5, 7, 8, 10, 11, 13, 14, 15, 16, 17, 18, 19, 21, 24, 27, 28, 29, 30, 31, 33, 35	N/A
Township of Bloomfield	Urban Smart Growth	Residential	114 units	B: 335 L: 26, 30	App/Rej.
Borough of Caldwell	Sisters of St. Dominic of Caldwell	Institutional	33 units	B: 64 L: 1, 2	App.
Township of Cedar Grove	Grove Avenue LLC	Residential	24 units	B: 71 L: 2	App/Rej.
City of East Orange	120 Halstead Street	Residential	50+ units	120 Halstead St.	In progress
City of East Orange	125 South Harrison	Residential	103 units	125 South Harrison	Planned
City of East Orange	144 South Harrison	Residential	50+ units	144 South Harrison	Planned
City of East Orange	20 Evergreen Place	Residential		20 Evergreen Pl.	Planned
City of East Orange	30 Evergreen Place	Residential	200 units	30 Evergreen Pl.	Planned
City of East Orange	742 Park Avenue	Residential	50+ units	742 Park Ave.	Planned
Township of Fairfield	Oak Park Construction	Residential	18 units	B: 5003 L: 3 / B: 4701 L: 3.03	Preliminary approval
Township of Irvington	Hilltop Partners, LLC	Residential	704 units	B: 324 L: 1	Municipal Hospital sold for site redevelopment as a 700 unit residential community. Project has been approved by the Planning Board.
Township of Irvington	Valley Plaza Mall	Commercial	1 unit	480 Chancellor Ave.	Rehabilitation/upgrading of existing commercial structure.



Table 3-8. Potential New Development in Essex County

Municipality	Property Name	Type	Number of Structures	Address/Block and Lot	Description/Status
Township of Livingston	Hillside Northfield	Residential	80 units	B: 5500 L: 5, 7, 8, 9	PB approved
Township of Livingston	Squiretown	Residential	220 units	B: 5900 L: 33, 34, 35, 36, 37, 42	PB approved
Township of Maplewood	71 Dunnell Road	Residential	10 units	67-79 Dunnell Rd.	PB approved
Township of Maplewood	CVS	Commercial	13,000 SF	453 Valley St.	PB approved
Township of Maplewood	DAIBES	Commercial	6 units/10,000 SF Commercial	1611 Springfield Ave.	5% Complete
Township of Maplewood	Elite Properties	Residential	126 units	B: 48.47 L: 5.01, 6.01, 7	50% complete
Township of Maplewood	Elite Properties	Residential	134 units	92 Burnett Ave.	N/A
Township of Maplewood	Parke Place at Maplewood LLC	Residential	235 units	B: 44.02 L: 2	N/A
Township of Maplewood	Post Office Redevelopment	Mixed-Use	24 units/15,000 SF Commercial	160 Maplewood Ave.	Conceptual
Township of Maplewood	PSEG Redevelopment	Residential	235 units	200 Boyden Ave.	Redevelopment, Approved by Planning Board
Township of Millburn	Special Improvement District	Mixed-Use	Unknown	179 Millburn Ave.	Storm Water/Sewer
Township of Millburn	Stop and Shop (Springfield NJ) Bordering Short Hills	Commercial	1 unit	520-550 Millburn Ave.	Unknown
Township of Millburn	Toll Brothers-The Enclaves	Residential	30 units	1 Short Hills Ave.	Installed Tension Basin/Relocate Join Meeting Line
Township of Montclair	190-192 Bloomfield Avenue	Residential	11 units	190-192 Bloomfield Ave.	Under Construction
Township of Montclair	Centro Verde	Mixed-Use	226 units/ 40,000 SF Commercial	638 Bloomfield Ave.	Under Construction
Township of Montclair	Kensington	Residential	88 units	65 Church St.	Construction
Township of Montclair	Montclairion II	Residential	40 units	10 Pine St.	Planning Board
Township of Montclair	HD Orange 2013 Urban Renewal	Commercial	148 room hotel	Block 1401, Lot 1.01	



