

2.0 Orange County Profile

This section details the existing environmental features, transportation networks, demographics, history, and available facilities within Orange County. A profile of Orange County and its existing features and facilities was not included in the 2011 HMP. Section 2.0 is a new section that has been added to help detail and identify the existing conditions, capabilities, and vulnerabilities of Orange County itself and the thirty-nine (39) participating jurisdictions within the County.

2.1 Geographic Location

Orange County is located in Upstate New York, northwest of New York City. Orange County is geographically bounded to the east by the Hudson River, and Dutchess and Putnam Counties to the east of the River; to the south by Rockland County and Sussex and Passaic Counties in New Jersey; to the west by the Delaware River and Pike County in Pennsylvania; and to the north by Sullivan and Ulster Counties.

The Village of Goshen, located within the Town of Goshen, serves as the county seat for Orange County. The County includes 3 cities, 20 towns, and 19 villages. Orange County consists of a total area of 839 square miles, of which 815.6 square miles are land area and 23.3 square miles are water area (2014 Census Gazetteer files). In terms of total area, the Town of Warwick is the largest jurisdiction within Orange County, totaling 104.9 square miles. This equates to 12.5 percent of the total area of the County. The Town of Monroe is the smallest town in Orange County, totaling 21.3 square miles in area, which represents only 2½ percent of the total area of Orange County. Table 2.1a provides the total areas (in square miles) for cities and towns included within Orange County. The various villages located within Orange County are included within the total areas of their encompassing towns in Table 2.1a.

Table 2.1a: Areas for Jurisdictions Within Orange County (U.S. Census Bureau, 2014)				
Jurisdiction	Total Area (square miles)	Total Land (square miles)	Total Water (square miles)	% of Total Area in County
Orange County	838.9	815.6	23.3	100.0%
Blooming Grove (T) (includes Villages of South Blooming Grove and Washingtonville)	35.3	34.8	0.5	4.2%
Chester (T) (includes Village of Chester)	25.2	25.1	0.1	3.0%
Cornwall (T) (includes Village of Cornwall-On-Hudson)	28.2	26.8	1.4	3.4%
Crawford (T)	40.2	40.1	0.1	4.8%
Deerpark (T)	67.9	66.4	1.5	8.1%
Goshen (T) (includes Village of Goshen)	44	43.8	0.2	5.2%
Greenville (T)	30.5	30.3	0.2	3.6%

Table 2.1a: Areas for Jurisdictions Within Orange County (U.S. Census Bureau, 2014)				
Jurisdiction	Total Area (square miles)	Total Land (square miles)	Total Water (square miles)	% of Total Area in County
Hamptonburgh (T)	27	26.8	0.2	3.2%
Highlands (T) (includes Village of Highland Falls)	33.5	30.4	3.1	4.0%
Minisink (T) (includes Village of Unionville)	23.2	23.1	0.1	2.8%
Monroe (T) (includes Villages of Kiryas Joel, Monroe, and part of Harriman)	21.3	20.1	1.2	2.5%
Montgomery (T) (includes Villages of Maybrook, Montgomery, and Walden)	51.1	50.4	0.7	6.1%
Mount Hope (T) (includes Village of Otisville)	25.5	25.2	0.3	3.0%
New Windsor (T)	37	34.8	2.2	4.4%
Newburgh (T)	47	43.7	3.3	5.6%
Tuxedo (T) (includes Village of Tuxedo Park)	49.4	47.4	2	5.9%
Wallkill (T)	62.8	62.2	0.6	7.5%
Warwick (T) (includes Villages of Florida, Warwick, and Greenwood Lake)	104.9	101.7	3.2	12.5%
Wawayanda (T)	35	34.9	0.1	4.2%
Woodbury (T) (includes Villages of Woodbury and part of Harriman)	37.2	36.2	1	4.4%
Middletown (C)	5.2	5.1	0.1	0.6%
Newburgh (C)	4.8	3.8	1	0.6%
Port Jervis (C)	2.7	2.5	0.2	0.3%

The eastern and western edges of the County are more mountainous in nature than the center. To the east, the Hudson Highlands rise to higher elevation overlooking the Hudson River while the Shawangunk Ridge lines the County's west side, above the Delaware River. The Wallkill River Valley has a more gentle terrain, crossing the center of the County from southwest to northeast.

Overall topography in the County ranges from the Hudson River at sea level to approximately 1,664 feet above mean sea level (msl) at the highest topographic point in the County, Schunemunk Mountain. This mountain is located in the Town of Blooming Grove with portions in the Towns of Cornwall and Woodbury as well.

2.2 Climate

The climate of Orange County is of the humid continental type, typical of the interior northeastern United States (NYS Climate Office, 2010). Humid continental climates are known for their variable weather conditions, due to their location between the polar and tropic air masses. Polar air masses collide with tropical air masses, causing uplift of the moist tropical air and resulting in precipitation.

Lower portions of the Hudson Valley and other downstate portions of New York State experience a greater influence on climate from the Atlantic Ocean and, therefore, generally experience warmer and more humid summers and more damp winters than the rest of Upstate New York.

In the City of Middletown, near the center of Orange County, high temperatures average over 80°F in July with average lows just above 60°F. In January, the average high temperature is 35°F with lows averaging 18°F. The year-round average temperature is about 51°F. The average monthly precipitation increases from January (2.72 inches) to June (4.45 inches). Rainfall averages 43 inches annually, while annual snowfall averages 42 inches and provides snow cover for the majority of winter (Bestplaces.net, 2015).

Table 2.2a depicts the fluctuating average temperatures and precipitation in Orange County from 1950 to 2013.

Table 2.2a: Annual Temperature, Precipitation, and Snowfall Data Recorded Between 1950 and 2013 and Displayed as Decade Averages (NWS, 2016)			
Years	Average Temperature (°F)	Average Precipitation (inches)	Average Seasonal Snowfall (inches)
2000-2013	48.5	49.7	41.9
1990-1999	48.8	42.6	39.5
1980-1989	48.1	42.0	37.4
1970-1979	49.3	48.3	35.6
1960-1969	51.0	43.1	56.6
1950-1959	50.6	51.4	37.3
Overall Average	49.4	46.2	41.4

The best, most recent, climate science indicates a future of increased temperatures and shifting precipitation patterns for Orange County and New York State. Rates are projected to increase much faster than historic natural rates over the coming century, and as a result extreme hazard events may increase in frequency and intensity. The New York State Energy Research and Development Authority (NYSERDA) commissioned report, *ClimAID: the Integrated Assessment for Effective Climate Change Adaptation Strategies in New York State*, released in November 2011, was written by scientists from Cornell University, Columbia University, and the City University of New York. The report and adaptation guidance focus exclusively on climate change adaptation strategies specific to New York State, and is geared to assist local decision-

makers in developing and adopting adaptation strategies. Climate change projections were updated in September 2014 through the release of the Supplement to NYSERDA Report 11-18. The 2011 ClimAID report and 2014 Supplement highlight the need for Orange County to prepare for the following climate change projections and predications:

- **Heat waves** will become more frequent and intense, increasing heat-related illness and death and posing new challenges to the energy system, air quality, and agriculture.
- **Summer drought** is projected to increase, affecting water supply, agriculture, ecosystems, and energy production.
- **Rate of occurrence for heating and cooling days** (days over 90°F and days below 32°F) will change. The frequency of heating days is projected to increase, while the frequency of cooling days is projected to decrease.
- **Heavy downpours** are increasing and are projected to increase further. These can lead to flooding and related impacts on water quality, infrastructure, and agriculture.
- **Major changes to ecosystems** including species range shifts, population crashes, and other sudden transformations could have wide-ranging impacts, not only for natural systems but also for health, agriculture, and other sectors.
- **Coastal flooding** is predicted to increase as a result of sea level rise. Rising sea levels have the potential to impact the Hudson River and adjacent communities.

The 2014 ClimAID Supplement breaks New York State into seven regions to better analyze specific trends and customize climate change predictions to specific areas. Orange County is included in Region 2, whose observed weather station is located in the City of Port Jervis. Region 2 predictions included in the 2014 ClimAID Supplement indicate that temperatures will rise by 1.6 to 3.5°F by the 2020s, 3.1 to 6.9°F by the 2050s, and 4.0 to 10.7°F by the 2080s, with the lower ends of these ranges expected under lower greenhouse gas emissions and the higher ends for higher emissions scenarios.

The ClimAID Report and 2014 Supplement note that these are not the best and worst cases, just the most likely; sharp cuts in global emissions could result in temperature increases lower than the bottom ends of these ranges, while a continuation of business-as-usual could result in increases higher than the high ends. Observed climate trends specific to the Orange County area (Region 2) show that the annual temperature trend from 1901-2012 has increased 0.35°F per decade (NYSERDA, 2014). Of the seven Regions included in the 2014 ClimAID Supplement, Region 2 displays the highest increase in temperature trend for this time period.

The 2014 ClimAID Supplement also projects that annual average precipitation for Region 2 will increase by -1 to 10 percent by the 2020s, 1 to 14 percent by the 2050s, and 2 to 18 percent by the 2080s. This will not be distributed evenly over the course of the year. Much of this additional precipitation is likely to occur during the winter months as rain, with the possibility of slightly reduced precipitation projected for the late summer and early fall. Continuing the observed trend, more precipitation is expected to fall in heavy downpours and less in light rains.

Observed climate trends specific to the Orange County area (Region 2 – observed weather station in Port Jervis) show that the annual precipitation trend from 1901-2012 has increased 0.35 inches per decade (NYSERDA, 2014). Of the seven regions included in the 2014 ClimAID Supplement, Region 2 displays one of the lowest increases in precipitation for this time period.

In addition, the 2014 ClimAID Report highlights that some areas, including Orange County, are vulnerable in other ways: regions that depend on agriculture and tourism (such as fishing, hiking, and wineries) may be especially in need of adaptation assistance; and low-income urban neighborhoods, especially those within flood zones, are less able to cope with climate impacts such as heat waves and flooding.

Specific groups of people that are identified in the 2014 ClimAID Report as being particularly vulnerable include elderly, disabled, and health compromised individuals who are more vulnerable to climate hazards, including floods and heat waves; low-income groups that have limited ability to meet higher energy costs; farm workers who may be exposed to more chemicals if pesticide use increases in response to climate change; asthma sufferers who will be more vulnerable to the decline in air quality during heat waves; and people who depend on public transportation and lack private cars for evacuating during emergencies. Small businesses are also identified as being particularly vulnerable, as they are typically less able to cope with costly climate related interruptions and stresses, such as power and communication service disruptions, than larger businesses.

Orange County was designated a “Climate Smart Community” in April 2014 by the NYSDEC and NYSDOT. The designation is designed to support municipal efforts to meet economic, social, and environmental challenges posed by climate change. According to a press release from the NYS Governor’s Office, Orange County was noted for having an energy management system to track the results of upgraded lighting, and heating and cooling equipment, more efficient water fixtures, a large photovoltaic installation and alternative fuel vehicles. In addition, the county led the development of the Mid-Hudson Regional Sustainability Plan. Orange County will, in accordance with this designation, continue to offer training on climate change topics.

Climate change is likely to increase the frequency and severity of almost all weather-related hazard events. As such, it increases the criticality of mitigation efforts for hazards across the board. It even raises the profile and significance of formerly rare hazards such as tropical systems. This determination, as evidenced by the County’s Climate Smart Community designation, informed the mitigation action inclusion process for all participating jurisdictions.

Lastly, Orange County’s vulnerability to sea level rise is limited by its position inland from the Atlantic Ocean and elevation above sea level – elevation change close to the Hudson River shoreline in particular. As a result, it was determined that addressing flood vulnerabilities was sufficient for addressing the County’s vulnerability to sea level rise.

2.3 Historical Overview

The earliest inhabitants of Orange County were the Munsee, a subtribe of the Lenape residing in the upper Delaware River Valley and eastward to the west bank of the Hudson River. Settlement in the Orange County area began in 1685 under British rule, which largely consisted of a group of Scottish families settling an area of the Hudson Highlands in the present-day Town of New Windsor. Habitation followed in the Town of Newburgh by German Palatines. In 1798, Orange County was formally established through an act of the New York State Legislature (Orange County, 2011).

As the American Revolution was waged, the Continental Army occupied West Point, founding what would become the oldest continuously-operating Army post in the United States. In 1802, Congress formally authorized the establishment and funding of the United States Military Academy at West Point. Since then, it has developed numerous military leaders and engineers, as well as providing vigor to the local economy.

Much of Orange County was developed as a result of the fertile Wallkill Valley, mining opportunities, and transportation and natural resources along the Hudson River, Delaware River, and Delaware and Hudson (D&H) Canal. Since the mid-20th century, the County has experienced continued suburban development as transportation technology and infrastructure has allowed workers to commute as far as New York City, located approximately 40 miles to the southeast (Orange County, 2011).

2.4 Demographics

According to the U.S. Census (2010), the population of Orange County totaled 372,813 in 2010, reflecting a growth of 31,446 people when compared to the 2000 U.S. Census data (341,367 people). By 2014, there were an estimated 374,518 residents of Orange County.

