

8-1 INTRODUCTION

This chapter evaluates any potential effects the Tappan Zee Hudson River Crossing Project may have on socioeconomic conditions and characteristics and identifies potential adverse impacts. The chapter provides a profile of the current population and employment, as well as future trends both for the immediately affected study area and within the regional context of Rockland and Westchester Counties. This analysis concludes that the Replacement Bridge Alternative would not adversely affect the population characteristics of the study areas and would not have adverse impacts on any specific populations, or study area businesses.

Another critical element of the project is the fact that the local and regional population and workforce rely heavily on the New York State Thruway (NYSTA) and the Tappan Zee Bridge as a vital element of regional mobility. For example, according to the New York State Department of Transportation (NYSDOT), of the 503,456 two-way average annual daily bridge crossings for all vehicles in the Lower Hudson Valley, 26 percent cross the Tappan Zee Bridge, 57 percent of total vehicles cross the George Washington Bridge, 13 percent cross the Newburgh-Beacon Bridge, and 4 percent cross the Bear Mountain Bridge.¹ Given the age of the bridge and the vulnerabilities in extreme events, it is susceptible to closure. If the bridge were closed, traffic would be diverted, and the George Washington Bridge and the Newburgh-Beacon Bridge would become more heavily congested, thereby impacting mobility and economic vitality throughout the entire region.

REGULATORY CONTEXT

Regulatory requirements for the implementation of the National Environmental Policy Act (NEPA) and the State Environmental Quality Review Act (SEQRA) call for the assessment of potential socioeconomic impacts as part of an environmental review. This chapter uses the guidance set forth in the Federal Highway Administration's (FHWA's) Technical Advisory T6640.8A Guidance for Preparing and Processing Environmental and Section 4(f) Documents, as well as resources such as the FHWA Environmental Toolkit and the Council on Environmental Quality's (CEQ's) regulations for implementing NEPA (40 CFR §§ 1500-1508). For additional NEPA coordination along with applicable SEQRA guidelines, the New York State Department of Transportation's (NYSDOT's) Project Development Manual was also used in preparing the chapter.

¹ Historical Trends in Auto and Truck Bridge Crossing Volumes, NYSDOT, July 2010.

8-2 METHODOLOGY

8-2-1 STUDY AREA DELINEATION

The socioeconomic study area mirrors the land use study area and approximates the ½-mile perimeter surrounding the project limits. Because the study area is divided by the Hudson River, this chapter refers to western and eastern portions as the Rockland County study area and the Westchester County study area, respectively. The socioeconomic study area generally includes the census block groups that overlap with the ½-mile perimeter around the project limits. Some census block group boundaries have changed between the 2010 Census and the 2000 Census. In order to have a consistent study area between the 2010 and 2000 Census, additional block groups beyond the ½-mile perimeter were included in the study area.

Based on 2010 Census geographies, the Rockland County Socioeconomic Study Area includes the following census block groups: Census Tract 130.03 Block Group 2, and Census Tract 132 Block Groups 1, 2, and 3. The Westchester County Socioeconomic Study Area has been defined to include Census Tract 114 (with Block Groups 1, 2, 3, 4, and 5) and Census Tract 115 (with Block Groups 2 and 3). **Figure 8-1** identifies the tracts and block groups used to delineate the Socioeconomic Study Area.