Table 3-8. Potential New Development in Essex County

Municipality	Property Name	Type	Number of Structures	Address/Block and Lot	Description/Status
City of Newark	Chadwick Capital/Clinton Newark, LLC	Residential	7 Story Building	505-509 Clinton Ave.	N/A
City of Newark	HELP Springfield Avenue Urban Renewal Company LP	Residential	45 units	B: 2614 L: 1, 2, 4, 5, 30, 31, 32, 33, 34	App/Rej.
City of Newark	Hess NEC, LLC	Industrial	655 MW Electrical Generation Plant	B: 5074 L: 25, 25.01	N/A
City of Newark	Mid-Atlantic Investment Alliance, LLC	Residential	24 units	90-96 Clinton Ave.	N/A
City of Newark	TDAF Springfield Avenue Urban Renewal Company LP	Mixed-Use	152 units	B: 236 L: 1.01, 1.02, 1.03, 1.04	App.
City of Newark	The Plaza at Springfield, LP	Mixed-Use	5 Story Mixed-Use w/ 50 units	B: 253 L: 27, 29, 30, 37	N/A
Borough of North Caldwell	Block 50, Lots 1 & 2	Residential	5 units	600 Mountain Ave.	5 single family homes/ Approved
Borough of North Caldwell	Hilltop Drive	Residential	62 units	B: 101 L: 3	62 single family homes/Planning
Township of Nutley	East Centre Street	Residential	3 structures	B: 9604 L: 13	Project completed
Township of Nutley	East Centre Street	Residential	4 structures	B: 9700 L: 1	Project initiated
Township of Nutley	Hillside Avenue	Mixed-Use	Unknown	B: 2000 L: 27	Project not yet determined
Township of Nutley	River Road	Residential	2 structures	B: 9701 L: 7	Project completed
Township of Nutley	Roche	Mixed-Use	Unknown	B: 102 L: 2, 9	Project not yet determined
Township of Nutley	Roche	Mixed-Use	Unknown	B: 2101 L: 1	Project not yet determined
Township of Nutley	Roche	Mixed-Use	Unknown	B: 2000 L: 4, 5	Project not yet determined
Township of Nutley	Roche	Mixed-Use	Unknown	B: 200 L: 2, 3, 4, 5, 6, 24	Project not yet determined
Township of Nutley	Roche	Mixed-Use	Unknown	B: 201 L: 1	Project not yet determined
Township of Nutley	Roche	Mixed-Use	Unknown	B: 300 L: 1	Project not yet determined
Township of Nutley	Roche	Mixed-Use	Unknown	B: 2304 L: 18 Q: C0001-C0003	Project not yet determined



Table 3-8. Potential New Development in Essex County

Municipality	Property Name	Type	Number of Structures	Address/Block and Lot	Description/Status
Township of Nutley	Roche	Mixed-Use	Unknown	B: 2100 L: 9 Q: C0101-C0107 B: 2100 L: 9 Q: C0110-C0111	Project not yet determined
City of Orange Township	Franklin Development Group, LLC	Residential	14 units	B: 2201 L: 21	App.
City of Orange Township	Franklin Development Group, LLC	Residential	136 units	B: 2201 L: 19, 20	App.
City of Orange Township	Berg Hat Factory-HANDS	Mixed-Use	38 units	475 S. Jefferson St.	App.
City of Orange Township	Harvard Development Association	Residential	128 units	550 Central Ave.	Remediation plan approved
City of Orange Township	L&M Development	Mixed-Use	74 units	50 & 55 S. Essex Ave.	Under construction
City of Orange Township	Living Fountain	Mixed-Use	40 units	169-177 Central Ave.	Site plans approved
City of Orange Township	Nat West Realty	Mixed-Use	19 units	555 Central Ave.	Under construction
Borough of Roseland	Avalon Bay Subdivision, Locust Avenue	Residential	130 units	55 Locust Ave.	130 unit apartment complex rentals
Borough of Roseland	Avalon Bay Communities, Inc.	Residential	136 units	B: 32 L: 13	App.
Borough of Roseland	Eagle Rock Avenue, B-1 zone office development	Commercial	1 unit	161 Eagle Rock Ave.	Multi-office; 6,000 square feet
Borough of Roseland	Woodland Road redevelopment office site	Unknown	Unknown	9 Woodland Rd.	Unknown
Township of South Orange Village	The Gateway	Residential	57 units	9-25 W. South Orange Ave.	57 Apartments / 9100 feet retail space
Township of South Orange Village	Third & Valley	Residential	215 units	165 Valley St.	215 Apartments / 3000 square feet retail space
Township of South Orange Village	Third & Valley Urban Renewal, LLC	Mixed-Use	215 units	B: 2304 L: 3, 4, 5, 6, 7, 8, 9	App/Rej.
Township of Verona	163 Bloomfield Avenue	Mixed-Use	Unknown	163 Bloomfield Ave.	Planning stage
Township of Verona	200 Bloomfield Avenue	Mixed-Use	Unknown	200-210 Bloomfield Ave.	Planning stage



