



TECHNICAL MEMORANDUM 4:

2017 Baseline Final Forecast Results

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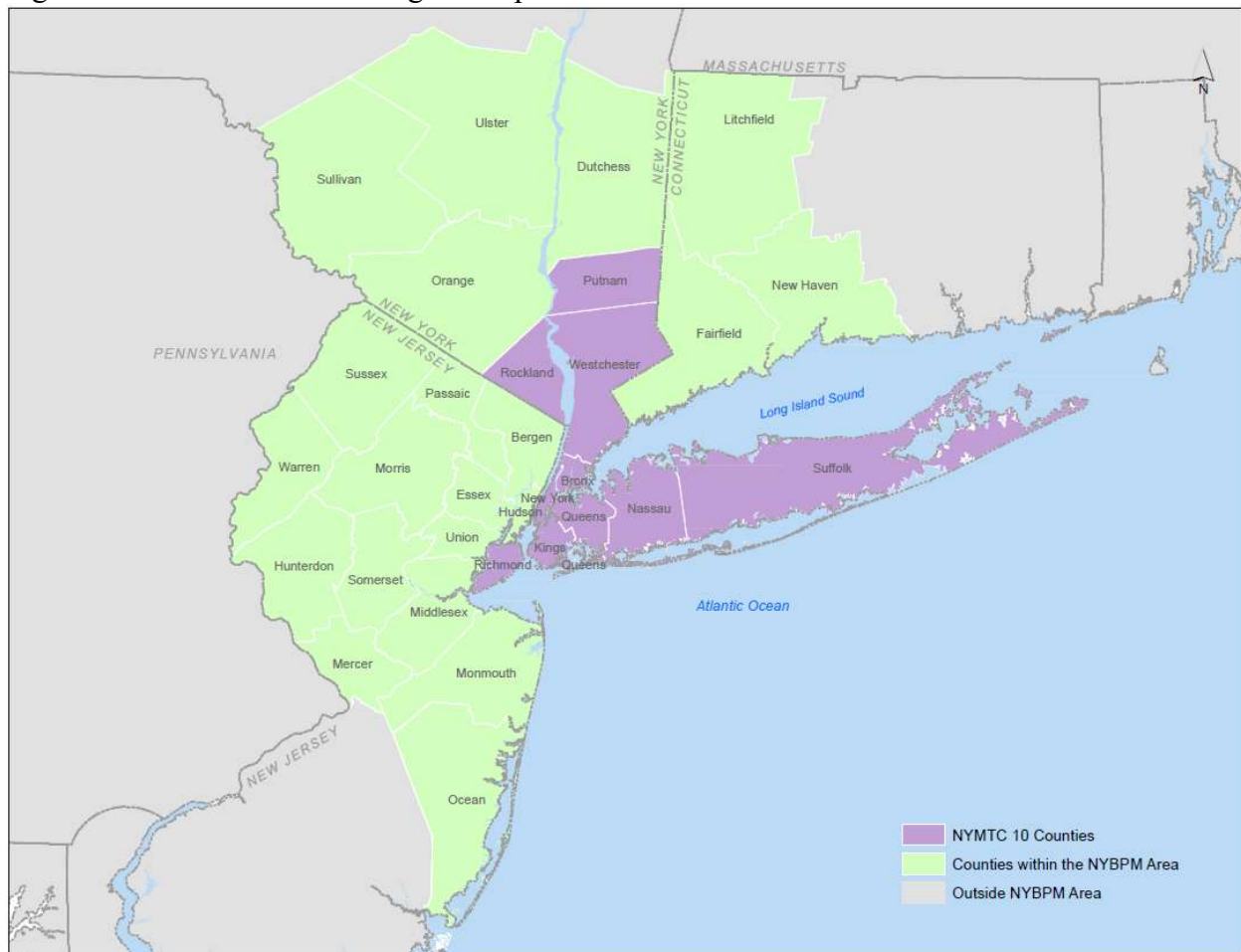
1.0 Introduction

The New York Metropolitan Transportation Council (NYMTC) is a regional council of governments (COG) that is the metropolitan planning organization (MPO) for New York City, Long Island and the lower Hudson Valley. NYMTC provides a collaborative planning forum to address transportation-related issues, develop regional plans and make decisions on the use of federal transportation funds.