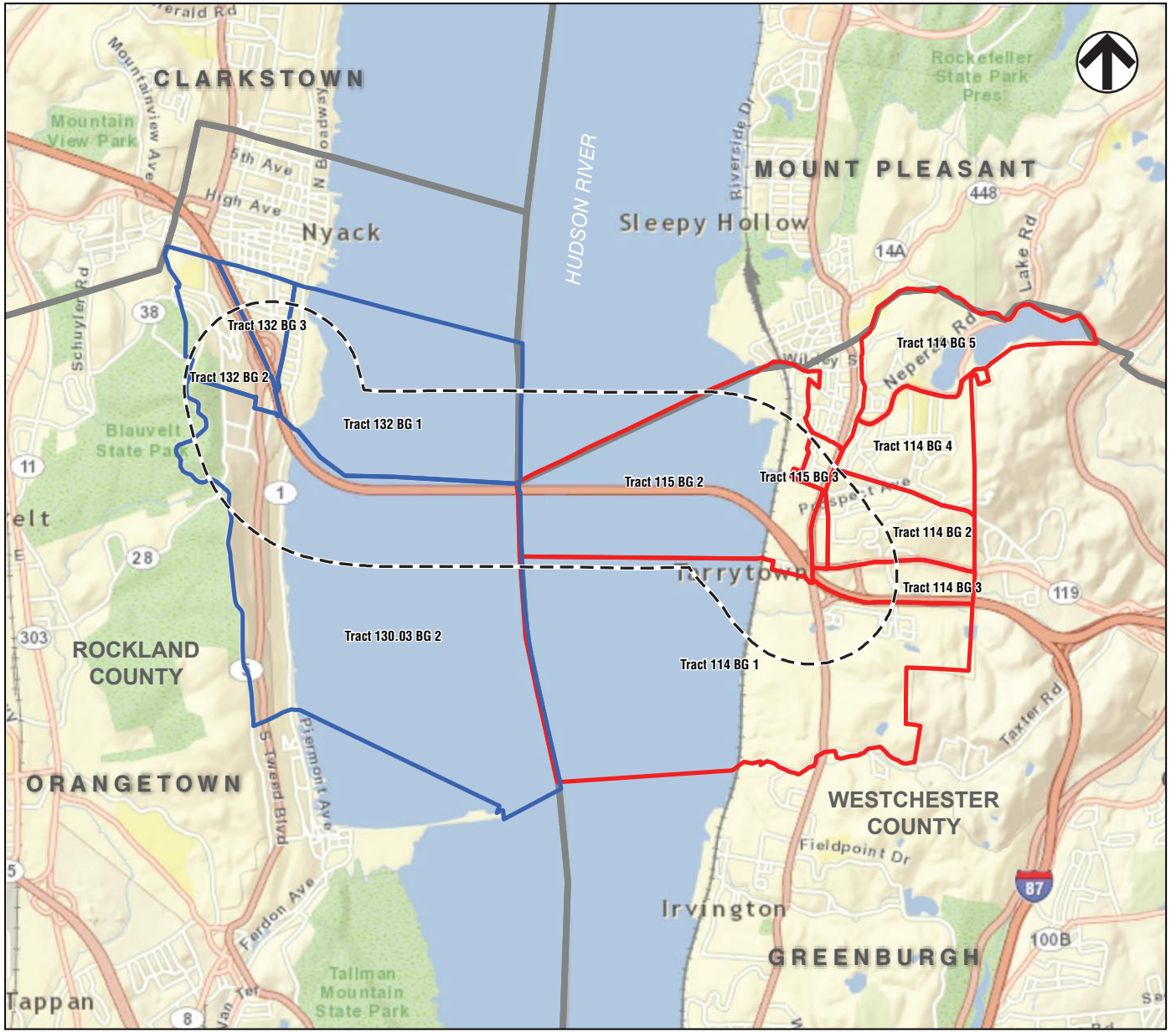
Based on the 2000 Census geographies, the Westchester County study area includes Census Tract 114 Block Groups 1, 2, 3, 4, and 5 and Census Tract 115 Block Groups 3 and 4 (see **Figure 8-2**). In general, the areas covered by these block groups are consistent between the 2000 and 2010 Census. However, the eastern boundary of the study area as defined by 2010 Census geographies does not include a small portion around Route 119 that is included in the study area as defined by the 2000 Census.





The block groups in the Rockland County study area cover the same land area in the 2000 and 2010 Census. The 2006-2010 American Community Survey (ACS) boundaries are consistent with the Census 2010 boundaries.

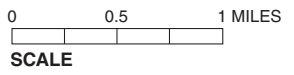
8-2-2 DATA SOURCES

Information used in the socioeconomic conditions analysis includes data from the U.S. Census Bureau's 2010 Census, 2000 Census, and 2006-2010 ACS. Data for 2010 on the number of employees are from ESRI, Inc. (a commercial data provider). Labor force data and unemployment data are from the U.S. Department of Labor's Bureau of Labor Statistics Local Area Unemployment Statistics.

As set forth in NEPA and SEQRA guidance, the data obtained is used to present a socioeconomic profile of the locally affected environment as well as an understanding of the regional context of the study area. This includes population and demographic characteristics as well as workforce characteristics. Potential impacts to be examined include changes in neighborhood or community cohesion for social groups, changes in travel patterns and accessibility, and direct and indirect socioeconomic impacts resulting from displacement and highway safety. As identified in the NYSDOT Project Development Manual, the socioeconomic assessment should also identify potential impacts on specific demographic groups including populations of those with Limited English Proficiency (LEP), elderly citizens, and people with disabilities. This is in addition to the Environmental Justice analyses of low income and minority populations that are presented in Chapter 19, "Environmental Justice."



-  Study Area Boundary
-  Westchester County Study Area
-  Rockland County Study Area
-  County Subdivision



8-3 AFFECTED ENVIRONMENT

This section describes the population and housing characteristics of the study area as it relates to potential indirect residential displacement. It outlines trends in data since 1999 and compares the study area characteristics with characteristics of the respective towns and villages as well as Rockland and Westchester Counties as a whole.

8-3-1 SOCIAL CONDITIONS

8-3-1-1 POPULATION

Table 8-1 presents the population for the study areas, villages, towns, and counties. In 2010, the population in the Rockland County study area was 4,422, an increase of 2.2 percent from the population in 2000. This population growth rate in the Rockland County study area was higher than the two Villages, but lower than the Town of Orangetown and Rockland County. The 2010 population in the Westchester County study area was 8,708, an increase of 3.8 percent from the population in 2000. The population growth rate for the Westchester County study area was higher than all comparison jurisdictions in Westchester County.