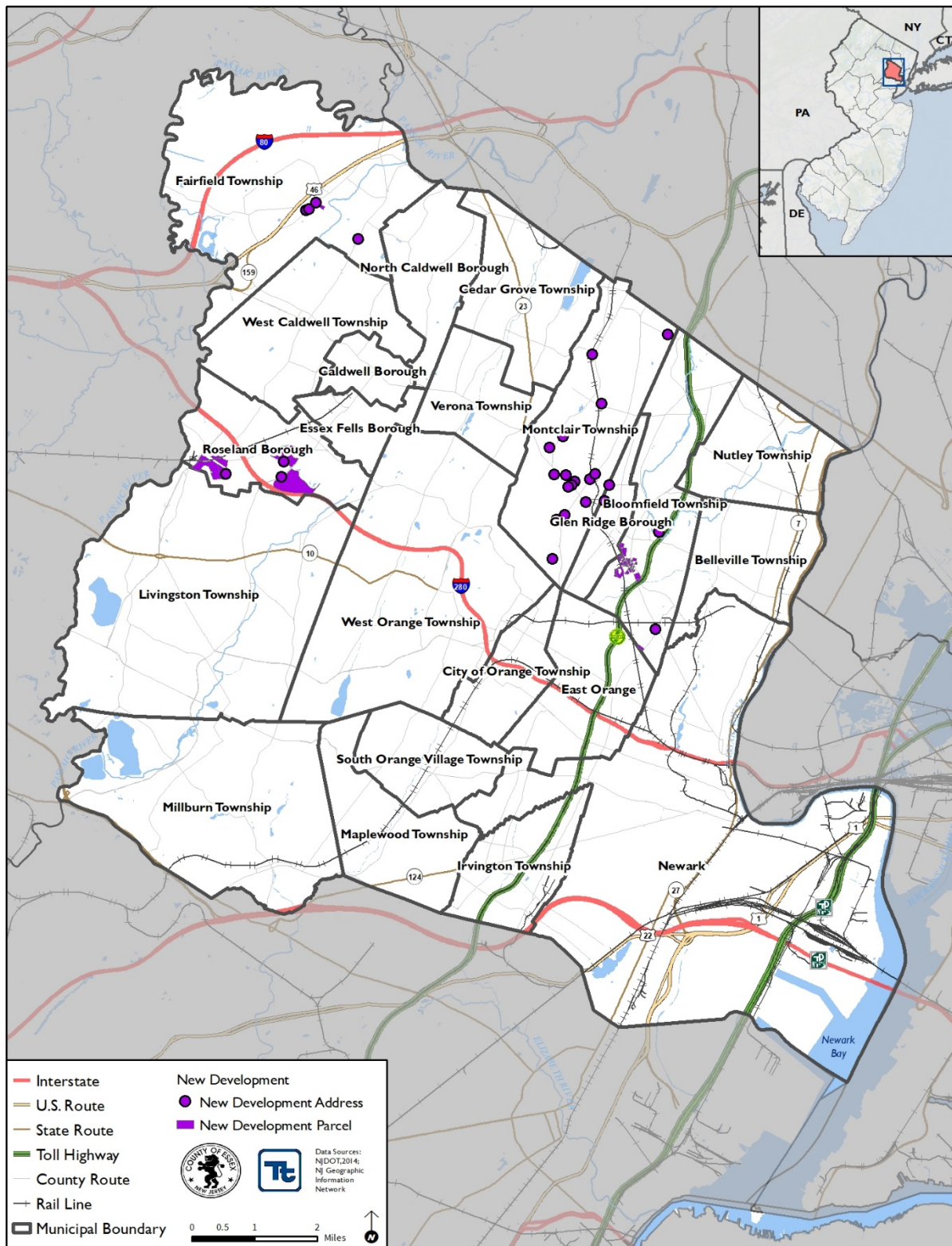
Table 3-8. Potential New Development in Essex County