Socioeconomic and demographic (SED) forecasts are produced in response to requirements of the Metropolitan Transportation Planning Regulations (23CFR 450.324(e)). They are crucial components in the development of regional transportation plans, transportation conformity analysis, congestion management process, and decision-making on the use of these funds.

NYMTC's forecasts are updated every four years and produced in five-year intervals for counties within the following subregions: New York City; Long Island; Mid-Hudson; New Jersey (14 counties); and Connecticut (3 counties).

Figure 1. NYMTC NYBPM Region Map



Source: NYMTC

In order to update the 2050 SED Forecasts, NYMTC charged WSP and Urbanomics, in collaboration with the New York City Department of City Planning (NYCDCP), to update the

existing 2050 employment, population, household, and labor force forecast models, as well as the TAZ distribution model (2012 base year), to a 2017 base year using the same data sources as in the original 2050 SED forecast models, and then extend the forecast period from 2050 to 2055. These models were created by the Louis Berger Group (LBG) for the original 2050 SED Forecasting effort and were described in detail in their accompanying technical memoranda.

Coordination Efforts in the NYMTC Planning Area

The SED forecasts are developed under the guidance of the NYMTC Forecasting Working Group (FWG). The FWG is comprised of multiple state and agency stakeholders who review work products related to the development of SED forecasts for the 31-county planning area. The FWG consists of representatives of New York City agencies, each of the Long Island and Mid-Hudson counties, as well as North Jersey Transportation Planning Agency (NJTPA) and several Connecticut Councils of Governments (COGs) in southwestern Connecticut, the Metropolitan Transportation Authority (MTA), New York State Department of Transportation (NYSDOT), Port Authority of New York and New Jersey (PANYNJ), Federal Transit Administration (FTA), Federal Highway Administration (FHWA), as well as other agency and academic members.

The project was initiated in January 2019. The FWG met in person and virtually seven times from the FWG kickoff meeting on March 22, 2019 to August 19, 2020 to provide guidance and insights, and to review progress and work products. After more than one dozen iterations of the forecast updates, the FWG agreed to 2055 SED forecasts presented herein for public review.

Throughout the process, in addition to the FWG meetings, the project team held meetings and calls with NYMTC stakeholders to gain insights into general population and employment trends, as well as detailed information on planned or started developments to inform the distribution of forecasts to the Traffic Analysis Zone level. The project team included two staff members from New York City Department of City Planning (NYCDCP) to ensure close coordination with that agency so that the 2055 SED forecasts align with NYCDCP's own population forecasts. The project team coordinated with NJTPA and western Connecticut councils of government to ensure that the 2055 SED forecasts reflect the input and knowledge of these neighboring MPOs.

COVID-19 Impacts to Forecasts

The NYMTC region has been profoundly struck by the COVID-19 pandemic. New York City and the surrounding suburban counties have suffered more than 44,000 COVID-19 related deaths from February 1 2020 to September 8 2020 and among the sharpest rise in unemployment in more than 70 years. The pandemic has disrupted financial markets, employment, shipping, retail, hospitality and other industries. State stay-at-home orders and the loss of employment have sharply reduced travel on local transportation systems resulting in a significant reduction to highway, bridge, and public transit system revenues. Because development of the 2055 SED NYMTC forecasts began nearly two years ago and data inputs to the model are released on a delayed schedule and do not yet reflect recent trends, its ability to reflect immediate or longer-term effects of the COVID-19 pandemic and economic shock is constrained.

To determine how to address this ongoing unprecedented national emergency in the forecasts, on May 13, 2020, the FWG met virtually via webinar to discuss the potential impacts of the pandemic. The presentation that began the meeting quantified the availability of the affected data inputs to the model (e.g., unemployment and deaths), professional opinions on the extent and length of the

economic disruption from economists around the country, as well as information on how other MPOs are dealing with the crisis. The forecast process had already incorporated assumptions of multiple economic cycles into its long term outlook, and, in light of the occurrence of a significant downturn in 2020, some adjustments have been made to reflect short-term economic conditions. However, because of the lack of sufficient basis data and the ongoing nature of the economic crisis, it is anticipated the forecast will diverge from economic conditions in the early years of the forecasting period. In addition, population figures are baselined on data derived from the 2010 census, which entails substantial uncertainty (recent population estimates may diverge from the population enumerated in 2020).