**Table 8-1
2000 and 2010 Population**

Geography	Total Population		Percent Change
	2000	2010	2000-2010
Rockland County Study Area	4,328	4,422	2.2%
Village of South Nyack	3,473	3,510	1.1%
Village of Grand View-on-Hudson	284	285	0.4%
Town of Orangetown	47,711	49,212	3.1%
Rockland County	286,753	311,687	8.7%
Westchester County Study Area	8,387	8,708	3.8%
Village of Tarrytown	11,090	11,277	1.7%
Town of Greenburgh	86,764	88,400	1.9%
Westchester County	923,459	949,113	2.8%

Sources: U.S. Department of Commerce, Bureau of Census, Census 2000 and Census 2010

8-3-1-2 POPULATION PROJECTIONS

Table 8-2 shows the New York Metropolitan Transportation Council (NYMTC) population projections for Rockland and Westchester Counties. Population estimates for 2017 are based on annual average population growth rates between 2010 and 2020 (1,260 people per year for Rockland County and 4,130 people per year for Westchester County). In 2017, the population is estimated to be 320,520 in Rockland County and 978,010 in Westchester County.

Population estimates for 2047 are based on annual average growth rates between 2010 and 2040 (1,730 people per year in Rockland County and 6,153 people per year in Westchester County). In 2047, the population is estimated to be 375,710 in Rockland County and 1,176,773 in Westchester County.

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**Table 8-2
NYMTC Population Projections (in 000s)**

	2010	2017 ¹	2020	2030	2040	2047 ¹	2010-2017 Percent Change	2010-2047 Percent Change
Rockland County	311.7	320.5	324.3	339.3	363.6	375.7	2.8%	20.5%
Westchester County	949.1	978.0	990.4	1,055.1	1,133.7	1,176.8	3.0%	24.0%

Note: ¹ 2017 and 2047 population projections were based on extrapolation of NYMTC data.
Source: New York Metropolitan Transportation Council, July 2011

8-3-1-3 AGE DISTRIBUTION

Table 8-3 shows the age distribution for the study areas, villages, towns, and counties. In 2010, the majority of the population in the Rockland County study area and the Westchester County study area was between ages 18 and 64, generally considered working age. The share of the population above 65 years of age represented about 13.1 percent of the Rockland County study area population and about 14.3 percent of the Westchester County study area population. Between 2000 and 2010, the concentration above 65 years in age increased in both study areas.

**Table 8-3
2000 and 2010 Age Distribution**

Geography	School Age (Under 18)		Working Age (Ages 18-64)		Over 65	
	2000	2010	2000	2010	2000	2010
Rockland County Study Area	17.8%	16.0%	69.6%	70.9%	12.6%	13.1%
Village of South Nyack	18.3%	15.0%	70.9%	74.3%	10.8%	10.7%
Village of Grand View-on-Hudson	15.8%	17.9%	63.0%	55.8%	21.1%	26.3%
Town of Orangetown	22.5%	21.6%	61.9%	61.2%	15.6%	17.2%
Rockland County	28.0%	28.1%	60.2%	58.5%	11.8%	13.4%
Westchester County Study Area	20.9%	22.1%	65.1%	63.6%	14.0%	14.3%
Village of Tarrytown	19.7%	21.2%	66.0%	64.3%	14.4%	14.6%
Town of Greenburgh	23.7%	23.0%	61.7%	60.7%	14.6%	16.3%
Westchester County	25.0%	24.0%	61.0%	61.3%	14.0%	14.7%

Sources: U.S. Department of Commerce, Bureau of Census, Census 2000 and Census 2010

8-3-1-4 DISABLED POPULATION

Table 8-4 shows the disability status of residents in the study areas, villages, towns, and counties. Of the non-institutionalized civilian population above 5 years of age, approximately 8.4 percent of the Rockland County study area population and 7.2 percent of the Westchester County study area population had a disability. In comparison, an equal or higher percentage of the populations in the comparative jurisdictions had a disability.

**Table 8-4
2000 Disabled Population**

Geography	Civilian Non-institutionalized population 5 years and over	Disabled Population	Percent
Rockland County Study Area	4,035	338	8.4%
Village of South Nyack	3,289	277	8.4%
Village of Grand View-on-Hudson	260	23	8.8%
Town of Orangetown	44,125	4,546	10.3%
Rockland County	261,757	27,492	10.5%
Westchester County Study Area	7,593	547	7.2%
Village of Tarrytown	10,239	771	7.5%
Town of Greenburgh	80,770	7,852	9.7%
Westchester County	846,105	93,158	11.0%

Notes: No comparable table is available in the 2005-2009 American Community Survey or 2010 Census.
Sources: U.S. Department of Commerce, Bureau of Census, Census 2000

8-3-1-5 HOUSEHOLDS

Table 8-5 shows the number of households and the average household size in the study areas, villages, towns, and counties. In 2000 and 2010, there were 1,569 households in the Rockland County study area. While the Rockland County study area's number of households remained flat during this time period, the number of households increased in the Town of Orangetown and in Rockland County. In 2010, the Westchester County study area had 3,361 households, a 2.2 percent decrease since 2000. In contrast, the number of households increased in the Town of Greenburgh by 1.4 percent and in Westchester County by 3.0 percent during this time period.