This increase in population over the past decade reflects steady growth within the County. Table 2.4a provides population data for the County and its jurisdictions for the previous three census counts (1990, 2000, and 2010) and the most recent estimated population data available (2014) (U.S. Census Bureau, 2014). Between 1990 and 2014, Orange County has grown by 21.7 percent overall. The Village of Kiryas Joel has grown by 185.1 percent over this 24-year period, the most significant increase within the County, while the Village of Tuxedo Park experienced a decrease of 23.8 percent, the largest population reduction observed within Orange County between 1990 and 2014 (US Census Bureau, 2014). Of the 42 jurisdictions in Orange County, only 6 experienced population declines over the analyzed period (1990 to 2014). Data for the Villages of South Blooming Grove and Woodbury were unavailable for the 1990 and 2000 U.S. Census'; these Villages were not incorporated until 2006.

Table 2.4a: Population Change in Orange County Jurisdictions – 1990 to 2014 (U.S. Census Bureau, 2016)					
Jurisdiction	Census Population 1990	Census Population 2000	Census Population 2010	Population Estimate 2014	Population Change 1990- 2014 (%)
Orange, County of	307,647	341,367	372,813	374,518	21.7
Blooming Grove, Town of	16,673	17,351	18,028	17,876	7.2
Chester, Town of	9,138	12,140	11,981	11,938	30.6
Chester, Village of	3,270	3,445	3,969	3,943	20.6
Cornwall, Town of	11,270	12,307	12,646	12,565	11.5
Cornwall-on-Hudson, Village of	3093	3,058	3,018	2,998	-3.1
Crawford, Town of	6,394	7,875	9,316	9,291	45.3
Deerpark, Town of	7,832	7,858	7,901	7,843	0.1
Florida, Village of	2,497	2,571	2,833	2,842	13.8
Goshen, Town of ¹	11,500	12,913	13,687	13,671	18.9
Goshen, Village of	5,255	5,676	5,454	5,417	3.1
Greenville, Town of	3,120	3,800	4,616	4,637	48.6
Greenwood Lake, Village of	3,208	3,411	3,154	3,129	-2.5
Hamptonburgh, Town of	3,910	4,686	5,561	5,546	41.8
Harriman, Village of	2,288	2,252	2,424	2,771	21.1
Highland Falls, Village of ¹	3,937	3,678	3,900	3,852	-2.2
Highlands, Town of	13,667	12,484	12,492	12,327	-9.8
Kiryas Joel, Village of	7,437	13,138	20,175	21,201	185.1
Maybrook, Village of	2,802	3,084	2,958	7,843	180.0
Middletown, City of	24,160	25,388	28,086	27,904	15.5
Minisink, Town of ¹	2,981	3,585	4,490	4,507	51.2
Monroe, Town of ¹	23,035	31,407	39,912	41,159	78.7
Monroe, Village of	6,672	7,780	8,364	8,493	27.3
Montgomery, Town of ¹	18,501	20,891	22,606	22,993	24.3
Montgomery, Village of	2,696	3,636	3,814	4,159	54.3
Mount Hope, Town of ¹	5,971	6,639	7,018	7,043	18.0
New Windsor, Town of	22,937	22,866	25,244	25,717	12.1
Newburgh, City of	26,454	28,259	28,866	28,614	8.2
Newburgh, Town of	24,058	27,568	29,801	30,485	26.7
Otisville, Village of	1,078	989	1,068	1,245	15.5
Port Jervis, City of	9,060	8,860	8,828	8,736	-3.6
South Blooming Grove, Village of ²	N/A	N/A	3,234	3,189	N/A
Tuxedo, Town of	3,023	3,334	3,624	3,602	19.2
Tuxedo Park, Village of	706	731	623	538	-23.8
Unionville, Village of	548	536	612	613	11.9
Walden, Village of	5,836	6,164	6,978	6,919	18.6

Table 2.4a: Population Change in Orange County Jurisdictions – 1990 to 2014 (U.S. Census Bureau, 2016)					
Jurisdiction	Census Population 1990	Census Population 2000	Census Population 2010	Population Estimate 2014	Population Change 1990-2014 (%)
Wallkill, Town of	23,016	24,659	27,426	27,832	20.9
Warwick, Town of ¹	27,193	30,764	32,065	31,581	16.1
Warwick, Village of	5,984	6,412	6,731	6,783	13.4
Washingtonville, Village of	4,906	5,851	5,899	5,837	19.0
Wawayanda, Town of	5,518	6,273	7,266	7,263	31.6
Woodbury, Town of ²	8,236	9,460	11,353	11,388	38.3
Woodbury, Village of ²	N/A	N/A	10,686	10,638	N/A

¹ Totals for these Towns include incorporated areas within Town boundaries.

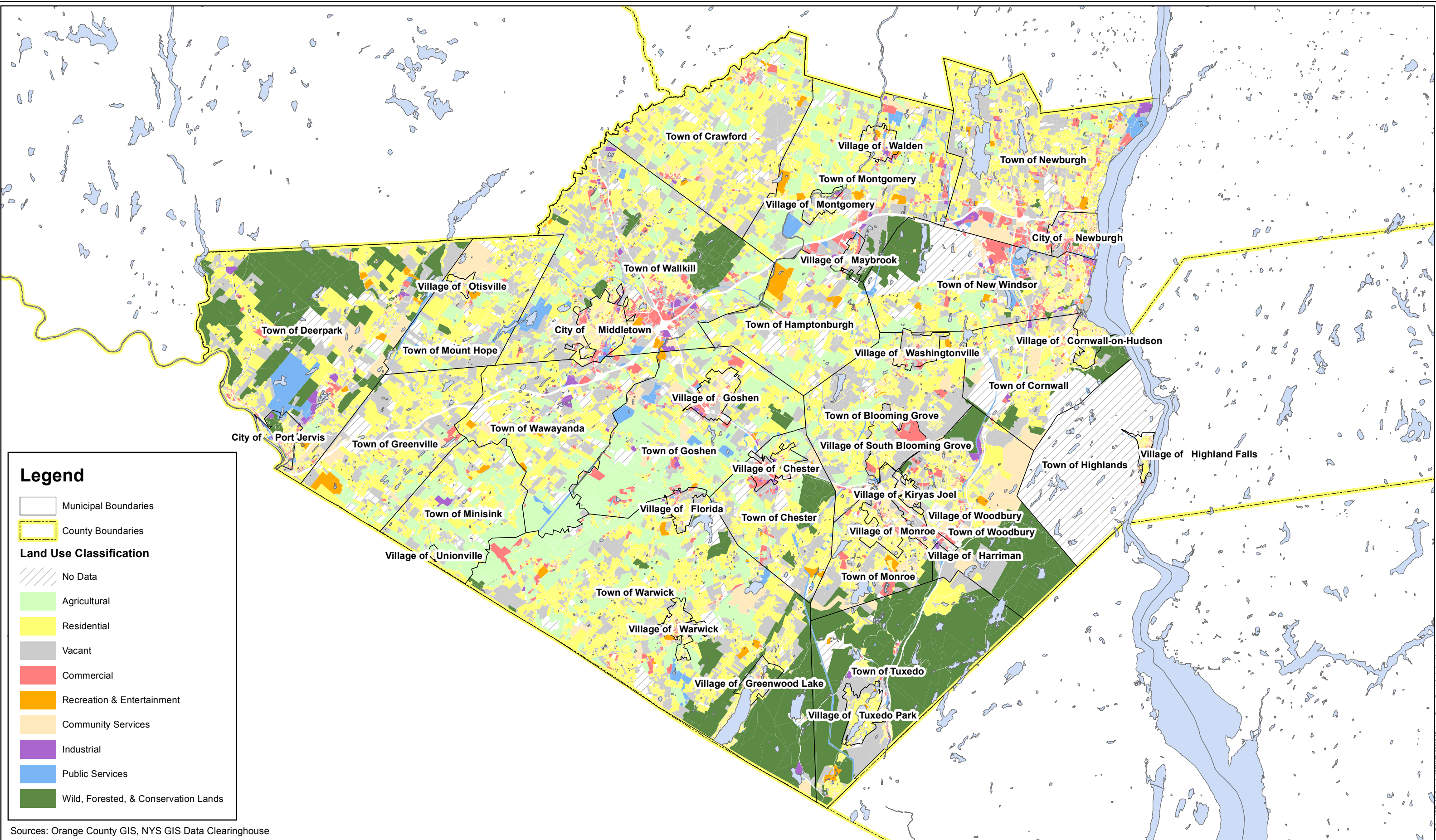
² The Villages of South Blooming Grove and Woodbury were not incorporated until 2006.

2.5 Land Use

Land use within Orange County is mixed, with the majority of tax parcel use reflected in the following land use categories: agriculture, residential, commercial, and vacant land. Table 2.5a displays the percent acreage for each jurisdiction in Orange County by land use category. Following the table, Figure 2.5a – Orange County Land Use Map illustrates the land use composition of the County.

Table 2.5a: Percentage of Acreage per Jurisdiction by Land Use Categories (Orange County Department of Planning, 2015)										
Jurisdiction	Agriculture	Residential	Vacant	Commercial	Recreation & Entertainment	Community Services	Industrial	Public Services	Wild, Forested & Conservation Lands	No Data
Orange, County of	14.0%	33.0%	22.0%	3.0%	1.0%	5.0%	5.0%	2.0%	14.0%	5.0%
Blooming Grove, Town of	14.0%	41.0%	31.0%	1.5%	0.5%	0.9%	3.4%	1.5%	0.2%	7.0%
Chester, Town of	18.0%	32.0%	20.0%	18.0%	1.2%	2.0%	0.1%	2.0%	10.0%	12.0%
Chester, Village of	17.0%	22.0%	18.0%	25.0%	1.0%	5.0%	4.0%	2.0%	1.0%	5.0%
Cornwall, Town of	5.0%	32.0%	22.0%	1.0%	0.2%	9.0%	0.5%	1.0%	12.0%	16.0%
Cornwall-on-Hudson, Village of	0.0%	42.0%	9.0%	2.0%	0.4%	15.0%	0.5%	1.0%	10.0%	21.0%
Crawford, Town of	14.0%	46.0%	28.0%	1.0%	0.7%	4.0%	0.2%	0.1%	0.0%	6.0%
Deerpark, Town of	1.0%	26.0%	16.0%	1.0%	1.0%	5.0%	1.0%	5.0%	36.0%	6.0%
Florida, Village of	0.0%	12.0%	35.0%	3.0%	0.8%	2.0%	1.0%	0.3%	7.0%	8.0%
Goshen, Town of ¹	37.0%	15.0%	20.0%	2.0%	0.4%	6.0%	0.4%	4.0%	0.8%	14.0%
Goshen, Village of	0.0%	48.0%	27.0%	10.0%	0.8%	6.0%	1.0%	0.1%	0.1%	6.0%
Greenville, Town of	14.0%	45.0%	26.0%	1.0%	3.0%	3.0%	0.1%	0.2%	0.1%	8.0%

Table 2.5a: Percentage of Acreage per Jurisdiction by Land Use Categories (Orange County Department of Planning, 2015)										
Jurisdiction	Agriculture	Residential	Vacant	Commercial	Recreation & Entertainment	Community Services	Industrial	Public Services	Wild, Forested & Conservation Lands	No Data
Greenwood Lake, Village of	0.0%	35.0%	16.0%	3.0%	1.0%	2.0%	0.3%	1.0%	16.0%	25.0%
Hamptonburgh, Town of	28.0%	35.0%	17.0%	1.0%	5.0%	1.0%	0.1%	0.5%	0.9%	11.0%
Harriman, Village of	0.0%	32.0%	29.0%	12.0%	0.0%	9.0%	6.0%	3.0%	0.0%	8.0%
Highland Falls, Village of	0.0%	33.0%	14.0%	6.0%	0.1%	9.0%	0.0%	2.0%	2.0%	34.0%
Highlands, Town of	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Kiryas Joel, Village of	0.0%	23.0%	28.0%	2.0%	0.0%	29.0%	0.0%	0.1%	0.0%	19.0%
Maybrook, Village of	31.0%	22.0%	22.0%	8.0%	1.0%	1.0%	0.1%	2.0%	5.0%	8.0%
Middletown, City of	0.0%	27.0%	36.0%	12.0%	9.0%	2.0%	0.0%	4.0%	0.0%	10.0%
Minisink, Town of	43.0%	35.0%	12.0%	0.3%	0.5%	1.0%	0.8%	0.4%	0.0%	7.0%
Monroe, Town of	1.0%	29.0%	31.0%	8.0%	2.0%	15.0%	0.1%	1.0%	10.0%	4.0%
Monroe, Village of	0.0%	35.0%	12.0%	6.0%	2.0%	14.0%	0.4%	0.1%	0.0%	31.0%
Montgomery, Town of	31.0%	27.0%	20.0%	3.0%	2.0%	3.0%	1.0%	3.0%	3.0%	8.0%
Montgomery, Village of	2.0%	39.0%	31.0%	8.0%	1.0%	3.0%	3.0%	4.0%	0.5%	8.0%
Mount Hope, Town of	15.0%	36.0%	25.0%	0.4%	0.5%	9.0%	0.0%	3.0%	0.8%	10.0%
New Windsor, Town of	9.0%	18.0%	10.0%	5.0%	0.7%	4.0%	1.0%	4.0%	12.0%	36.0%
Newburgh, City of	0.0%	21.0%	17.0%	15.0%	0.3%	8.0%	4.0%	3.0%	3.0%	29.0%
Newburgh, Town of	3.0%	36.0%	32.0%	6.0%	0.9%	7.0%	1.0%	3.0%	0.2%	10.0%
Otisville, Village of	0.0%	49.0%	19.0%	4.0%	5.0%	9.0%	0.0%	12.0%	0.0%	1.0%
Port Jervis, City of	0.0%	22.0%	12.0%	7.0%	0.1%	6.0%	4.0%	6.0%	16.0%	27.0%
South Blooming Grove, Village of	5.0%	34.0%	34.0%	25.0%	0.1%	1.0%	0.0%	1.0%	0.0%	0.0%
Tuxedo, Town of	0.0%	8.0%	15.0%	0.5%	0.8%	1.0%	0.3%	2.0%	68.0%	5.0%
Tuxedo Park, Village of	0.0%	46.0%	28.0%	0.1%	1.0%	0.7%	0.0%	0.6%	19.0%	4.0%
Unionville, Village of	0.0%	52.0%	19.0%	10.0%	0.0%	4.0%	6.0%	6.0%	0.0%	2.0%
Walden, Village of	0.0%	40.0%	13.0%	14.0%	14.0%	3.0%	5.0%	5.0%	0.0%	7.0%
Wallkill, Town of	14.0%	31.0%	25.0%	5.0%	1.0%	2.0%	1.0%	3.0%	9.0%	9.0%
Warwick, Town of	22.0%	31.0%	16.0%	2.0%	1.0%	3.0%	0.2%	1.0%	20.0%	4.0%
Warwick, Village of	0.2%	53.0%	19.0%	7.0%	3.0%	4.0%	2.0%	2.0%	5.0%	6.0%
Washingtonville, Village of	5.0%	21.0%	52.0%	8.0%	0.4%	9.0%	0.1%	0.2%	0.0%	5.0%
Wawayanda, Town of	24.0%	34.0%	19.0%	2.0%	1.0%	1.0%	2.0%	2.0%	0.0%	15.0%
Woodbury, Town of	1.0%	18.0%	19.0%	3.0%	0.4%	17.0%	1.0%	1.0%	38.0%	3.0%
Woodbury, Village of	1.0%	18.0%	19.0%	3.0%	0.4%	17.0%	1.0%	1.0%	38.0%	3.0%