Municipality	Property Name	Type	Number of Structures	Address/Block and Lot	Description/Status
Township of Verona	623-625 Bloomfield Avenue	Commercial	Unknown	623-625 Bloomfield Ave.	Planning stage
Township of Verona	860 Bloomfield Avenue	Commercial	Unknown	860 Bloomfield Ave.	Planning stage
Township of Verona	DMH 2, LLC	Mixed-Use	15 units/7000 SF Commercial	B: 8 L: 1, 23	App.
Township of Verona	US Home Corporation d/b/a Lennar	Residential	33 units	B: 72 L: 1	In progress. Multiple townhouses and single family homes have been built.
Township of West Orange	Harvard Development Urban Renewal Associates	Residential	228 Units	B: 9 L: 1, 7, 44, 50, 56	See Orange SP 061113
Township of West Orange	Prism Green Urban Renewal Associates	Residential	334 units	B: 66 L: 1, 5, 7	App/Rej.

Source: Planning Committee



Figure 3-10. Potential New Development in Essex County





3.5 CRITICAL FACILITIES

Critical facilities include essential facilities, transportation systems, utility systems, high potential loss facilities, and hazardous materials facilities. Essential facilities include police, fire, EMS, EOCs, schools, shelters, senior facilities and medical facilities. Transportation systems include roadways, bridges, airways, and waterways. Utility systems include potable water, wastewater, oil, natural gas, electric power facilities, and emergency communication facilities.

An enhancement to the 2020 HMP was the identification of community lifelines across Essex County. FEMA defines a lifeline as: *“providing 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 X for the FEMA fact sheet on lifelines.

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

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

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

The 2020 HMP critical facility inventory was reviewed and updated by the Planning Partnership. Plan participants then identified which of the critical facilities are considered lifelines. The inventory presented in this section represents the current state of this effort at the time of the publication of the HMP update and used for the risk assessment in Section 4.

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

3.5.1 Essential Facilities

This section provides information on emergency facilities, hospital and medical facilities, schools, shelters and senior care and living facilities.

Emergency Facilities

The infrastructure of Essex County is a highly developed network of civil services, healthcare, utility, education, and transportation facilities. All services are interconnected through the Essex County Office of Emergency Management (OEM). The OEM maintains a list of each service. In the case of an emergency, the OEM can coordinate response activities with each service relative to the emergency issue. For the HMP, emergency facilities include police, fire, emergency medical services (EMS) and emergency operations centers (EOC).

Every municipality maintains its own police department, fire department and emergency operations center (EOC). The one exception is the Borough of Glen Ridge whose fire services are provided through the Township of Montclair's Fire Department. In addition, municipalities offer their services to neighboring communities in times of emergency. There are 15 major medical and hospital centers located in the County.



Correctional Facilities

The mission of the Essex County Department of Corrections is to ensure that all persons committed to the County correctional institutions are confined with the level of custody necessary to protect the public and that they are provided with the care, discipline, training, and treatment needed to prepare them for reintegration into the community. Essex County maintains one prison facility and one juvenile detention center, both located in the City of Newark.

Schools

Essex County has a rich diversity of people served by close to 400 schools ranging from elementary to post-secondary education. Schools can function as shelters or warming/cooling centers in times of needs and are important resources for the community. Identification of schools is important due to the daytime population of each facility and the potential impacts of disasters. Additionally, there are several colleges and universities within Essex County. There are 380 schools, and 11 colleges and universities within Essex County.