The primary purpose of this forecast is its long term outlook, which is less susceptible to short term volatility. While the highly unusual nature of the pandemic and economic crisis may result in as-yet unforeseen changes, there is a stronger basis for the long-term projections and the use of 20-30 year change increments for analytic purposes.

The FWG worked throughout the summer to reconcile the employment and population forecasts, before agreeing to the employment and population forecasts on August 21, 2020 following a FWG meeting on August 19, 2020. As new data emerges about the full scope of the impact of the pandemic and economic shock on regional employment and population trends, that information will be incorporated into the next vintage of forecasts.

This memorandum presents the accepted 2055 SED forecasts.

2.0 Employment

2.1 Methodological Overview

The 2055 SED employment forecasts total jobs (both payroll¹ and proprietor) by place of work as modeled by the update of the 2015 Employment Model and adjusted to reflect the insights of the FWG.

2.1.1 Adjustments to the 2055 SED Employment Forecasts

In order to get closer to the regional target and reflect changes in regional land use, including significant development in New York City and northern New Jersey, the county level forecasts were adjusted within the model in keeping with the established methodology. The adjustments to the employment model resulted in the forecasts presented in *Technical Memorandum 3.1: Draft Employment, Population, and Labor Force* submitted on January 17, 2020. The comments made on the January 17, 2020 document, as well as related discussions led to consensus being reached at the February 12, 2020 FWG meeting, resulted in agreement to move on with the distribution to be used for populating the Population and Labor Force models. Further, in keeping with the scope of work, the resulting forecasts were projected to 2055, using a simple least squares linear trend of the forecast based on the years 2000-2050.

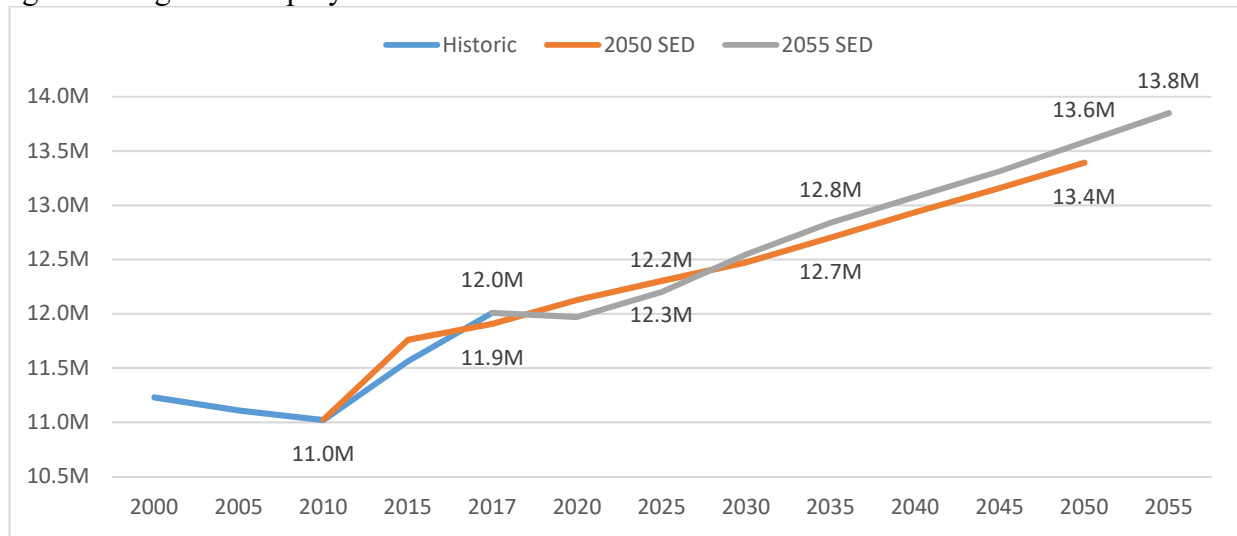
2.1.2 COVID-19 Adjustments

To address the desire to adjust for COVID-19, the project team coordinated closely with the FWG members. After several scenarios and adjustments, with significant input and discussions among the project team and FWG members, the agreed-upon forecasts reflect a uniform adjustment applied at the county-level in the employment model that created a “lag” in employment in 2020, roughly back to 2017 levels. The adjustments are applied to the averages of the various driver scenarios, so that while the same adjustment factors were used, the resulting differential varies from county to county. After the employment lag was created, employment was reconciled with population and labor force distribution. Because this forecast effort is an update of the previous set of models, Figure 2 shows the 2055 SED forecast in comparison with the 2050 SED Forecasts adopted in 2015.