Sources: Orange County GIS, NYS GIS Data Clearinghouse



1 inch = 20,000 feet

Agriculture

According to Orange County's 2010 Comprehensive Plan, agriculture has declined by 8% due to the replacement of commercial, industrial and residential land uses of suburban character. Historically, Orange County's landscape was dominated by agricultural land; currently the County produces mostly vegetables and sod. Dairy farming was once a predominant type of farming, but now it is being replaced with less land consumptive types of farming (Orange County Comprehensive Plan, 2010). However, the County's 2015 Agricultural and Farmland Protection Plan indicates that the number of farms, the market value of farms, and the number of acres being farmed within the County have been on the rise, particularly since 2007 (Orange County, 2015).

Agriculture remains an important provider for the County's economy and landscape. Orange County's farmlands are currently concentrated through the Wallkill River Valley ("Black Dirt Region") running southwest to northeast and across the center of the County. The County's most productive farming areas are located largely within the Towns of Warwick, Wawayanda, Minisink, Crawford, Hamptonburgh, Montgomery, and Goshen. The 2012 Census of Agriculture indicated that approximately 658 farms were operating in Orange County by and working 88,000 acres of land, approximately 17 percent of the total land base in the County (Orange County, 2015).

Two New York State Agricultural Districts are recognized within Orange County; the boundaries of these areas are shown on Figure 2.5b – Agricultural Districts in Orange County (Orange County Planning Department, 2015). Both Districts, numbers 1 and 2, were initially created in 1972 and are reviewed every eight years. The most recent review was completed in 2012. At that time, there were 67,793 acres included in Agricultural District #1 and 94,619 acres included in Agricultural District #2 (Orange County, 2015). It should be noted that all acreages included in these agricultural districts do not constitute farmed parcels. Table 2.5b below shows the types of agricultural enterprises operating in each Town within Orange County.

Figure 2.5b: Agricultural Districts in Orange County
(Orange County, 2015)

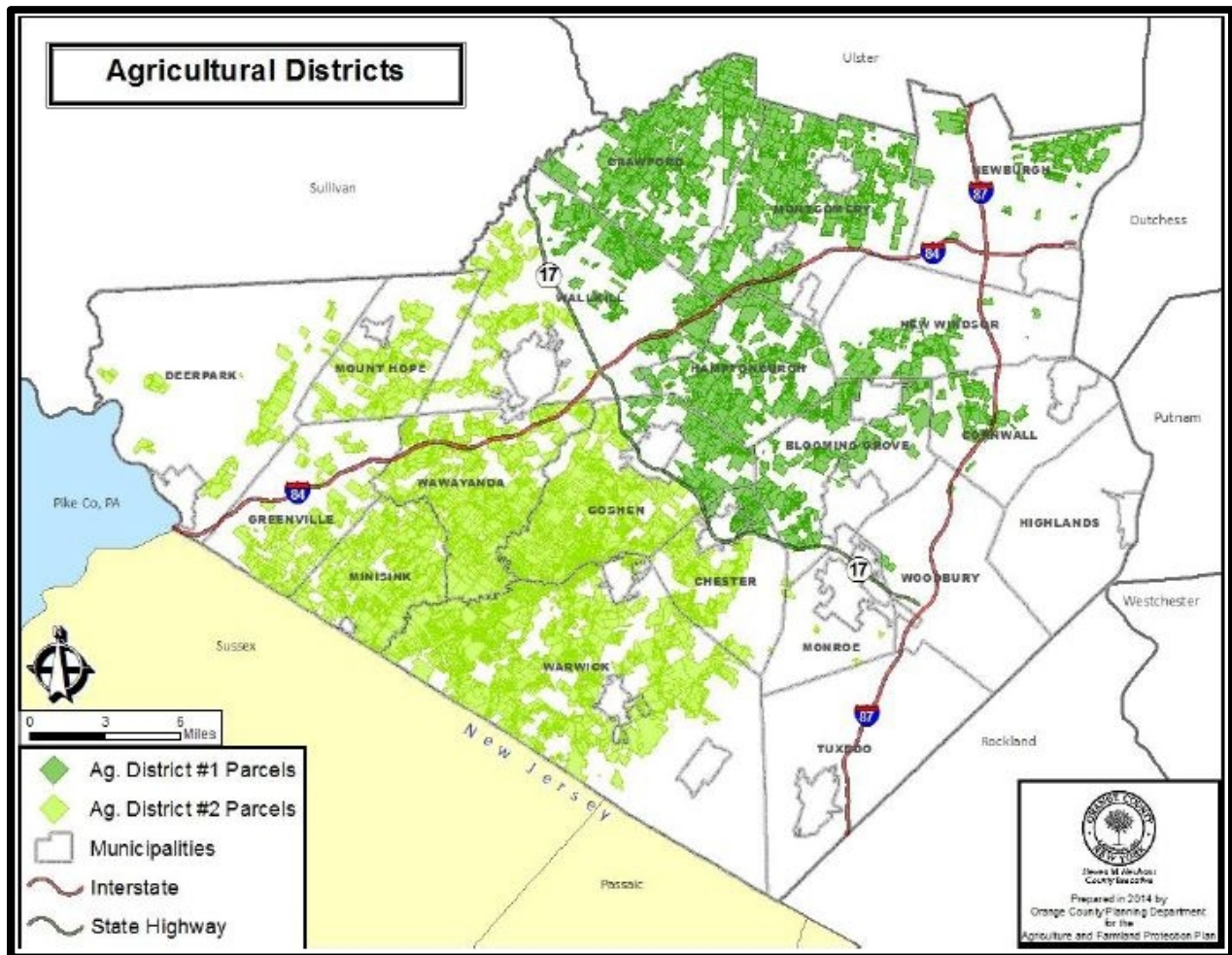


Table 2.5b: Agricultural Land Inventory by Type (Orange County, 2004 and 2011)								
Jurisdiction	Agricultural Classification							
	Livestock/ Poultry (acres)	Equine (acres)	Dairy (acres)	Orchard/ Vineyard (acres)	Truck Crops (acres)	Nursery/ Greenhouse (acres)	Gen Ag Land (acres)	Total Acres
Blooming Grove	564	45	310	75	0	0	1,977	2,970
Chester (T)	861	150	790	0	273	69	378	2,520
Cornwall	465	100	0	87	0	16	695	1,362
Crawford	1,485	765	2,303	0	0	0	586	5,139
Deerpark	0	0	342	0	86	0	37	465
Goshen (T)	2,601	777	3,376	35	4,617	0	1,440	12,844
Greenville	1,249	0	1,389	0	0	0	511	3,150
Hamptonburgh	1,245	1,772	1,025	236	0	45	1,068	5,391
Highlands	0	0	0	0	0	0	0	0
Minisink	472	88	3,249	45	566	0	3,337	7,758
Monroe (T)	89	0	0	0	0	0	0	89
Montgomery (T)	3,374	681	2,055	332	264	54	2,399	9,160
Mount Hope	4,887	129	1,141	0	0	49	394	2,200
Newburgh (T)	166	0	28	705	0	0	313	1,212
New Windsor	903	0	759	246	94	36	432	2,470
Tuxedo	0	0	0	0	0	0	0	0
Wallkill	2,899	253	2,527	0	177	108	627	6,591
Warwick (T)	1,427	664	4,580	693	5,281	35	2,586	15,266
Wawayanda	683	258	1,552	418	2,942	98	1,179	7,129
Woodbury (T)	157	0	0	0	26	19	0	201
Total Ag Land (acres)	19,129	5,680	25,427	2,871	14,326	528	17,957	85,917

Note: Agricultural classifications are based on Office of Real Property land use codes. Codes have been aggregated.

Areas of high residential intensity are generally concentrated in the eastern half of the County within the Villages, especially the Village of Kiryas Joel, and around the Cities of Middletown, Newburgh, and Port Jervis. A total of 158,218 acres is classified as residential use; this represents 29.5 percent of lands within the County.

While commercial use is scattered throughout the County, large tracts are centered around the Town and City of Newburgh, the Town of Blooming Grove, and the Town of Wallkill, just east of the city of Middletown. This accounts for 3 percent of land use within the County, representing 16,275 acres of land.

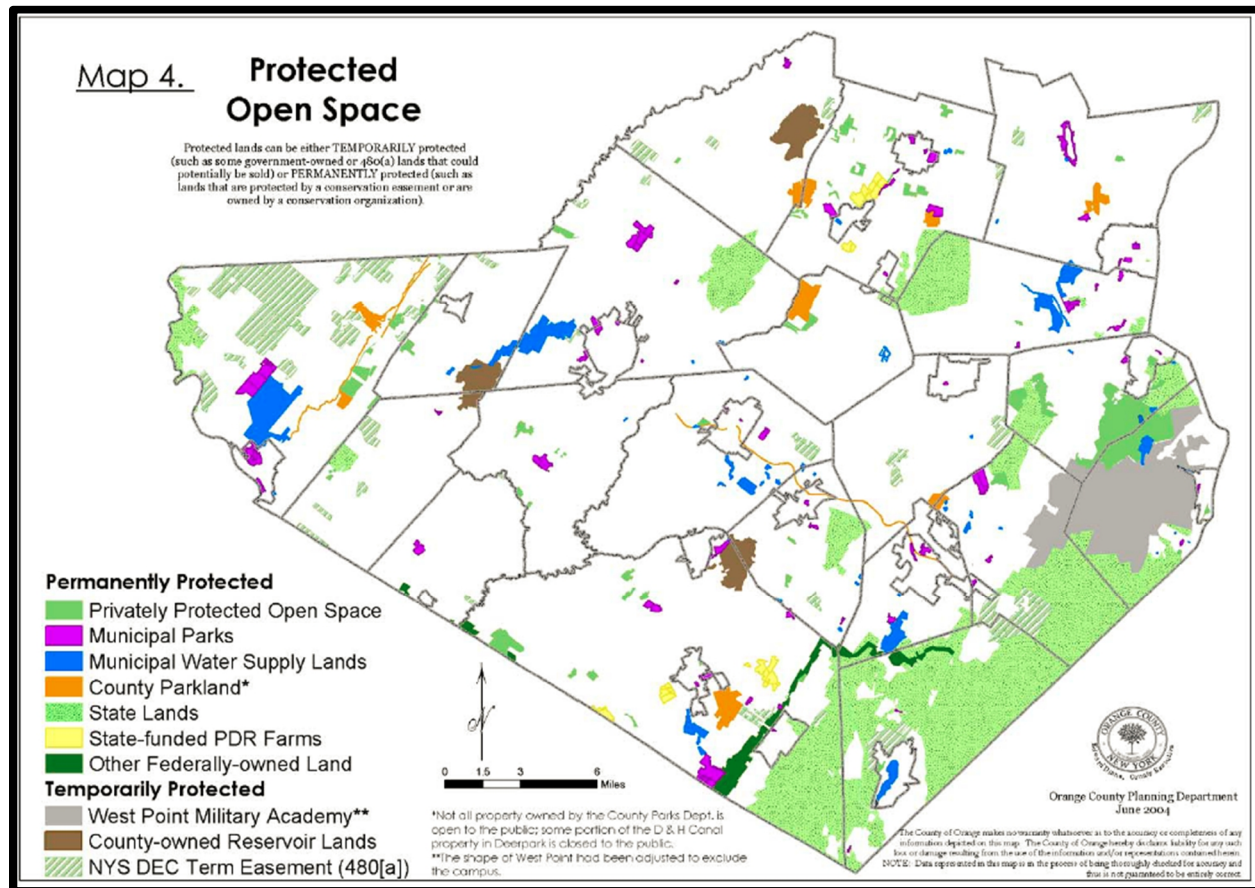
Industrial use accounts for 0.7 percent, or 3,060 acres of land within Orange County. The majority of industrial zoned land is concentrated outside of the three Cities within Orange County: Middletown (Towns of Wallkill and Wawayanda), Newburgh (Town of Newburgh), and Port Jervis (Town of Deerpark).