**Table 8-5
2000 and 2010 Household Characteristics**

Geography	Households		Percent Change	Average Household Size	
	2000	2010	2000-2010	2000	2010
Rockland County Study Area	1,569	1,569	0.0%	2.41	2.39
Village of South Nyack	1,201	1,197	-0.3%	2.43	2.37
Village of Grand View-on-Hudson	132	128	-3.0%	2.15	2.23
Town of Orangetown	17,330	17,826	2.9%	2.62	2.59
Rockland County	92,675	99,242	7.1%	3.01	3.07
Westchester County Study Area	3,437	3,361	-2.2%	2.33	2.37
Village of Tarrytown	4,533	4,410	-2.7%	2.33	2.36
Town of Greenburgh	33,043	33,495	1.4%	2.57	2.55
Westchester County	337,142	347,232	3.0%	2.67	2.65

Sources: U.S. Department of Commerce, Bureau of Census, Census 2000 and Census 2010

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8-3-1-6 MEDIAN HOUSEHOLD INCOME & POVERTY STATUS

Table 8-6 presents median household income and poverty status for the study areas, villages, towns, and counties. The 2005-2010 median household income for the Rockland County study area was an estimated \$128,626 (in 2012 dollars), which was higher than all comparative jurisdictions in Rockland County except for the Village of Grand View-on-Hudson. As reported in the 2006-2010 ACS, approximately 4.8 percent of the population in the Rockland County study area was living below the poverty level. This was a decrease from 7.1 percent living below the poverty level in 2000. In contrast, the percentage of people living below the poverty level in the Town of Orangetown and in Rockland County increased during this time period.

**Table 8-6
Median Household Income and Poverty Status**

Geography	Median Household Income			Poverty Status	
	1999	<u>2005-2010</u> ²	% Change	2000	<u>2006-2010</u>
Rockland County Study Area ¹	<u>\$101,959</u>	<u>\$128,626</u>	<u>26.2%</u>	7.1%	<u>4.8%</u>
Village of South Nyack	<u>\$75,562</u>	<u>\$103,982</u>	<u>37.6%</u>	8.9%	<u>4.6%</u>
Village of Grand View-on-Hudson	<u>\$186,406</u>	<u>\$150,604</u>	<u>-19.2%</u>	1.4%	<u>4.2%</u>
Town of Orangetown	<u>\$100,479</u>	<u>\$95,616</u>	<u>-4.8%</u>	4.8%	<u>5.6%</u>
Rockland County	<u>\$96,906</u>	<u>\$86,469</u>	<u>-10.8%</u>	9.5%	<u>11.3%</u>
Westchester County Study Area ¹	<u>\$107,303</u>	<u>\$91,634</u>	<u>-14.6%</u>	4.1%	<u>3.0%</u>
Village of Tarrytown	<u>\$98,034</u>	<u>\$84,530</u>	<u>-13.8%</u>	4.7%	<u>5.8%</u>
Town of Greenburgh	<u>\$114,596</u>	<u>\$106,752</u>	<u>-6.8%</u>	3.9%	<u>3.3%</u>
Westchester County	<u>\$90,649</u>	<u>\$83,415</u>	<u>-8.0%</u>	8.8%	<u>8.2%</u>

Notes: ¹ Median household income for the study area was estimated based on a weighted average of median household incomes for the Census block groups in the study area.
² The ACS collects data throughout the period on an on-going, monthly basis and asks for a respondent's income over the "past 12 months." The 2006-2010 ACS data reflects incomes over 2005 and 2010. Census 2000 reflects income data over the prior calendar year (1999). The median household income is presented in 2012 dollars using the U.S. Department of Labor's April 2012 Consumer Price Index for the "New York-Northern New Jersey-Long Island Area."

Sources: U.S. Department of Commerce, Bureau of Census, Census 2000
2006-2010 American Community Survey

The 2005-2010 median household income in the Westchester County study area was \$91,634, which was higher than the median household incomes in the Village of Tarrytown and Westchester County, but lower than the Town of Greenburgh. As reported in the 2006-2010 ACS, approximately 3.0 percent of the population in the Westchester County study area was living below the poverty level. This was a decrease from the 4.1 percent poverty rate in 2000. Similarly, the percentage of the population living below the poverty level also decreased in Westchester County during this time period.

8-3-1-7 HOUSING UNIT CHARACTERISTICS

Table 8-7 presents housing unit characteristics for the study area, villages, towns, and counties. In 2010, there were approximately 1,694 housing units in the Rockland County study area, of which 92.6 percent were occupied and 7.4 percent were vacant. The occupancy rate in the Rockland County study area was comparable to the villages, but lower than the town and the county.

**Table 8-7
Housing Unit Characteristics**

Geography	Housing Units			2010 Occupancy Status		2010 Tenure, All Occupied Units	
	2000	2010	% Change	% Occupied	% Vacant	% Owner Occupied	% Renter Occupied
Rockland County Study Area	1,639	1,694	3.4%	92.6%	7.4%	62.8%	37.2%
Village of South Nyack	1,258	1,292	2.7%	92.6%	7.4%	54.9%	45.1%
Village of Grand View-on-Hudson	138	139	0.7%	92.1%	7.9%	82.0%	18.0%
Town of Orangetown	17,827	18,611	4.4%	95.8%	4.2%	72.1%	27.9%
Rockland County	94,973	104,057	9.6%	95.4%	4.6%	69.3%	30.7%
Westchester County Study Area	3,559	3,582	0.6%	93.8%	6.2%	64.4%	35.6%
Village of Tarrytown	4,688	4,768	1.7%	92.5%	7.5%	56.6%	43.4%
Town of Greenburgh	34,084	35,452	4.0%	94.5%	5.5%	72.7%	27.3%
Westchester County	349,445	370,821	6.1%	93.6%	6.4%	61.6%	38.4%

Sources: U.S. Department of Commerce, Bureau of Census, 2000 and 2010 Census

The Westchester County study area had 3,582 housing units in 2010, of which 93.8 percent were occupied and 6.2 percent were vacant. The occupancy rate in the Westchester County study area was lower than the town, but higher than the village and the county.