Senior 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 an effective response plan post disaster. There are 54 senior facilities located in Essex County.

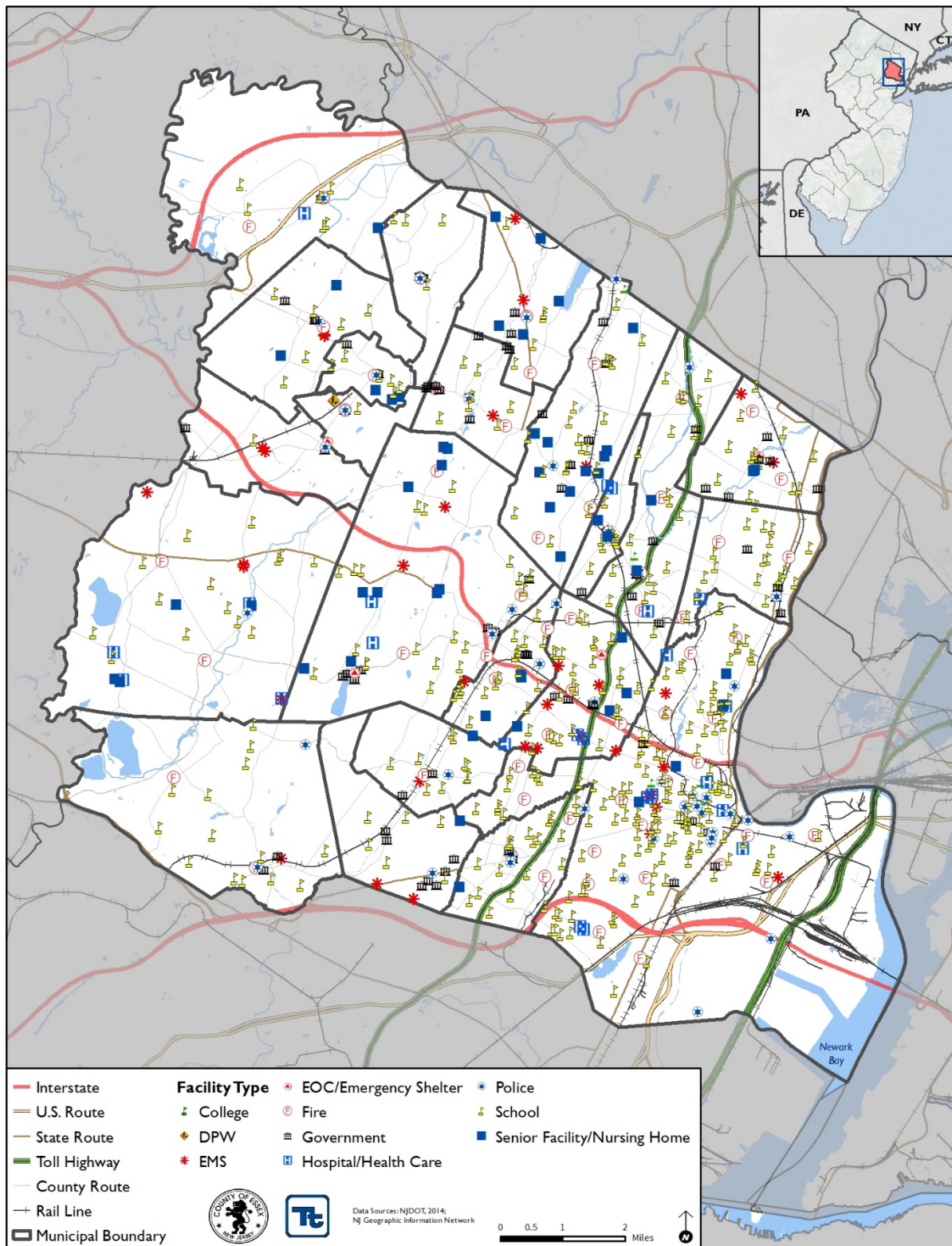
Government Buildings

In addition to the facilities discussed, county and municipal buildings, department of public works facilities and public health departments are essential to the continuity of operations pre-, during and post-disasters. These facilities are included in the risk assessment. There are approximately 81 government facilities within Essex County.