Aside from the Hudson River, Orange County also supports seven major waterways: Delaware River, Wallkill River, Neversink River, Wawayanda Creek, Quassaick Creek, Moodna Creek and Ramapo River. In terms of land, Table 2.5c provides an estimate of the total acres of protected natural resources within Orange County. Figure 2.5c illustrates the locations of protected natural areas. Throughout the County there are a number of smaller rivers and streams, as well as numerous ponds, lakes and reservoirs. Wetland areas, including federal and state designated wetlands, are present in every community in the County. The rich “black dirt” soil, a highly valuable agricultural resource, is concentrated in the southern portions of the county, in the vicinity of the Wallkill River. Another productive pocket of ‘black dirt’ is adjacent to the northern border of the Village of Chester.

Table 2.5c: Acreage and Ownership of Protected Natural Areas in Orange County (Orange County Open Space Plan, 2004)	
Property Owner	Size (acres)*
Federal	2,830 Permanent 14,355 Temporary
New York State	68,900 Permanent
Orange County	2,730 Permanent 3,960 Temporary (Proposed reservoir lands)
Municipal	5,840 Water Supply 2,370 Municipal Parks
Private	9,486 Permanent 18,200 Temporary (480a Forest Tax Law)
Total	92,156 Protected 36,515 Temporarily

* Permanently and temporarily protected lands are further defined in Figure 2.5c, below.

Figure 2.5c: Protected Open Space
(Orange County Open Space Plan, 2004)



2.6 Economic Characteristics and Employment

The unemployment rate in Orange County has decreased over the past year from 5.50 percent in 2014 to approximately 4.74 percent in 2015 (NYS Department of Labor, 2016); though it remains lower than the New York State unemployment rate of 5.36 percent (all based on preliminary data). The increase or decrease in numbers of jobs within different industries between June 2014 and June 2015 is shown in Table 2.6a. Overall, employment in the County grew by 2,826 employees or 2.1 percent between the second quarter of 2014 and the second quarter of 2015.

Table 2.6a: Change in Observed Total Jobs in Industries between 2014 Q2 and 2015 Q2 - Orange County (NYS Department of Labor, 2016)			
Industrial Sector	Employment (No. of jobs)		
	2014 Q2	2015 Q2	Change
Agriculture Forestry Fishing and Hunting	1042	995	-47
Mining Quarrying and Oil and Gas Extraction	63	66	3
Utilities	471	501	30
Construction	4687	4795	108
Manufacturing	7948	7943	-5
Wholesale Trade	7127	7374	247
Retail Trade	23605	23819	214
Transportation and Warehousing	5546	5789	243
Information	2173	2192	19
Finance and Insurance	2943	2843	-100
Real Estate and Rental and Leasing	1433	1475	42
Professional Scientific and Technical Services	5154	5343	189
Management of Companies and Enterprises	894	756	-138
Administrative and Support and Waste Management and Remediation Services	6686	6973	287
Educational Services	2449	2616	167
Health Care and Social Assistance	19851	21274	1423
Arts Entertainment and Recreation	1924	1745	-179
Accommodation and Food Services	9640	9909	269
Other Services (except Public Administration)	5427	5605	178
Total All Government	27506	27427	-79
Unclassified	611	566	-45
Total	137180	140006	2826

The largest employment sectors in Orange County are the Retail Trade and Health Care and Social Assistance, each sector employing over 20,000 workers. Combined, these two (2) industries account for close to 30 percent of the workforce in the County. Between June 2014 and June 2015, Health Care and Social Assistance experienced the most employment growth, an increase of nearly 1,500 employees. Arts, Entertainment, and Recreation experienced the largest job decrease, 179 job losses, or over 9 percent, of the County's 2014 workforce.

Table 2.6b: Twenty Largest Employers in Orange County (The Orange County Partnership, 2016)			
Company	Jurisdiction	Employment Category/Specialization	Employees
United States Military Academy at West Point	Town of Highlands	Colleges & Technical Institutes	3,120
Orange Regional Medical Center	City of Middletown	Healthcare	2,524
Crystal Run Healthcare	City of Middletown	Healthcare	1,625
Access: Supports for Living	City of Middletown	Non-Profit Organizations	1,289
St Luke's Cornwall Hospital	City of Newburgh	Healthcare	1,247
Elant, Inc.	Village of Goshen	Healthcare	1,200
C & S Wholesale Grocers, Inc.	Town of Newburgh	Distribution	1,107
Mount Saint Mary College	City of Newburgh	Education	1,000
Empire Blue Cross/Blue Shield	City of Middletown	Service	795
The ARC of Orange County	City of Newburgh	Non-Profit Organizations	750
Time Warner Cable	City of Middletown	Communications	750
Kolmar Laboratories Inc.	City of Port Jervis	Manufacturing	650
Amscan, Inc.	Village of Chester	Distribution	525
Horizon Family Medical Group	Town of Goshen	Healthcare	500
Bon Secours Community Hospital	City of Port Jervis	Healthcare	490
Staples, Inc.	Town of Montgomery	Distribution	460
Verla International LTD	Town of New Windsor	Manufacturing	445
YRC Worldwide	Village of Maybrook	Cargo & freight	435
Adecco	Village of Goshen	Service	400
United Natural Foods, Inc. (UNFI)	Town of Montgomery	National Distributor of Natural, Organic and Specialty Foods	400

According to data from the Orange County Partnership – the economic development agency for Orange County – there are 20 companies in the County with 400 employees or more as of February 2016, as included in Table 2.6b. Five of the top 11 employers are located in the zip code for the City of Middletown. Other clusters of large employers are found in the Cities of Newburgh and Port Jervis, along with the Town and Village of Goshen.

2.7 Transportation

In Orange County, roadway, rail, and air transportation options are available. Orange County sits at the crossroads of both regional and metropolitan transportation connections. The County is in close proximity to the New York City Metropolitan Area and is centrally located in the Boston-Washington, D.C. urban corridor (the NJ-NY-CT-PA Consolidated Metropolitan Statistical Area (CMSA)). Orange County has three intersecting interstate highways, Interstate 87, Interstate 84, and NYS Route 17 (future Interstate 86) (Orange County Comprehensive Plan, 2010). The locations of the major roadways in Orange County are shown on Figure 2.7a.

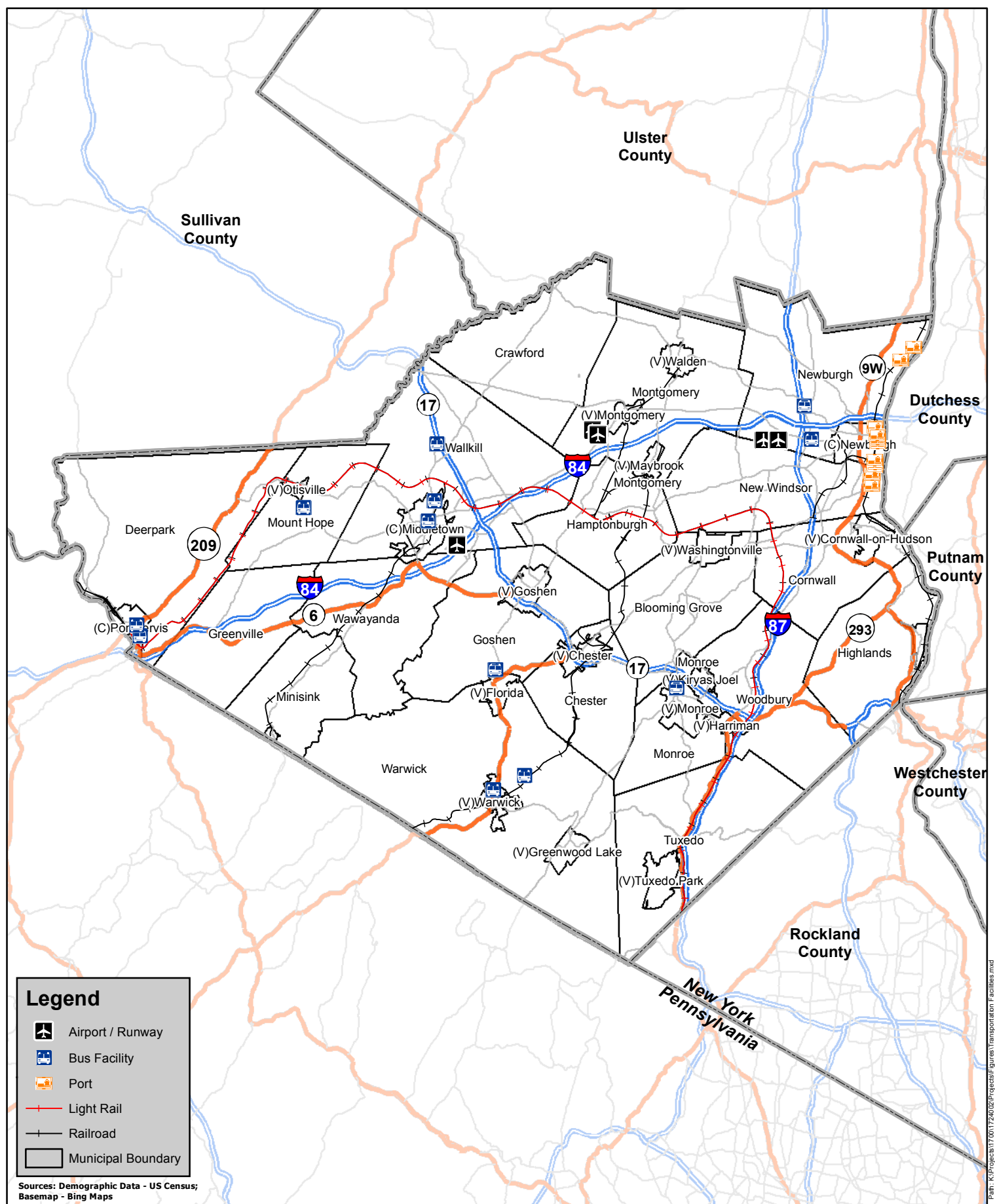
Orange County is served by two rail lines: Metro-North's Port Jervis and Hudson Lines. The Port Jervis Line, is operated by NJ TRANSIT under a contract with Metro-North, operates from Port Jervis in Orange County to Hoboken, New Jersey where connecting PATH (Port Authority Trans-Hudson) and ferry service is provided to New York City (Orange County Comprehensive Plan, 2010). Metro-North's Hudson Line can be accessed across the Hudson River in the City of Beacon (Dutchess County). The Hudson Line provides direct service to Grand Central Station in New York City (Orange County Comprehensive Plan, 2010). Locations of active and abandoned railroad segments are depicted on Figure 2.7a.

Lastly, there are a few significant bridges at key connections points in Orange County. The Newburgh-Beacon Bridge carries I-84 over the Hudson River connecting Orange County with Dutchess County. A portion of the Bear Mountain Bridge is in the Town of Highlands and connections Orange County/Rockland County, on the western banks of the Hudson, with Dutchess County/Putnam County to the east. The I-84 Bridge crosses the Delaware River into Pennsylvania. The Mid-Delaware Bridge carries US-6/US-209 over the Delaware River as well, connecting the City of Port Jervis, NY with the Borough of Matamoras, PA.

In terms of air transportation, the County has four airports. The largest one is Stewart International Airport, which serves both the County and the region by facilitating the movement of both freight and people. Stewart International Airport (identification SWF) is operated by the Port Authority of New York and New Jersey. The County's three smaller airports consist of the Orange County Airport (identification MGJ) in the Town of Montgomery, Randall Airport (identification 06N) in the City of Middletown, and Warwick Airport in the Town of Warwick. In addition, there are numerous private airports in Orange County, though such facilities are smaller and do not experience high traffic volumes. Table 2.7a, below, provides the names and locations of these 21 privately operated airport facilities.