8-3-1-8 HOUSING VALUE CHARACTERISTICS

Table 8-8 shows housing value characteristics within the study areas, villages, towns, and counties. The 2006-2010 median home value in the Rockland County study area was \$676,276 and the median contract rent was \$1,614 per month. These were higher than median home values and median contract rents of all comparative jurisdictions in Rockland County except for the Village of Grand View-on-Hudson. The 2006-2010 median home value in the Westchester County study area was \$605,190, and the median contract rent was \$1,298 per month. In comparison, the study area's median home value and median contract rent were higher than Westchester County, but lower than the Town of Greenburgh.

8-3-2 ECONOMIC CONDITIONS

8-3-2-1 LABOR FORCE

Table 8-9 presents labor force data, which includes the total number of people employed or seeking employment for the Town of Orangetown (located in Rockland County), Rockland County as a whole, Town of Greenburgh (located in Westchester County), and Westchester County as a whole. In 2010, the labor force included 26,426 people in the Town of Orangetown, which was 2.0 percent higher than the labor force in 2000.

**Table 8-8
Housing Value Characteristics (2000, 2006-2010)**

Geography	Median Home Value			Median Contract Rent		
	2000	2006-2010	% Change	2000	2006-2010	% Change ¹
Rockland County Study Area	<u>\$493,270</u>	<u>\$676,276</u>	<u>37.1%</u>	<u>\$1,294</u>	<u>\$1,614</u>	NA
Village of South Nyack	<u>\$360,617</u>	<u>\$558,520</u>	<u>54.9%</u>	<u>\$1,273</u>	<u>\$1,545</u>	NA
Village of Grand View-on-Hudson ²	<u>\$950,630</u>	<u>\$1,047,683+</u>	<u>10.2%</u>	<u>\$1,659</u>	<u>\$2,095+</u>	NA
Town of Orangetown	<u>\$362,968</u>	<u>\$554,015</u>	<u>52.6%</u>	<u>\$1,182</u>	<u>\$1,256</u>	NA
Rockland County	<u>\$323,975</u>	<u>\$499,640</u>	<u>54.2%</u>	<u>\$1,121</u>	<u>\$1,174</u>	NA
Westchester County Study Area	<u>\$420,823</u>	<u>\$605,190</u>	<u>43.8%</u>	<u>\$1,447</u>	<u>\$1,298</u>	NA
Village of Tarrytown	<u>\$389,516</u>	<u>\$583,350</u>	<u>49.8%</u>	<u>\$1,251</u>	<u>\$1,291</u>	NA
Town of Greenburgh	<u>\$407,492</u>	<u>\$612,475</u>	<u>50.3%</u>	<u>\$1,300</u>	<u>\$1,394</u>	NA
Westchester County	<u>\$395,185</u>	<u>\$583,454</u>	<u>47.6%</u>	<u>\$1,081</u>	<u>\$1,149</u>	NA

Notes:
¹ Median contract rent is not comparable between Census 2000 and the 2006-2010 ACS study since the universe in the ACS is "renter occupied," whereas the universe in Census 2000 was "specified renter-occupied housing units."
² The median value for Village of Grand View-on-Hudson over the 2006-2010 time period was "\$1,000,000+." For purposes of analysis, this was conservatively compared the 2000 median value to the minimum value "\$1,047,683."
³ All dollars presented are in 2012 dollars using the U.S. Department of Labor's April 2012 Consumer Price Index for the "New York-Northern New Jersey-Long Island Area."

Sources: U.S. Department of Commerce, Bureau of Census, 2000 Census and 2006-2010 American Community Survey

**Table 8-9
Average Annual Labor Force**

Geography	2000	2010	% Change
Town of Orangetown	25,916	26,426	2.0%
Rockland County	144,920	151,930	4.8%
Town of Greenburgh	47,991	49,512	3.2%
Westchester County	463,956	481,042	3.7%

Notes: Data is only available for cities and towns with populations above 25,000.
Sources: U.S. Department of Labor, Bureau of Labor Statistics, Local Area Unemployment Statistics

In comparison, the labor force in Rockland County grew by 4.8 percent during this time period. In 2010, the Town of Greenburgh's labor force included 49,512 people, which was 3.2 percent higher than the labor force in 2000. This growth rate was comparable to Westchester County's 3.7 percent growth rate.

8-3-2-2 EMPLOYMENT

Table 8-10 and **Table 8-11** show employment by sector in the study areas, villages, towns, and counties. In 2010, there were an estimated 600 employees at 101 businesses in the Rockland County study area. Approximately 62.7 percent of

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employment in the Rockland County study area was concentrated in the educational services sector. The next highest concentration of employment in the study area was in the professional, scientific, and technical services sector, representing 11.2 percent of employment in the study area.