Figure 3-11 illustrates the inventory of these emergency and government facilities in Essex County.



Figure 3-11. Emergency and Government Facilities in Essex County





3.5.2 Transportation Systems

Essex County transportation system is a network of roadways, highways, airports, rail lines and waterways that provide for the movement of goods and people on an enormous scale. Port Newark is equally important to the transfer of goods, shipping, and receiving due to its convenient and accessible location on the Newark Bay in Newark. Truck and rail are also major components for the shipment of materials as well as the transportation of person to and from the County. This section presents available inventory data for roadways, airports, railways and other transportation systems in Essex County.

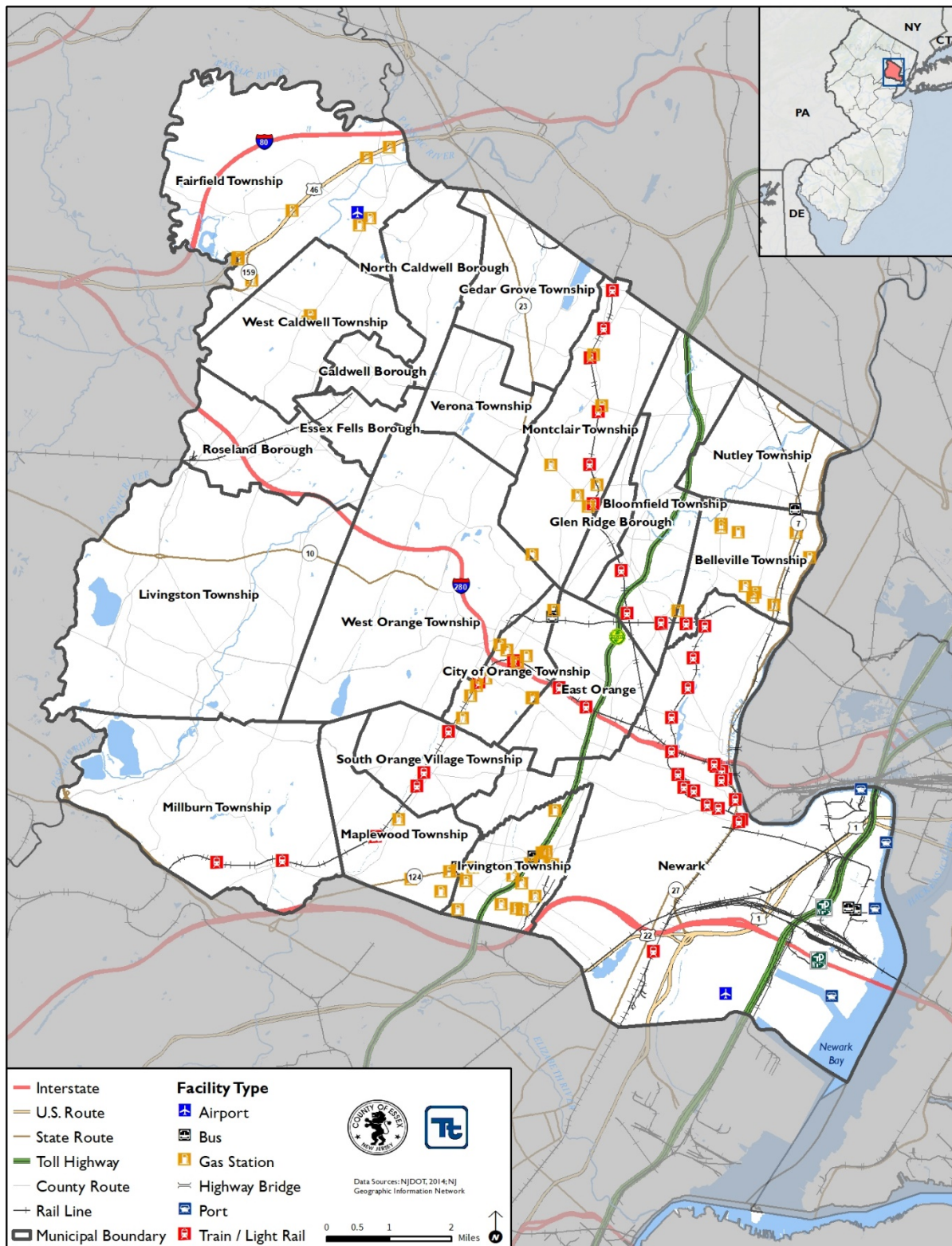
Major state roadways include the Garden State Parkway which bisects the County and provides access to New Jersey shore destinations to the south and the New York Thruway to the north. Interstate (I)-280 provides access across the County. I-280, which is approximately 18 miles long, is a spur from I-80 in Parsippany-Troy Hills, Morris County to the City of Newark, and I-95 (the New Jersey Turnpike) in Kearny. I-80 crosses the northwest corner of the County and I-78 crosses the southeast corner of the County. In addition to these major roadways, numerous state routes and county routes are (i.e., Essex County 2013). The area maintains two commercial airports: Newark Liberty International Airport in Newark and Essex County Airport in Fairfield.