Table 2.7a: Privately Operated Airport Facilities in Orange County		
Airport Name	Identification	Jurisdiction
Sha-Wan-Ga Valley Airport	8NY7	Town of Crawford
Doms Heliport	NK86	Town of Chester
High View Too Heliport	2NY2	Town of Goshen
Orange Poultry Farm Airport	4NY1	Town of Warwick
Arden Hill Heliport	2JY4	Town of Goshen
Big Island Airport	NK07	Town of Goshen
Ridge Heliport	26NK	Town of Hamptonburgh
Lakeside Heliport	70NY	Town of Mount Hope
Md1 Airport	08NY	Town of Minisink
Phillipsburg Landing Heliport	NY93	Town of Wallkill
Slate Hill Heliport	2NY6	Town of Minisink
Middle Hope Airport	NY09	Town of Newburgh
St. Lukes Cornwall Hospital – Newburgh Heliport	8NK5	City of Newburgh
Bastek Heliport	NK95	Town of Wawayanda
Greenville Mountain Heliport	4NY3	City of Port Jervis

Table 2.7a: Privately Operated Airport Facilities in Orange County		
Airport Name	Identification	Jurisdiction
Port Jervis Fire Department Heliport	NY08	City of Port Jervis
Lewis Landing Airport	NK79	Town of Greenville
SJM Landing Heliport	32NY	Village of Washingtonville
Westtown Airport	1NK5	Town of Minisink

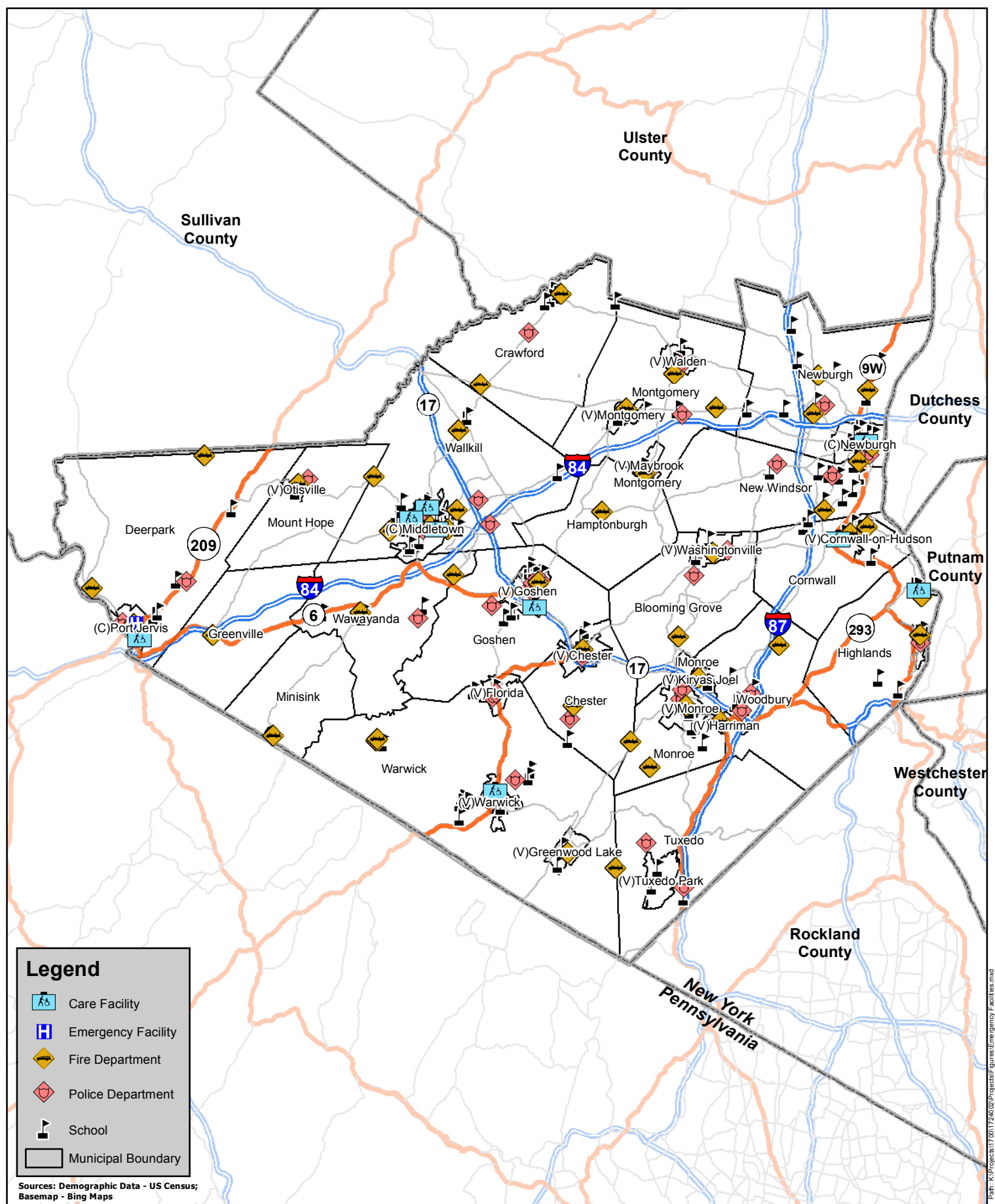


2.8 Critical Community Facilities







Many of the critical facilities, including hospitals, medical facilities, and educational facilities, identified for each participating jurisdiction are clustered around the Cities of Newburgh, Middletown, and Port Jervis, and the Villages and Hamlets identified within the County. Large scale critical facilities include: Orange County Emergency Operations Center; Interstate Routes 87, 84, and soon-to-be 86; Indian Point Energy Center; Metro-North commuter rail line; CSX Hudson River freight rail line and fuel storage facilities; Stewart International Airport with USDA reception center and Air National Guard barracks; two aqueducts for the New York City water supply system; Newburgh-Beacon ferry; Newburgh Beacon Bridge and Bear Mountain Bridge; West Point Military Academy; and Woodbury Commons Outlets Center.

Other, more ubiquitous yet still critical, facilities include utility infrastructure (water tanks, electric substations, cell towers, etc.), banks, senior housing, mobile home complexes, boatyards, bus terminals, municipal buildings, community centers, correctional facilities, courthouses, dams, day care centers, schools, emergency operations, fire and police departments, highway facilities, human services, major industrial locations, medical facilities and hospitals, post offices, sports complexes and facilities, and locations of other public facilities. Figure 2.8a, below, shows the locations of the large scale critical facilities mentioned above. The locations of critical facilities were considered during the risk assessment and hazard vulnerability components of this HMP process. Critical facilities identified on the local level are detailed in each participating jurisdiction's municipal section, included in Section 10 of this document.

Using information from the Orange County Department of Information Technology GIS Division, an inventory of critical facilities across the county was developed. Critical facilities are important to monitor protect when considering measures to curb the effects of natural hazards because any impacts to such facilities will likely cascade to other facilities, effecting exponentially larger numbers of people. This inventory was used for the risk assessment described in Section 4.0 and is broken down by jurisdiction in the annexes of Section 10.0.



Legend

-  Care Facility
-  Emergency Facility
-  Fire Department
-  Police Department
-  School
-  Municipal Boundary

Sources: Demographic Data - US Census;
 Basemap - Bing Maps

Path: K:\Projects\17-001\1724\02\Projects\Figure\Emergency Facilities.mxd

2.8.1 Essential Facilities

For the purposes of this Plan, “essential facilities” were considered to be emergency facilities (including police, fire, ambulatory, and emergency operations facilities), hospitals and medical centers, schools, elderly care facilities, child care facilities, and religious services facilities.

Emergency Facilities

As described in Section 2.9, the Orange County Department of Emergency Services is responsible for county-wide emergency response, communications, planning, training, and recovery. The Orange County Emergency Operations Center is a facility designed to bring together representatives from numerous agencies and organizations to coordinate the many tasks associated with disasters and other major emergencies. This response is often graduated and tailored to meet the needs of the situation. This facility is located in Goshen.

All of the participating jurisdictions in the 2018 HMP Update are covered by local fire departments, police enforcement, and emergency medical services. There are 85 firehouses, 39 police barracks, and 26 EMS facilities located across Orange County.

Hospitals and Medical Centers

Hospitals and medical centers are scattered across Orange County. Most facilities are concentrated in areas of greater population density in the east and south. These facilities range in size and specialty with smaller medical establishments offer niche diagnoses, evaluations, and treatments. The Orange County Regional Medical Center is located in the center of the County in Town of Wallkill.

In total, there are 8 hospitals and 36 medical centers in Orange County.

Schools, Colleges, and Universities

Primary educational facilities (elementary, middle, and high school) are scattered across Orange County and, much like medical centers, are most concentrated in areas of higher population in the east and south. Secondary educational facilities (colleges, universities, technical training institutions) are located primarily in the City of Middletown (Orange County Community College) and the City of Newburgh (Mount Saint Mary’s College). Both types of facilities can function as emergency shelters during major outages or disasters, due to their abilities to accommodate large numbers of people with basic services.

There are 173 primary educational facilities and 16 secondary educational facilities in Orange County.

Elder Care and Child Care

Vulnerable populations merit enhanced cognizance in the preparation of hazard mitigation plans and are discussed further in Section 6.3. As such, facilities that provide services to vulnerable

populations such as the elderly and children are included in this inventory of critical facilities. While more vulnerable to hazards than other facilities, elder care and child care centers can be important management sites for disaster preparation and response.

There are 31 elder care facilities in Orange County and 14 child care facilities.

Religious Services Facilities

Churches, synagogues, mosques, and other religious services facilities are important considerations for hazard mitigation efforts because of their propensities to hold significant amounts of people at a given time. Just as with educational institutions and elder and child care facilities, religious services facilities also offer the potential to serve as local shelters and disaster preparation and response local management centers.

There are 141 religious services facilities in Orange County.

2.8.2 Lifeline Utility Systems

Lifeline utility systems include drinking water, wastewater, energy resources, and communications infrastructure. Orange County relies heavily on these systems, all of which are vulnerable to natural hazards to varying degrees.

Potable Water

According to the 2010 Orange County Water Master Plan supplement to the County's Comprehensive Plan, the County relies on water from both surface and groundwater sources within the 11 County watersheds. The majority of the County's water supply is provided by 160 community water supply systems which draw fresh water from County reservoirs and aquifers. 131 of these systems rely on groundwater while 29 use surface water. There are 63 water districts that serve the County, some of which cross municipal boundaries. Eighty percent (80%) of the County's land area is serviced by individually-owned wells providing the only available fresh water to primarily single-family residences.

11% of the potable water in Orange County is from the New York City Aqueduct System while 56% comes from groundwater sources and 33% from surface waters.

The Orange County Water Authority operates out of the Village of Goshen at the Orange County Government Center. There are also water plants in Newburgh and Warwick. There are 14 reservoirs across the County as well.

Participating jurisdictions may discuss public water resources in their respective annexes. While it is assumed that most municipal water systems facilities are not located within the floodplain, these jurisdictions will explore hardening/relocation opportunities for those that are located within the floodplain should such actions become necessary due to the incidence of flooding impacts.

Wastewater Facilities

The Orange County Sewer District #1 (OCSD No. 1) has a sewer treatment plant in Harriman. The Harriman STP is a 6.0 million-gallon-per-day facility that serves the OCSD No. 1 and the Moodna Basin Southern Region (MBSR) in Orange County, New York. The treatment plant operations and maintenance is administered by the Orange County Department of Public Works –Division of Environmental Facilities and Services. Member communities in OCSD No. 1 include the Villages of Monroe, Kiryas Joel and Harriman and a portion of the Town of Monroe. The satellite municipal communities in the MBSR include the Town of Chester, the Villages of South Blooming Grove, Chester, and Woodbury, and a portion of the Town of Monroe.

Including the OCSD No. 1, there are 72 sewer taxing districts in Orange County. (NYSOSC, 2007)

By necessity, critical wastewater facilities are located within the 500-year floodplain due to discharge requirements and gravity-fed systems optimization. While relocation is neither desired nor feasible, participating municipalities will seek to harden these facilities where feasibly and fiscally possible.

The following table lists all wastewater facilities in Orange County with a NPDES (National Pollutant Discharge Elimination System) permit. In the case of New York State, NPDES permit listing match State Pollutant Discharge Elimination System (SPDES) permit listings.

Table 2.8a: Orange County NPDES (National Pollutant Discharge Elimination System) Data (Source: US EPA ECHO (Enforcement and Compliance History Online))				
Facility Name	Street Address	Town/Village/ City/Hamlet	National Pollutant Discharge Elimination System ID	Clean Water Act Permit Types
LAKE ANNE COUNTRY CLUB	505 CLOVE RD	Blooming Grove	NY0234125	Minor
BULL MILL/COUNTRY WOODS SUBD	BULL MILL RD	Blooming Grove	NY0260215 NYR10D921	Minor
CALLAHAN & NANNINI SHALE MINE	276 CLOVE RD	Blooming Grove	NYR00E381	Minor
WASHINGTONVILLE MS4 STORM SEWERS	VILLAGE-WIDE	Blooming Grove	NYR20A236	Minor
BLOOMING GROVE MS4 STORM SEWERS	TOWN-WIDE	Blooming Grove	NYR20A239	Minor
INNAMORATO APARTMENTS	2837 RT 207	Campbell Hall	NYR00B098	Minor
OTTAWAY NEWSPAPERS CORP HEADQUARTERS	97 RTE 416	Campbell Hall	NYR00E466	Minor
OTTAWAY NEWSPAPERS INFORMATION TECHNOLOGY HEADQUARTERS	16 MAYBROOK RD	Campbell Hall	NYR00E467	Minor
HAMPTONBURGH MS4 STORM SEWERS	TOWN-WIDE	Campbell Hall	NYR20A038	Minor
NATIONWIDE USED AUTO PARTS, INC.	8 LAURA DR, PO BOX 71	Central Valley	NYR00E336	Minor
NEXANS ENERGY USA, INC	25 OAKLAND AVENUE	Chester	NY0007943	Minor
GLENMERE BED AND BREAKFAST INN	634 PINE HILL RD	Chester	NY0274275 NYR10R711	Minor
C.F. JOHNSON & SON	112 JOHNSON ROAD	Chester	NYA001377 NYAE01377	Minor
C&S WHOLESALE GROCERS, INC. – CHESTER	1 ELIZABETH LANE	Chester	NYR00F039	Minor
CHEMICAL CORPORATION OF AMERICA (CHEMCOR)	48 LEONE LANE	Chester	NYR00F153	Minor
CHESTER MS4 STORM SEWERS	TOWN-WIDE	Chester	NYR20A126	Minor
CORNWALL (T) WWTP	360 SHORE ROAD	Cornwall	NY0022144	Major