**Table 8-10
2010 Employment—Rockland County Study Area**

Sector	Rockland County Study Area		Village of South Nyack		Village of Grand View-on-Hudson		Town of Orangetown		Rockland County	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Agriculture, forestry, fishing and hunting, and mining	0	0.0%	0	0.0%	0	0.0%	133	0.5%	386	0.3%
Utilities	1	0.2%	1	0.2%	0	0.0%	829	3.2%	1,082	0.9%
Construction	10	1.7%	7	1.2%	0	0.0%	803	3.1%	4,405	3.8%
Manufacturing	6	1.0%	2	0.3%	0	0.0%	2,686	10.3%	7,326	6.3%
Wholesale trade	2	0.3%	2	0.3%	0	0.0%	1,812	7.0%	8,336	7.2%
Retail trade	12	2.0%	6	1.0%	2	13.3%	2,070	8.0%	12,647	10.9%
Transportation and warehousing	0	0.0%	0	0.0%	0	0.0%	459	1.8%	3,059	2.6%
Information	4	0.7%	4	0.7%	0	0.0%	759	2.9%	2,121	1.8%
Finance and insurance	3	0.5%	3	0.5%	0	0.0%	1,105	4.3%	3,329	2.9%
Real estate and rental and leasing	24	4.0%	24	4.2%	0	0.0%	467	1.8%	3,140	2.7%
Professional, scientific, and technical services	67	11.2%	59	10.3%	6	40.0%	2,332	9.0%	7,191	6.2%
Management of companies and enterprises	0	0.0%	0	0.0%	0	0.0%	0	0.0%	104	0.1%
Admin., support, waste mgmt, and remed. svcs.	1	0.2%	0	0.0%	1	6.7%	516	2.0%	3,147	2.7%
Educational services	376	62.7%	376	65.7%	0	0.0%	3,252	12.5%	14,872	12.8%
Health care and social assistance	42	7.0%	40	7.0%	2	13.3%	4,205	16.2%	16,813	14.5%
Arts, entertainment, recreation	4	0.7%	4	0.7%	0	0.0%	288	1.1%	1,940	1.7%
Accommodation and food services	2	0.3%	2	0.3%	0	0.0%	1,637	6.3%	7,364	6.4%
Other services (except public administration)	14	2.3%	13	2.3%	1	6.7%	1,225	4.7%	6,246	5.4%
Public administration	32	5.3%	29	5.1%	3	20.0%	1,187	4.6%	11,483	9.9%
Unclassified Establishments	0	0.0%	0	0.0%	0	0.0%	208	0.8%	808	0.7%
Total	600	100.0%	572	100.0%	15	100.0%	25,973	100.0%	115,799	100.0%

Source: ESRI Business Analyst, Inc, Business Summary Report

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**Table 8-11
2010 Employment—Westchester County Study Area**

Sector	Westchester County Study Area		Village of Tarrytown		Town of Greenburgh		Westchester County	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Agriculture, forestry, fishing and hunting, and mining	2	0.1%	2	0.0%	227	0.5%	714	0.2%
Utilities	0	0.0%	2	0.0%	2	0.0%	1,491	0.4%
Construction	129	3.7%	174	3.0%	1,772	3.8%	18,555	4.6%
Manufacturing	135	3.9%	169	2.9%	3,364	7.2%	29,528	7.3%
Wholesale trade	132	3.8%	203	3.5%	2,170	4.6%	19,988	4.9%
Retail trade	264	7.6%	886	15.1%	6,273	13.4%	48,900	12.1%
Transportation and warehousing	0	0.0%	13	0.2%	1,407	3.0%	11,332	2.8%
Information	117	3.4%	184	3.1%	1,416	3.0%	9,688	2.4%
Finance and insurance	210	6.1%	720	12.3%	1,943	4.1%	20,609	5.1%
Real estate and rental and leasing	131	3.8%	150	2.6%	1,264	2.7%	12,721	3.1%
Professional, scientific, and technical services	407	11.8%	520	8.9%	3,838	8.2%	27,663	6.8%
Management of companies and enterprises	51	1.5%	51	0.9%	51	0.1%	493	0.1%
Admin., support, waste mgmt, and remed. svcs.	52	1.5%	79	1.3%	1,558	3.3%	16,560	4.1%
Educational services	369	10.7%	420	7.2%	5,741	12.2%	39,620	9.8%
Health care and social assistance	276	8.0%	537	9.2%	4,841	10.3%	59,398	14.7%
Arts, entertainment, recreation	94	2.7%	108	1.8%	1,384	3.0%	11,030	2.7%
Accommodation and food services	557	16.1%	716	12.2%	3,924	8.4%	22,834	5.6%
Other services (except public administration)	369	10.7%	515	8.8%	3,424	7.3%	23,226	5.7%
Public administration	147	4.3%	397	6.8%	2,156	4.6%	28,223	7.0%
Unclassified Establishments	10	0.3%	12	0.2%	153	0.3%	2,310	0.6%
Total	3,452	100.0%	5,858	100.0%	46,908	100.0%	404,883	100.0%
Source: ESRI Business Analyst, Inc, Business Summary Report								

In 2010, there were 3,452 employees at 456 businesses in the Westchester County study area. The largest concentration of employment was in the accommodations and food services sector, representing 16.1 percent of total employment. The professional, scientific, and technical services sector had the next highest concentration, representing 11.8 percent of total employment. Educational services and other services followed, representing 10.7 of total employment in the study area.