Essex County has an extensive transportation network that includes numerous rail and fixed route bus services. A majority of fixed route service in Essex County is provided by New Jersey Transit, with 46 bus and light rail routes and two commuter rail lines (Essex County Coordinated Transportation Plan, 2008). New Jersey Transit operates commuter rail, light rail, and bus service in Essex County. Commuter rail service is provided on the Morris and Essex and Montclair-Boonton Rail Lines. Morris and Essex service operates to Hoboken Terminal and New York Penn Stations. Rail service is also provided to Hoboken on the Boonton Line. Over 80 bus routes are identified to travel throughout Essex County and approximately 4,500 bus stops are located within Essex County (Essex County 2013).

Figure 3-12 illustrates the regional transportation lifelines serving the County. The transportation inventory included as part of this HMP includes airports, major bus stations, ports, rail and light rail stations, and bridges.



Figure 3-12. Transportation Facilities in Essex County





3.5.3 Utility Systems

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

Communication

Essex County has a network of radio and cell towers that are considered essential. These locations are included in the inventory and risk assessment.

Potable Water

In Essex County, water is supplied by 21 sources. The community water systems of the County utilize water from four different sources: wells within the individual system; surface water intakes such as reservoirs; surface water purchased from an outside location; or groundwater purchased from an outside location (Essex County Environmental Resource Inventory, 2007).

Wastewater Facilities

Wastewater treatment facilities and wastewater pump stations in the County were identified and included in the risk assessment.

Energy Resources

JCP&L and PSE&G are the primary electric and gas utility companies in Essex County. There are oil (Sun Pipe Line Company and Tidewater Oil), natural gas (Algonquin Gas Transmission Company and Texas Eastern Transmission Company), electric and communication (AT&T, Verizon, and Embarq) lines that run throughout the County.

A number of utility providers supply various services throughout the County as noted in Table 3-9. Figure 3-13 shows the distribution of the utility lifelines within the County.

Table 3-9. Utility Service Providers in Essex County

Utility Provider	Service
Passaic Valley Sewer Commission	Sewer and Water
New Jersey American Water	Water
Essex County Improvement Authority	Airport
NJ Transit	Train, Bus, Light Rail, Subway
Port Authority of NY and NJ	Airport, Bus, Train, PATH, Tunnels, Bridges
Public Service Electric and Gas	Natural Gas, Electricity
Constellation New Energy, Inc	Natural Gas, Electricity
Jersey Central Powe and Light	Electricity
Direct Energy Services, LLC	Electricity