Table 2.8a: Orange County NPDES (National Pollutant Discharge Elimination System) Data (Source: US EPA ECHO (Enforcement and Compliance History Online))				
Facility Name	Street Address	Town/Village/ City/Hamlet	National Pollutant Discharge Elimination System ID	Clean Water Act Permit Types
CORNWALL (T) FIRTHCLIFF STP	HOWARD STREET	Cornwall	NY0022152	Minor
CORNWALL (T)	183 MAIN STREET	Cornwall	NYL022144	Minor
CORNWALL MS4 STORM SEWERS	TOWN-WIDE	Cornwall	NYR20A242 NYR20A355	Minor
ZIRCAR PRODS. INC.	100 N MAIN ST	Florida	NYR00B969	Minor
FIRST STUDENT INC #12602	17 INDUSTRIAL DR	Florida	NYR00E379	Minor
HIGHLANDS SEWER IMPROVEMENT AREA	MINE DOCK RD	Fort Montgomery	NY0149411	Minor
LINDEN HOMES	OLD RTE 9W @ MINE DOCK RD	Fort Montgomery	NYR10J877	Minor
VALLEYVIEW CTR NURSING CARE	QUARRY RD	Goshen	NY0022101	Minor
GOSHEN (V) WWTF	ROUTE 17 & FLETCHER STREET	Goshen	NY0031518	Major
AL TURI LANDFILL & LFGTE FACILITY	73 HARTLEY ROAD	Goshen	NY0166511	Minor
GOSHEN QUARRY	220 ROUTE 17A	Goshen	NY0264954	Minor
FORT HILL FARM SERVICES	58 FORT HILL RD	Goshen	NYA001365 NYAE01365	Minor
ORANGE CO DEPT OF EF AND S	PO BOX 637	Goshen	NYL027901	Minor
GOSHEN (V)	276 MAIN ST	Goshen	NYL031518	Minor
BLASER SWISSLUKE INC	31 HATFIELD LN.	Goshen	NYR00A646	Minor
BJP INDUSTRIES MINE	CEDAR SWAMP RD	Goshen	NYR00D583	Minor
DICK'S CONCRETE MINE	FISCHER LN	Goshen	NYR00D605	Minor
KONICA MINOLTA SUPPLIES MANUFACTURING US	51 HATFIELD LANE	Goshen	NYR00F210	Minor
WASTE MGMT - NORTHERN RECYCLING	95 HARTLEY RD	Goshen	NYR00F289	Minor
GOSHEN (V) WWTF	END OF CYPRESS RD - WEST OF ST RTE 17	Goshen	NYR10I608	Minor
TEMPORARY SOIL STORAGE AREA	2501 ST RTE 17M	Goshen	NYR10L107	Minor
GOSHEN MEADOWS	GATE SCHOOL HOUSE RD	Goshen	NYR10U941	Minor
ORANGE MS4 STORM SEWERS	COUNTY-WIDE	Goshen	NYR20A322	Minor
DEFEOS MARINA	672 JERSEY AVE	Greenwood Lake	NYR00E840	Minor
WILLOW POINT MARINA	622 JERSEY AVE	Greenwood Lake	NYR00F306	Minor
SKIPS DOCKSIDE MARINA LLC	63 TEN EYCK AVE	Greenwood Lake	NYR00F490 NYU002913	Minor
EMERALD POINT MARINA	40 STERLING ROAD	Greenwood Lake	NYR00F494 NYU002912	Minor
MCNEILLY WOOD PRODUCTS INC	120 NEELYTOWN RD	Hamptonburgh	NYR00F069	Minor
DORIAN FARM	SARAH WELLS TRAIL	Hamptonburgh	NYR10K145 NYU300172	Minor
ELT HARRIMAN LLC (FORMERLY NEPERA INC)	41 ARDEN HOUSE RD	Harriman	NY0006670	Major
OCSO #1 HARRIMAN STP	72 RIVER RD	Harriman	NY0027901 NYR00A935	Major, Minor
TIORATI LAKE CIRCLE STP	SEVEN LAKES DR	Harriman	NY0165808	Minor
TAKASAGO INTERNATIONAL CORPORATION	114 COMMERCE DR	Harriman	NYR00F424	Minor
HIGHLAND FALLS (V) WWTP	303 MAIN STREET	Highland Falls	NY0022586 NYL022586	Major, Minor
HIGHLANDS (T)	254 MAIN ST	Highland Falls	NYL149411	Minor
WEST POINT TOURS INC	415 MAIN ST	Highland Falls	NYR00E151	Minor
HIGHLANDS MS4 STORM SEWERS	TOWN-WIDE	Highland Falls	NYR20A232	Minor
PULVER PROPERTY	10 CASTLETON DR	Highland Mills	NYR10I203	Minor

Table 2.8a: Orange County NPDES (National Pollutant Discharge Elimination System) Data (Source: US EPA ECHO (Enforcement and Compliance History Online))				
Facility Name	Street Address	Town/Village/ City/Hamlet	National Pollutant Discharge Elimination System ID	Clean Water Act Permit Types
HIGHLAND FALLS MS4 STORM SEWERS	VILLAGE-WIDE	Highlands	NYR20A421	Minor
MAYBROOK (V) STP	ROUTE 208	Maybrook	NY0023272	Minor
YRC FREIGHT-MAYBROOK TERMINAL 123	1000 HOMESTEAD AVE	Maybrook	NY0108472	Minor
EASTERN ALLOYS, INC.	HENRY HENNING DR.	Maybrook	NY0110744 NYU300012	Minor
CALLANAN INDUSTRIES INC MAYBROOK MATERIALS DIV	505 NEELYTOWN RD	Maybrook	NYR00D044 NYR00E250	Minor
WALLKILL STP	600 ROUTE 211 EAST	Middletown	NY0024422	Major
MIDDLETOWN (C) STP	159 DOLSON AVENUE	Middletown	NY0026328	Major
CASTLE HIGH TRAILER PARK	1 MARC CRAIG BLVD	Middletown	NY0062294	Minor
WESTWOOD CHEMICAL CORP.	46 TOWER DR	Middletown	NY0208345	Minor
WINDSOR ESTATES WWTP	35 BRISTOL DR	Middletown	NY0215198	Minor
CHROMALLOY	105 TOWER DR	Middletown	NY0247731 NYR00F175	Minor
WALLKILL (T)	99 TOWER DRIVE	Middletown	NYL024422	Minor
MIDDLETOWN (C)	16 JAMES STREET	Middletown	NYL026328	Minor
REVERE SMELTING & REFINING CORP	65 BALLARD ROAD	Middletown	NYP080030 NYR00C606	Minor
BALL METAL BEVERAGE CONTAINER CORP	95 BALLARD ROAD	Middletown	NYP201907 NYR00C589	Minor
THE TIMES HERALD RECORD	40 MULBERRY ST	Middletown	NYR00A762	Minor
MID CITY TRANSIT CORP	518 ST RTE 17M	Middletown	NYR00B383	Minor
CONCRETE BATCH PLANT	299 CRYSTAL RUN RD	Middletown	NYR00D085	Minor
GENPAK LLC MIDDLETOWN MAIN PLANT	26 REPUBLIC PLAZA	Middletown	NYR00D578	Minor
SUMMIT RESEARCH LABS - WALLKILL DIVISION	146 TOWER DR	Middletown	NYR00E003	Minor
PHILLIPSBURG FACILITY	81 CEMETERY RD	Middletown	NYR00E123	Minor
RISDON INTERNATIONAL INC	79 INDUSTRIAL PLACE EXT	Middletown	NYR00E430	Minor
RISDON – AMS	21 INDUSTRIAL PLACE	Middletown	NYR00E779	Minor
FLEURCHEM	33 SPRAGUE AVENUE	Middletown	NYR00E858	Minor
ADVANCED COATING TECHNOLOGIES	60 TURNER DR - SUITE A	Middletown	NYR00F337	Minor
ADVANCED COATING TECHNOLOGIES	109 TOWER DR	Middletown	NYR00F338	Minor
SILO ESTATES SUBDIVISION	INTERSECTION OF ANNA CT CONNORS RD & FREEZER RD	Middletown	NYR10B440	Minor
MIDDLECREST CROSSING SENIOR CITIZEN	UHLIG RD JUST OFF WAWAYANDA AVE	Middletown	NYR10F764	Minor
TOWER RIDGE GRAND	TOWER DR & LEEWOOD DR	Middletown	NYR10G469 NYR10G479	Minor
AMCHIR POINT SENIOR LIVING COMMUNITY	112-126 HIGH BARNEY RD	Middletown	NYR10W122	Minor
WALLKILL MS4 STORM SEWERS	TOWN-WIDE	Middletown	NYR20A194	Minor
MIDDLETOWN MS4 STORM SEWERS	CITY-WIDE	Middletown	NYR20A271 NYR20A484	Minor
BELL FLAVORS & FRAGRANCES	12 SPRAGUE AVENUE	Middletown	NYU002987	Minor
KIRYAS JOEL (V) WWTP	BAKERSTOWN ROAD	Monroe	NY0250520	Minor
THE GOLF CLUB AT MANSION RIDGE	ORANGE TURNPIKE	Monroe	NY0259535	Minor
ACE FARM	COUNTY ROUTE 105, PO BOX 447	Monroe	NYA000191	Minor

Table 2.8a: Orange County NPDES (National Pollutant Discharge Elimination System) Data (Source: US EPA ECHO (Enforcement and Compliance History Online))				
Facility Name	Street Address	Town/Village/ City/Hamlet	National Pollutant Discharge Elimination System ID	Clean Water Act Permit Types
CARPENTER AND SMITH INC	100 SPRING ST	Monroe	NYR00D590	Minor
MEADOW GLEN AT MONROE	BALLEY FARM RD	Monroe	NYR10F584	Minor
LANDS OF FITZSIMMONS	WALTON TERR	Monroe	NYR10H076	Minor
ALEXANDER SMITH SUBDIVISION	RYE HILL RD	Monroe	NYR10H960	Minor
MONROE TOWN PARK	W MOMBASHA RD (CO RTE 91) - E SIDE - NW END OF MOM	Monroe	NYR10H991	Minor
BAKERTOWN ROAD CONDOMINIUMS	KINEV CT	Monroe	NYR10J085	Minor
VAAD MOUNTAIN CONDOMINIUMS	MOUNTAIN RD	Monroe	NYR10L141	Minor
HIDDEN CREEK	FREELAND ST	Monroe	NYR10N610	Minor
ACRES DEVELOPMENT	ACRES RD 1800 FT NORTH OF BAKERTOWN RD	Monroe	NYR10P524	Minor
MONROE MS4 STORM SEWERS	VILLAGE-WIDE	Monroe	NYR20A049	Minor
HARRIMAN MS4 STORM SEWERS	VILLAGE-WIDE	Monroe	NYR20A113 NYR20A459	Minor
KIRYAS JOEL MS4 STORM SEWERS	VILLAGE-WIDE	Monroe	NYR20A496	Minor
MONTGOMERY (V) STP	BACHELOR STREET - W END	Montgomery	NY0026433	Minor
WALDEN (V) WTP	BRADLEY LANE	Montgomery	NY0030490	Major
MAYBROOK TRAVEL CENTER	125 NELLYTOWN ROAD	Montgomery	NY0145718	Minor
MONTGOMERY (T) SD#1 STP	201 CO RTE 416	Montgomery	NY0247782	Minor
FOX HILL COMMUNITY	80 COLEMAN RD	Montgomery	NY0264776	Minor
RICHARD E. MEYER & SONS TANNERY	11 FACTORY ROAD	Montgomery	NYP000091	Minor
TAYLOR BIOMASS GASIFICATION FACILITY	350 NEELYTOWN RD	Montgomery	NYR00A784	Minor
ORANGE COUNTY AIRPORT	500 DUNN RD	Montgomery	NYR00B539	Minor
XPO LOGISTICS FREIGHT-XNW	120 NEELYTOWN RD	Montgomery	NYR00B774	Minor
FEDEX FREIGHT INC	191 NEELEYTOWN RD	Montgomery	NYR00D562	Minor
KINGS HILL RD SHALE MINE – 30195	ROCK CUT RD INTERSECTION KINGS HILL RD	Montgomery	NYR00D799	Minor
GROSSO MATERIALS INC	90 COLLABAR RD	Montgomery	NYR00E209	Minor
PAVESTONE LLC	43 LEONARDS DR	Montgomery	NYR00E667 NYR00F452	Minor
NORTHEAST DISTRIBUTION CENTER	500 NEELYTOWN RD	Montgomery	NYR00E669	Minor
CARLISLE CONSTRUCTION MATERIALS	9 HUDSON CROSSING DR	Montgomery	NYR00F318	Minor
MONTGOMERY MS4 STORM SEWERS	TOWN-WIDE	Montgomery	NYR20A096	Minor
WALDEN MS4 STORM SEWERS	VILLAGE-WIDE	Montgomery	NYR20A298	Minor
AMERICAN FELT & FILTER CO	361 WALSH AVENUE	New Windsor	NY0004421	Minor
GLOBAL COMPANIES - SOUTH TERMINAL	1184 RIVER RD	New Windsor	NY0005347	Minor
GLOBAL COMPANIES - CARGO TERMINAL	1096 RIVER ROAD	New Windsor	NY0006815	Minor
DEEP GREEN OF NY	1106 RIVER ROAD	New Windsor	NY0024261	Minor
GLOBAL COMPANIES LLC - NEWBURGH TERMINAL	1281 RIVER RD	New Windsor	NY0233781	Minor
NEW WINDSOR (T)	555 UNION AVENUE	New Windsor	NYL022446	Minor
METAL CONTAINER CORP - NEWBURGH CAN PLANT	130 BREUNIG RD	New Windsor	NYR00B540	Minor
WALSH INDUSTRIAL SITE	WALSH RD/RIVER RD	New Windsor	NYR00B814	Minor