8-3-2-3 UNEMPLOYMENT

Table 8-12 presents unemployment and the unemployment rate in the Town of Orangetown, Rockland County, Town of Greenburgh, and Westchester County. In 2010, there were 1,740 unemployed people in the Town of Orangetown, which represented 6.6 percent of the total labor force. Approximately 6.3 percent of the labor force was unemployed in the Town of Greenburgh. Rockland and Westchester Counties had higher unemployment rates compared to the towns at 7.1 percent and 7.2 percent, respectively.

**Table 8-12
Unemployment**

Geography	Unemployed		Unemployment Rate	
	2000	2010	2000	2010
Town of Orangetown	796	1,740	3.1%	6.6%
Rockland County	4,749	10,862	3.3%	7.1%
Town of Greenburgh	1,465	3,134	3.1%	6.3%
Westchester County	15,644	34,873	3.4%	7.2%

Sources: U.S. Department of Labor, Bureau of Labor Statistics, Local Area Unemployment Statistics

8-4 ENVIRONMENTAL EFFECTS

8-4-1 NO BUILD ALTERNATIVE

As noted in Chapter 2, “Project Alternatives,” the No Build Alternative would involve the continued operation of the existing seven-lane bridge with ongoing maintenance to keep the bridge in a state of good repair. Over the next decade, NYSTA estimates that it would spend \$1.3 billion to maintain the bridge in a state of good repair. Despite this considerable expenditure, the structural, operational, safety, and mobility needs of the Tappan Zee Hudson River crossing would not be corrected.

Given its age and vulnerabilities, the existing bridge is susceptible to extreme events and potential closure. If the bridge were closed, this vital link between the population and employment centers of Rockland and Westchester Counties would be removed, causing a break in the regional and national transportation network. As a result, the local and regional population and workforce would be adversely affected by the No Build Alternative.

Given that the regional population could be adversely affected by the No Build Alternative, there could be socioeconomic impacts on specific populations of the elderly, disabled, and low-income and minority populations (which are also discussed in more detail in Chapter 19, “Environmental Justice”).

8-4-2 REPLACEMENT BRIDGE ALTERNATIVE

The Replacement Bridge Alternative would ensure the long-term viability of the Hudson River crossing between Rockland and Westchester Counties, and would provide benefits to local and regional populations and workforce in terms of improved operational mobility and safety (see Chapter 4, “Transportation”). Further, the Replacement Bridge Alternative would correct the structural, operational, safety, or mobility needs of the existing bridge.

As set forth in Chapter 4, “Transportation,” the Replacement Bridge Alternative would not alter highway capacity or traffic volumes. As such, there is no anticipated project-related effect on long-term population or workforce characteristics in Rockland or Westchester County and the long-term forecasts by NYMTC for all the counties in the region would remain unchanged. Thus, the Replacement Bridge Alternative would not alter the demographic profile as described in Section 8-4, “Affected Environment.” Specific localized changes resulting from the Replacement Bridge Alternative are described below.

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8-4-2-1 SOCIAL CONDITIONS

Rockland County

The Replacement Bridge Alternative would not adversely affect the population characteristics of the study area. As noted in Chapter 6, “Land Acquisition, Displacement, and Relocation,” no residential units in Rockland County would be displaced by the Replacement Bridge Alternative. Therefore, the project would not adversely impact the population characteristics of the Rockland County study area, and no adverse socioeconomic impacts would be expected for specific populations of the elderly or disabled populations. While no residential units would be directly displaced, the project is expected to result in the partial acquisition of and permanent easement on one property located in the Village of South Nyack. The partial acquisition would result in the loss of up to 16 parking spaces. As identified in Chapter 6, “Land Acquisition, Displacement, and Relocation,” the extremely small loss of property tax revenue associated with the partial acquisition and permanent easement would not affect the overall economic base of the community, representing a negligible loss in assessment base.

Given the small changes to the local study area, and the lack of overall changes to demographic characteristics generated by the Replacement Bridge Alternative, there would be no expected socioeconomic impact on specific populations of the elderly or disabled populations. In addition, the Replacement Bridge Alternative would not result in any disproportionately high and adverse impacts on minority and low-income populations (see Chapter 19, “Environmental Justice”). On the other hand, the Replacement Bridge Alternative would provide benefits to local and regional populations in terms of improved operational mobility and safety.

Westchester County

As noted in Chapter 6, “Land Acquisition, Displacement, and Relocation,” no residential units in Westchester County would be displaced by the project. Therefore, the project would not adversely impact the population characteristics of the Westchester County study area, and no adverse socioeconomic impacts would be expected for specific populations of the elderly or disabled populations. While no residential units would be displaced, the project would involve a permanent easement on one property in the Town of Greenburgh. The property subject to easement is a small 0.084-acre vacant area in the southwest corner of the larger, 11.3-acre property of The Quay condominiums (or about 0.74 percent of its total land area). A 0.050-acre vacant area would also be required for partial acquisition (or about 0.44 percent of its total land area). In addition, the project would require certain other property rights via acquisition or easements on public rights-of-way or underwater land grants that would not affect private property owners. As identified in Chapter 6, “Land Acquisition, Displacement, and Relocation,” this would result in an extremely small percentage loss of the overall tax levies to these taxing jurisdictions and would have no appreciable impact on total tax revenues. In addition, the Replacement Bridge Alternative would not result in any disproportionately high and adverse impacts on minority and low-income populations (see Chapter 19, “Environmental Justice”). However, as discussed above, the Replacement Bridge Alternative would provide benefits to local and regional populations in terms of improved operational mobility and safety.