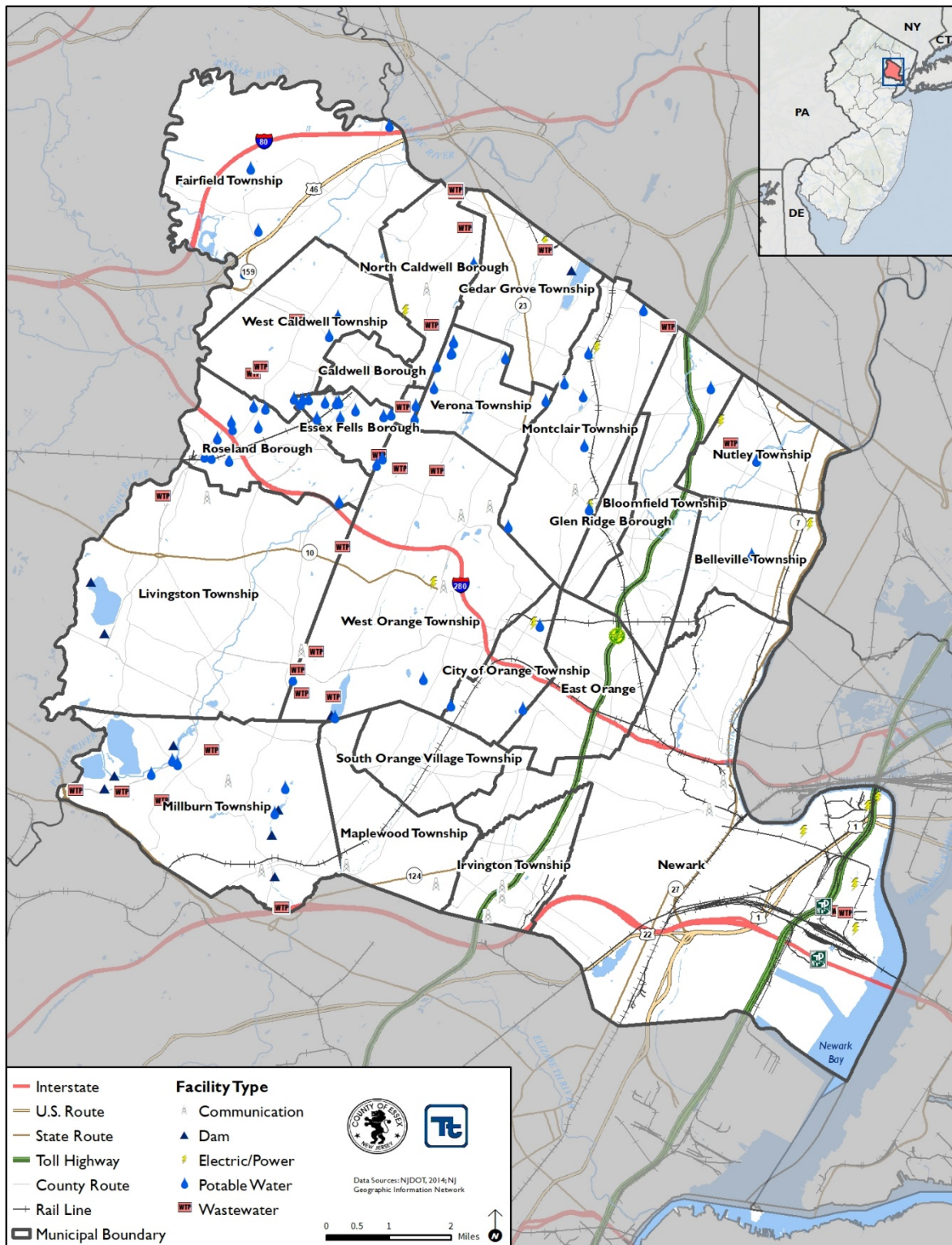


Utility Provider	Service
Comcast	Cable Television, Internet, Telephone
Cablevision	Cable Television, Internet, Telephone
Verizon	Communications
AT&T	Communications
Sprint	Communications
IDT	Communications

Source: Essex County OEM



Figure 3-13. Utility Lifelines in Essex County





3.5.4 High-Potential Loss Facilities

High-potential loss facilities include dams, levees, chemical storage facilities and military installations. There are two New Jersey National Guard armories and two U.S. Army Corps levees located in Essex County. Figure 3-14 displays the general locations of these facilities in the County.

Dams and Levees

According to the New Jersey Department of Environmental Protection (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 33 dams located in Essex County, eight (8) of which are classified with a high-hazard potential.



Figure 3-14. High-Potential Loss Facilities in Essex County