Table 2.8a: Orange County NPDES (National Pollutant Discharge Elimination System) Data (Source: US EPA ECHO (Enforcement and Compliance History Online))				
Facility Name	Street Address	Town/Village/ City/Hamlet	National Pollutant Discharge Elimination System ID	Clean Water Act Permit Types
TILCON NEW YORK INC - NEW WINDSOR FACILITY	50 RUSCITTI RD	New Windsor	NYR00E167	Minor
RAY'S TRANSPORTATION INC	42 ARGENIO DR	New Windsor	NYR00E985	Minor
JOINTA LIME ASPHALT PLANT	20 WORLD TRADE WAY	New Windsor	NYR00F305	Minor
426 TOLEMAN RD	426 TOLEMAN RD	New Windsor	NYR10H066	Minor
STEWART TERRACE	CLARK ST	New Windsor	NYR10K021	Minor
THE GROVE AT NEW WINDSOR	HUDSON VALLEY AVENUE	New Windsor	NYR10L506	Minor
ARMED FORCES RESERVE CENTER	930 RAZ AVE	New Windsor	NYR10N872	Minor
NEW WINDSOR MS4 STORM SEWERS	TOWN-WIDE	New Windsor	NYR20A241	Minor
DANSKAMMER GENERATING STATION	994 RIVER RD	Newburgh	NY0006262	Major
ROSETON GENERATING FACILITY	992 RIVER RD	Newburgh	NY0008231	Major
NEW WINDSOR STP	CAESARS LANE	Newburgh	NY0022446	Major
NEWBURGH (C) WWTP	2 RENWICK STREET	Newburgh	NY0026310	Major
NOB HILL SD WWTP	20-26 UNION AVE EXT	Newburgh	NY0145599	Minor
HESS CORP ROSETON TERMINAL	924 RIVER RD	Newburgh	NY0165328	Minor
STEWART AIRPORT	WEST SIDE OF ROUTE 17K	Newburgh	NY0234915	Minor
STEWART AIR NATIONAL GUARD BASE	1 MILITIA WAY	Newburgh	NY0250457	Minor
NEWBURGH (C)	83 BROADWAY	Newburgh	NYL026310	Minor
FEDEX SWFA FACILITY	100 ENTERPRISE DR	Newburgh	NYR00B912	Minor
NEW PENN MOTOR EXPRESS INC	1000 CORPORATE BLVD	Newburgh	NYR00C467	Minor
ALL RECYCLING INC	277-293 SOUTH WILLIAM ST	Newburgh	NYR00C527	Minor
NEWBURGH SCRAP CO INC	110 MILL ST	Newburgh	NYR00C541	Minor
NFI INDUSTRIES INC	7-9 ORR AVE	Newburgh	NYR00E202	Minor
FEDEX GROUND	3 ENTERPRISE DR	Newburgh	NYR00E749	Minor
NEW ENGLAND LAMINATES	40 GOVERNOR DR.	Newburgh	NYR00E778	Minor
NEWBURGH YACHT CLUB	1 PARK PLACE	Newburgh	NYR00F769 NYU002042	Minor
MEADOW WINDS	100 DELAFIELD LANE	Newburgh	NYR10J232	Minor
WPA ACQUISITION CORP. PROPERTY	SOUTH SIDE OF END OF JEANNE DRIVE	Newburgh	NYR10K192	Minor
NEWBURGH MS4 STORM SEWERS	TOWN-WIDE	Newburgh	NYR20A237	Minor
NEWBURGH MS4 STORM SEWERS	CITY-WIDE	Newburgh	NYR20A240	Minor
NYS OTISVILLE CORRECTIONAL FACILITY	57 SANITORIUM AVENUE	Otisville	NY0033154	Minor
HIDDEN VALLEY ESTATES SD	TOWN HALL, PO BOX 871	Otisville	NY0034436	Minor
OTISVILLE FEDERAL CORRECTIONAL FACILITY	TWO MILE DR	Otisville	NY0037397 NYR20A540	Minor
MOUNT HOPE MS4 STORM SEWERS	TOWN-WIDE	Otisville	NYR20A245	Minor
OTISVILLE MS4 STORM SEWERS	VILLAGE-WIDE	Otisville	NYR20A420	Minor
FIRST STUDENT INC	255 DEPOT ST	Pine Bush	NYR00D385	Minor
PANCO EQUIPMENT CORP	607 CR-1	Pine Island	NY0271357	Minor
PORT JERVIS WASTEWATER TREATMENT PLANT	46 NORTH MAPLE AVE	Port Jervis	NY0026522 NYR00D628	Major, Minor
ORANGE COUNTY TERMINALS	6 SLEEPY HOLLOW RD	Port Jervis	NY0248029	Minor
THE SKYDYNE COMPANY	21 RIVER ROAD	Port Jervis	NYP201900 NYR00E635	Minor

Table 2.8a: Orange County NPDES (National Pollutant Discharge Elimination System) Data (Source: US EPA ECHO (Enforcement and Compliance History Online))				
Facility Name	Street Address	Town/Village/ City/Hamlet	National Pollutant Discharge Elimination System ID	Clean Water Act Permit Types
KOLMAR LABORATORIES	20 WEST KING STREET	Port Jervis	NYR00B272	Minor
THE FORT MILLER SERVICE CORPORATION	40 HAMILTON STREET	Port Jervis	NYR00B273	Minor
CRANESVILLE BLOCK CO	177 STONE CASTLE RD	Rock Tavern	NYR00D762	Minor
WAWAYANDA RIDGEBURY LAKE ACRES SEWER DIS	VIEW POINT DRIVE	Slate Hill	NY0062278	Minor
BALCHEM CORP	2007 RT 284	Slate Hill	NY0081230 NYR00E794	Minor
EBS ASSOC., LLC-DBA ELVREE FARM	3141 ROUTE 6	Slate Hill	NYA000056	Minor
WAWAYANDA MS4 STORM SEWERS	TOWN-WIDE	Slate Hill	NYR20A279	Minor
DEERPARK OIL	65 DARRAUGH LANE	Sparrowbush	NY0264334	Minor
ECKES AUTO BODY	787 RT 42	Sparrowbush	NYR00B897	Minor
INTERNATIONAL PAPER CORP RESEARCH CENTER	1422 LONG MEADOW ROAD	Tuxedo	NY0004863	Minor
S.O.S. FUEL COMPANY	EAST VILLAGE ROAD	Tuxedo	NY0260347	Minor
655 STERLING MINE LLC	655 STERLING MINE RD	Tuxedo	NYR10K791	Minor
TUXEDO PARK (V) STP	WEE WAH ROAD	Tuxedo Park	NY0031216	Minor
TUXEDO HAMLET WWTP	41 CONTRACTORS RD	Tuxedo Park	NY0031224	Minor
WALDEN (V)	VILLAGE HALL	Walden	NYL030490	Minor
SPENCE ENGINEERING INC	150 COLDENHAM RD.	Walden	NYR00C644	Minor
FORSYTHIA RIDGE MOBILE HOME PARK	180 WELD RD	Walkkill	NY0032271	Minor
OLD DOMINION FREIGHT LINE NEWBURGH	300 BALLARD RD	Walkkill	NYR00F809	Minor
MARK STAGE ROAD PROP INC	90 SLAUGHTER ROAD	Walkkill	NYR11A294	Minor
STONY FORD FARM MINING SITE	STAGE ROAD	Walkkill	NYR11A679	Minor
MIDPOINT PK SD WWTP-ROYAL RDG.	ROYAL RIDGE DEVELOPMENT	Wappingers Falls	NY0035637	Minor
JCI JONES CHEMICALS, INC.	103 RIVER ROAD	Warwick	NY0005266	Minor
WARWICK SEWER DISTRICT 1 STP	STATE SCHOOL ROAD	Warwick	NY0021890	Minor
WARWICK (V) WWTP	RIVER STREET	Warwick	NY0023680	Minor
KUTZ CAMP	46 BOWEN RD	Warwick	NY0062448	Minor
GEORGIA PACIFIC CORP	17 FORESTER AVE	Warwick	NYR00E786	Minor
PHARMLINE INC	43 BRIDGE ST	Warwick	NYR00F415	Minor
GREENWOOD LAKE MS4 STORM SEWERS	VILLAGE-WIDE	Warwick	NYR20A117	Minor
WARWICK MS4 STORM SEWERS	TOWN-WIDE	Warwick	NYR20A409	Minor
WASHINGTONVILLE (V) WWTP	1 WALT COLE BLVD	Washingtonville	NY0023671	Minor
GLENWOOD HILLS SD	GLENWOOD RD & ROUTE 27	Washingtonville	NY0215457	Minor
RALPHS MOTOR REPAIRS	12 SOUTH ST	Washingtonville	NYR00C350	Minor
US MILITARY ACADEMY	646 SWIFT RD	West Point	NY0023761 NY0274666	Major, Minor
US ARMY GARRISON	667A RUGER RD	West Point	NYL023761 NYR00D302	Minor
US DEPARTMENT OF THE TREASURY US MINT WEST POINT	RT. 218	West Point	NYR00E656	Minor
DEAN FORD & SONS DAIRY	284 HORTON RD	Westtown	NYA001368 NYAE01368	Minor
RUSHMORE/BRIGADOON WWTP	105 CASTLETON DR	Woodbury	NY0247561	Minor

Energy and Electricity

Power in Orange County is transmitted and distributed by three investor-owned utilities – Central Hudson, Orange & Rockland and New York State Electric and Gas (NYSEG). Homes in the County are heated by many different sources with a majority using fuel oil, utility-provided natural gas, propane and electric. There are 9 electrical sub-stations, owned by Central Hudson, 1 sub-station owned by NYSEG and 15 sub-stations owned by Orange & Rockland. In the Town of Newburgh, there is the Roseton natural gas facility and the Danskammer coal facility.

In the Town of Wawayanda, a natural gas plant is currently under construction.

As discussed in 2.7.4, the Indian Point Energy Center located across the Hudson River from Orange County in Westchester County.

Communication

Orange County is served by a variety of communications systems, including traditional land line, fiber optic, and cellular provided by multiple companies such as Verizon, Direct TV, Cablevision, Time Warner Cable, AT&T, Dish Network, T-Mobile, Sprint, Warwick Valley Phone, Frontier, and Optimum Online. Each carrier has individual plans for emergency situations during hazard events and post disaster recovery efforts. In addition to land line, fiber optic, and cellular communications systems, Orange County has an extensive radio communications network that is utilized by emergency services agencies, hospitals, law enforcement, public works, transportation and other supporting organizations.

Emergency and disaster information is also broadcast from three (3) local radio stations: WHUD 100.7 FM, WFAS 1230 AM, and WJGK 103.1 FM.

Additionally, within the County, there is a large and active amateur radio network. This volunteer Network serves to augment official government emergency services and related agencies during disaster events.

2.8.3 High Impact Facilities

High Impact Facilities are properties or infrastructure that can impact a significant proportion of the population and other property if they are to incur natural hazard damages. These include dams, levees, hazards materials facilities (HAZMAT), nuclear power plants and military installations. This section will discuss dams in Orange County as well as the West Point Military Academy in the Town of Highlands and the Indian Point Energy Center (nuclear power plant) across the Hudson River in Westchester County.

2.8.3.1 Dams

A number of sources were used to identify the quantities and conditions of dams in Orange County. According to the U.S. Army Corps of Engineers National Inventory of Dams (NID), there are 119 dams located within Orange County. These numbers differ from the National Performance of Dam Program (NPDP) which indicates that there are 115 dams in Orange County (22 high hazard, 51 significant hazard, 38 low hazard, and 4 unknown). NYSDEC data from the New York State GIS Clearinghouse indicates that there are 268 dams located in Orange County (197 Class A, 48 Class B, 22 Class C, and 1 unclassified).

In reference to the 268 dams identified in GIS data, dams in New York State are classified in terms of potential for downstream damage in the case of failure. These classifications come from the NYSDEC's draft "Guidance for Dam Hazard Classification" and are as follows:

"(1) Class "A" or "Low Hazard" dam: A dam failure is unlikely to result in damage to anything more than isolated or unoccupied buildings, undeveloped lands, minor roads such as town or county roads; is unlikely to result in the interruption of important utilities, including water supply, sewage treatment, fuel, power, cable or telephone infrastructure; and/or is otherwise unlikely to pose the threat of personal injury, substantial economic loss or substantial environmental damage.