8-4-2-2 ECONOMIC CONDITIONS

As discussed above, the Replacement Bridge Alternative would provide benefits to local and regional workforce in terms of improved operational mobility and safety. The Replacement Bridge Alternative would not alter overall regional capacity and future traffic volumes would be expected to be the same with or without the project. As a consequence, there would be no anticipated project-related effect on long-term workforce characteristics in Rockland or Westchester County and the long-term forecasts by NYMTC for all the counties in the region remain unchanged.

As discussed in Chapter 6, "Land Acquisition, Displacement, and Relocation," no businesses (or employees) would be directly displaced by the Replacement Bridge Alternative. Also, as noted in Chapter 5, "Community Character," the Replacement Bridge Alternative would be compatible with the existing and potential commercial development in the areas south of Interstate 87/287.

8-4-2-3 SOCIAL AND ECONOMIC EFFECTS OF POTENTIAL TOLL ADJUSTMENTS

Tolls for Hudson River crossings have always been present and are a component of the cost of regional mobility. The Tappan Zee tolls have typically been lower than the George Washington Bridge to the south, and more than the Bear Mountain and Interstate 84 crossings to the north, which have more limited access and proximity to key centers of employments and housing.

As discussed in Chapter 2, "Project Alternatives," the project would be financed with toll revenue bonds among a broad range of options under consideration. The level and timing of potential toll adjustments, debt structure, and balance between debt and pay-as-you-go funding remain under development. Whatever the outcome, the level of cash tolls on the replacement bridge is not expected to exceed those approved by the Port Authority of New York and New Jersey and the New York Metropolitan Transportation Authority (MTA). The replacement bridge would be self-supporting, and the financial planning process assumes no financial contributions from the balance of the Thruway system.

Therefore, to evaluate how potential toll adjustments may affect travel at the Tappan Zee Hudson River crossing, NYSTA prepared a diversion analysis (see **Appendix B**), which assumes toll rates are potentially aligned with the levels of other Hudson River crossings operated by the Port Authority of New York and New Jersey. The analysis revealed only minimal diversion or elimination of trips. As this analysis found minimal diversion or elimination of trips, it is not expected that the potential toll adjustments would result in regional shifts in employment and housing in Rockland or Westchester County.

This is consistent with other studies and assessments of the socioeconomic impact of both newly implemented tolling or increases to existing tolls. Several studies were reviewed: "Transport and Location Effects of Road Pricing: A Simulation Approach," "The Importance of Transport in Business' Location Decisions," "Location Choice vis-à-vis Transportation: The Case of Recent Homebuyers," and "The Effect of Gasoline

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Prices on Household Location.”¹ This research—an assessment of broader issues, such as congestion pricing (toll-ring strategies) or the costs of transportation (such as gasoline pricing) in the United States and in Europe—generally had similar conclusions regarding the relatively small impact on business location decision-making, housing, and workplace choices.

In terms of more discretionary travel on the Bridge (i.e., personal travel, shopping, and recreation), it is noted that a wide variety of activities and destinations are located throughout the region on both sides of the bridge and the bridge provides important access for such trip-making. Given that such discretionary trips are more destination oriented (versus the more predominate and frequent convenience shopping which is inherently more localized and the river would be a clear primary trade area boundary), these trips are already taking into consideration a variety of factors of cost (existing tolls, gasoline) and time. Since the region already has a diversity tolling expenses ranging from the Port Authority crossings, the Tappan Zee and the Bear Mountain and Newburgh bridges, the potential toll adjustments on the proposed Tappan Zee Hudson River crossing would not be expected to dramatically change discretionary trip-making. This is borne out in the weekday off-peak trip diversion estimates as set forth in **Appendix B** which shows a level of trip diversion of about 8 percent on a daily basis and a marginal change in daily Vehicle Miles Traveled (VMT). This would be expected to be similar for weekend travel on the bridge.

8-5 MITIGATION

The Replacement Bridge Alternative would not adversely impact the study area populations, elderly or disabled populations; or study area businesses. Therefore, mitigation is not required.

¹ <http://www.federalreserve.gov/pubs/feds/2010/201036/201036pap.pdf>;
http://www.ce.utexas.edu/prof/kockelman/public_html/TRB06HomeChoice.pdf;
http://www.stopstanstedexpansion.com/documents/SSE10_Appendix_9.pdf;
<http://docserver.ingentaconnect.com/deliver/connect/lse/00225258/v35n3/s5.pdf?expires=1339438132&id=69235135&titleid=1311&accname=Guest+User&checksum=2C7E5D3BDFB68601C8F9F1DC9C9C5FDD>