"(2) Class "B" or "Intermediate Hazard" dam: A dam failure may result in damage to isolated homes, main highways, and minor railroads; may result in the interruption of important utilities, including water supply, sewage treatment, fuel, power, cable or telephone infrastructure; and/or is otherwise likely to pose the threat of personal injury and/or substantial economic loss or substantial environmental damage. Loss of human life is not expected.

"(3) Class "C" or "High Hazard" dam: A dam failure may result in widespread or serious damage to home(s); damage to main highways, industrial or commercial buildings, railroads, and/or important utilities, including water supply, sewage treatment, fuel, power, cable or telephone infrastructure; or substantial environmental damage; such that the loss of human life or widespread substantial economic loss is likely. (NYSDEC, No Date (2).)"

Table 2.8b below identifies the locations of Class "C" or "High Hazard" dams within Orange County. Emergency Action Plans (EAPs) are on file with NYSDEC for all of these dams.

Table 2.8b: High Hazard Dams in Orange County (Source, NYSDEC)						
Dam Name	Municipality	River/Stream	Maximum Storage (Acre-Feet)	Dam Height (Feet)	Hazard Potential USACE/YSDEC	EAP State ID#
Arthurs Pond Dam	Cornwall	Moodna Creek	259	27	C	195-3629
Beaver Dam Lake Dam	Blooming Grove	Tr-Moodna Creek	2,644	35	C	195-0502
Chadwick Lake Dam	Newburgh (Town)	Quassaick Creek	3,840	37	C	194-0583
Cornwall Upper Reservoir Dam	Cornwall	Tr-Moodna Creek	222	33	C	195-1148
Earl Reservoir Dam	Woodbury, (Town & Village)	Tr-Woodbury Creek	172	26	C	195-0453
Glenmere Lake Dam	Chester (Town) /Warwick (Town)	Browns Creek	3,327	24	C	179-0460
Goshen Reservoir #1 Dam	Goshen (Town)	Tr-Rio Grande Creek	867	37	C	179-3163
Greenleaf Dike	Mount Hope	Tr-Little Shawangunk Kill	1,633	32	C	164-0563
Lake Cohasset Lower Dam	Tuxedo	Arden Brook	84	21	C	195-0389
Lake Cohasset Upper Dam	Tuxedo	Arden Brook	373	25	C	195-0389A
Lake Frederick Dam	Woodbury (Town)	Tr-Woodbury Creek	273	35	C	195-0825
Lake Stahahe Dam	Tuxedo	Stahahe Brook	737	14	C	196-0374A
Lake Tiorati Dam	Tuxedo	Tiorati Brook	6,000	21	C	195-0374
Little Dam Lake Dam	Tuxedo	Tr-Ramapo River	191	12	C	195-0388
Lower Cragston Lake Dam	Highlands	Tr-Hudson River	34	10	C	213-0808
Lower Warwick Reservoir Dam	Warwick (Town)	Tr-Wawayanda Creek	48	33	C	180-0397
Lower Wee-Wah Lake Dam	Tuxedo Park	Tr-Ramapo River	610	30	C	196-0361
Lusk Reservoir Dam	Highlands	Tr-Hudson River	130	30	C	213-0463
Monhagen Lake Dike	Wallkill	Monhagen Brook	858	20	C	179-0565
Port Jervis Reservoir #1 Dam	Deerpark	Tr-Neversink River	550	20	C	164-0022
Port Jervis Reservoir #2 Dam	Deerpark	Gold Creek	950	41	C	164-0048
Port Jervis Reservoir #3 Dam	Deerpark	Tr-Delaware River	1,570	35	C	164-0038

Table 2.8b: High Hazard Dams in Orange County (Source, NYSDEC)						
Dam Name	Municipality	River/Stream	Maximum Storage (Acre-Feet)	Dam Height (Feet)	Hazard Potential USACE/YSDC	EAP State ID#
Port Jervis Reservoir #3 Dike	Deerpark	Tr-Delaware River	1,570	12	C	164-0039
Silver Stream Reservoir Dam	New Windsor	Silver Stream	2,860	22	C	195-0531
Sterling Forest Lake Dam	Warwick (Town)	Tr-Ringwood Creek	1380	30	C	180-1740
Stillwell Dam	Highlands	Popolopen Creek	2375	62	C	195-4166
Tomahawk Lake Dam	Blooming Grove	Cromline Creek	3,359	25	C	195-2507
Willow Brook Dam	Blooming Grove	Satterly Creek	955	19	C	195-0450
Woodward Dam	Mount Hope	Tr-Little Shawangunk Kill	1,633	30	C	179-0562
YMCA Camp McAlister Dam	Deerpark	Delaware River	155	26	C	164-2234

Tr - Tributary of

*EAP on file at NYSDEC but unable to discern inundation extent

2.8.3.2 Indian Point Energy Center

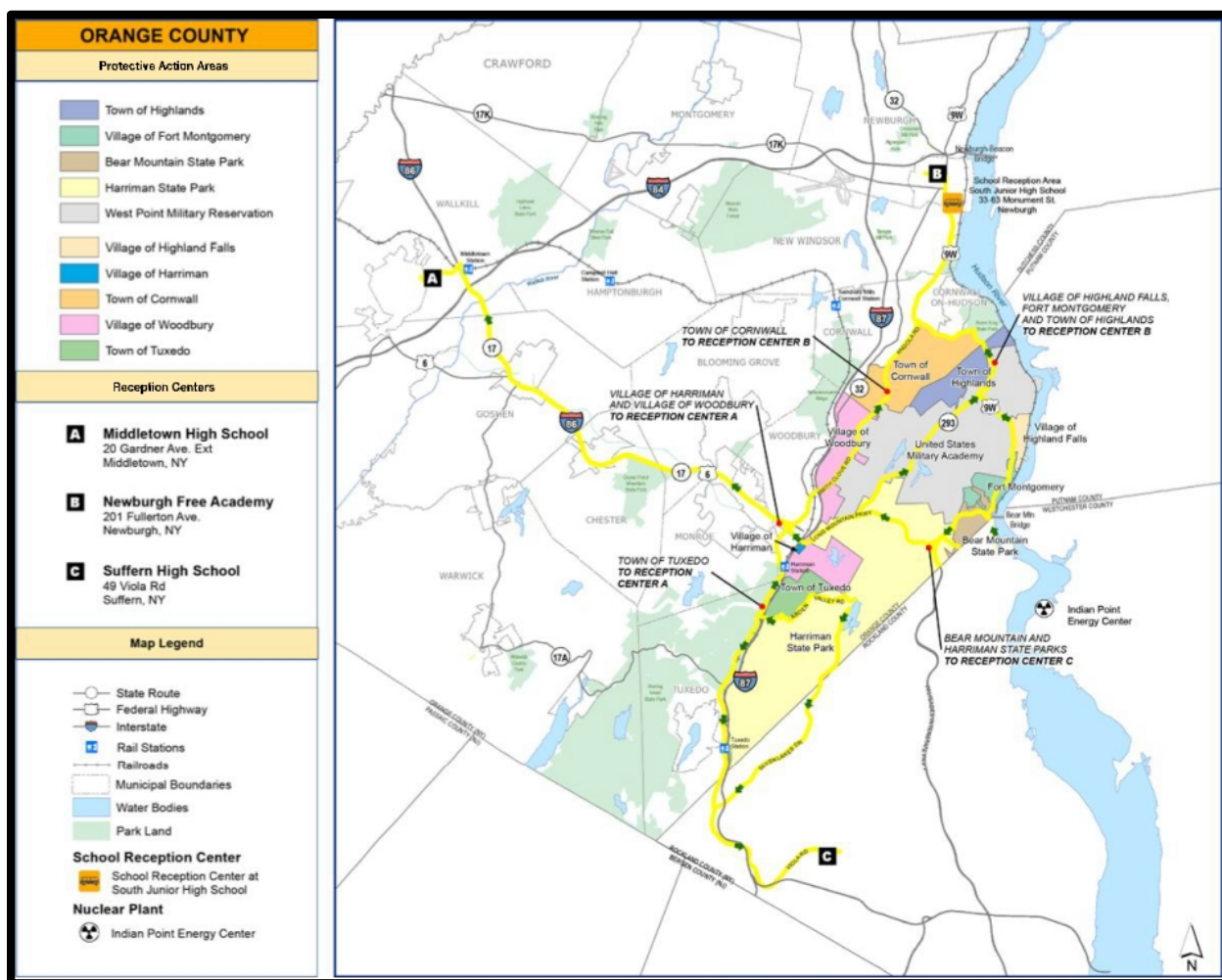
The Indian Point Energy Center is a nuclear facility located in the Town of Buchanan, New York (Westchester County), on the east bank of the Hudson River. The owner and operator of the facility is Entergy Nuclear. Indian Point is responsible for generating approximately 25 percent of the electric power used in New York City and Westchester County (Entergy, 2016).

Though this facility is not physically located in Orange County, Orange County is included in the Emergency Planning for the facility, should an emergency event occur. There are 10 designated Emergency Planning Zones that include areas within Orange County. The names of these Zones and their distances from Indian Point are listed below:

- Village of Highland Falls – 10 miles
- Town of Highlands – 10 miles
- West Point – 5 and 10 miles
- Town of Cornwall (south of Angola Road) – 10 miles
- Village of Woodbury (east of NYS Thruway) – 10 miles
- Village of Harriman (east of NYS Thruway) – 10 miles
- Town of Tuxedo (east of NYS Thruway) – 10 miles
- Fort Montgomery – 5 and 10 miles
- Bear Mountain State Park – 5 miles
- Harriman State Park – 5 and 10 miles

Communities that are located within a 10-mile radius from the Indian Point Facility are included in Protective Action Areas. The Orange County jurisdictions that are included in the 10-mile Action Area are Town of Cornwall, Town of Highlands, Village of Highland Falls, Town of Tuxedo, Village of Woodbury, and Town of Harriman. An Emergency Planning Information Booklet is provided annually to affected populations, households, and businesses within a 10-mile radius of the site so that they may respond safely and appropriately in the event of a nuclear emergency at the facility. Appropriate evacuation routes and general population reception centers are identified in the planning booklet. Two (2) of the identified Reception Centers are located in Orange County: Middletown High School (20 Gardner Avenue Extension) and Newburgh Free Academy (201 Fullerton Avenue).

Figure 2.8b:



2.8.3.3 United States Military Academy at West Point

The West Point Military Academy is in Orange County, which welcomes up to 40,000 visitors/fans for football games, graduations and high-profile visits (such as Presidential visits). Stewart

International Airport receives the President and the President travels through the county to get to West Point. (Orange County CEPA, 2018)

West Point is a 25.1-square-mile, census-designated place located within Orange County. Its population was 6,763 as of the 2010 U.S. Census. The Village of Highland Falls and the Town of Highlands are adjacent to the West Point.

Originally a small fort built during the revolutionary war to control shipping on the Hudson River, the Academy was formally established by Congress in 1802. Since then the Academy has grown to cover almost 16,000 acres (including training areas) and has become a substantial local employer as well as a significant visitor attraction. (2011 Orange County HMP)

As one of the most well-known features in Orange County, the U.S. Military Academy at West Point has long been a high profile facility on both the local and national stages. The area is also somewhat prone to natural hazards such as flooding and rock slides, specifically near NYS Route 18, due to its terrain and proximity to the Hudson River. Wildfires have also posed a threat to the West Point area as recently as 1999.

2.8.4 Government Facilities

Orange County also identified numerous government facilities as critical including municipal offices, department of public works (DPW) properties, post offices, and courthouses. According to County GIS data, there are 97 municipal buildings, 54 post offices, 40 courthouses, 33 DPW facilities, and 2 NYS Department of Transportation facilities in Orange County.

2.9 Orange County Department of Emergency Services

The five divisions of the OCDES include Emergency Communications (911), Emergency Management, Fire Services, Police Liaison Services, and Emergency Medical Services. The OCDES is a county-chartered agency (OC CEPA, 2018). The OCDES Commissioner, whom oversees the five divisions listed above, reports to the County Executive. The Department has 66 full-time employees, 56 of which are assigned to the Division of Emergency Communications.

The Orange County Department of Emergency Services is responsible for the following County-wide services:

- Oversees emergency dispatch and communications system that allows residents to dial 911 to receive emergency medical, fire, police, or other emergency help from any phone in the County;
- Implements County Mutual Aid and Disaster Plans, which provide fire, emergency medical, and other agency assistance when local services have exceeded their local equipment and personnel resources; and
- Provides emergency medical personnel training in coordination with fire training with the NYS Office of Fire Prevention and Control.

Orange County emergency information is posted on the www.orangecountygov.com website (public safety section). Disaster and emergency information is also broadcast from three (3) local radio stations: WHUD 100.7 FM, WFAS 1230 AM, and WJGK 103.1 FM.

Orange County also participates in NY-Alert (NYS's All-Hazards Alert and Notification System). Additionally, the County participates in the National Weather Service's Storm Ready System. Participants can elect to receive emergency information such as road closures and weather alerts through their cell phones (call or text message), E-mail, fax, or really simple syndication (RSS) message. Orange County also has an operating reverse notification Code Red System. A Radio Amateur Civil Emergency Services (RACES) group also operates within the County. This is a volunteer group of amateur radio operators that assist Orange County with communications during disasters and pre-planned events. RACES also act as the Skywarn Spotter Network for the Orange County area, meaning that they supply critical weather observations to the National Weather Service and County Department of Emergency Services.