¹ Please note: payroll employment drawn from the Quarterly Census of Employment and Wages includes all jobs, both full- and part-time.

2.2 Regional Model Results

Figure 2. Regional Employment Forecasts: 2050 SED and 2055 SED Forecast

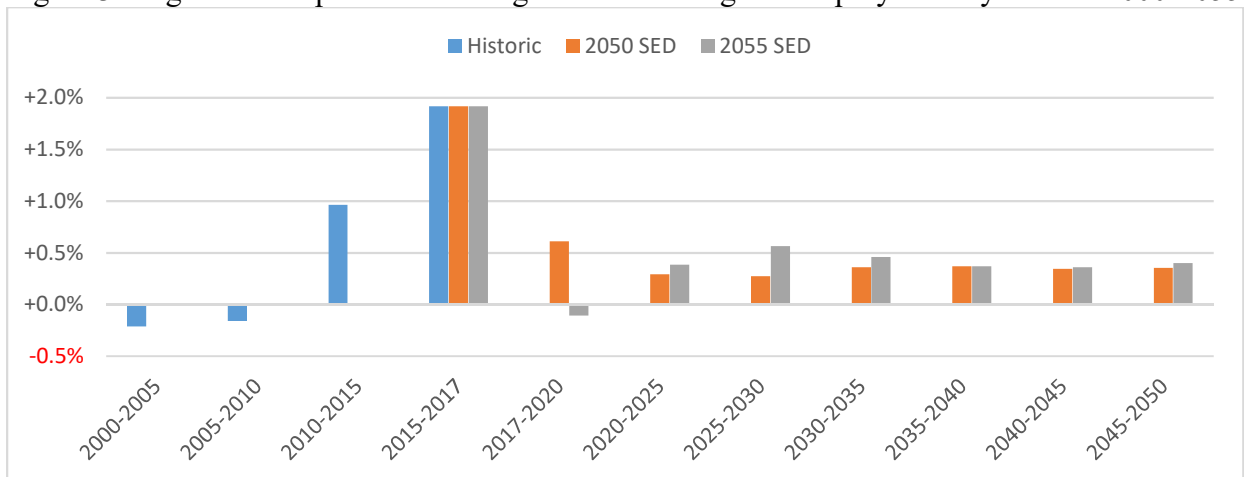


Source: Bureau of Labor Statistics' Current Employment Statistics (CES) and Quarterly Census of Employment and Wages (QCEW); American Community Survey (ACS); NYMTC 2050 & 2055 SED Forecasts

Note: Total employment includes full- and part-time payroll employment, self-employment and unpaid family work. Labeled for the years of 2010, 2017, 2025, 2050, and 2055.

Figure 3 shows the annual average change in regional employment for the two forecasts. As shown, the 2055 SED forecast shows employment retracting slightly between 2017-2020 and subsequently rebounding in the 2020-2025 period. Growth rates forecasted for each five-year period thereafter are projected to be slightly weaker but remain above the previously forecasted rate of change for all periods except from 2030-2035. It is notable job growth forecasted during the recovery period from 2020-2025 and 2025-2030 will be several percentage points less than historic growth rates over the 2010-2015 and 2015-2017 periods.

Figure 3. Regional Compounded Average Annual Change in Employment by Model: 2000-2055



Source: Bureau of Labor Statistics' Current Employment Statistics (CES) and Quarterly Census of Employment and Wages (QCEW); American Community Survey (ACS); NYMTC 2050 & 2055 SED Forecasts

Note: Total employment includes full- and part-time payroll employment, self-employment and unpaid family work.

From 2010 to 2050 total employment is projected to expand by 2.6 million jobs (+23.2%) in the NYMTC 31-County Region, with the addition of another 268,200 jobs between 2050 and 2055 (see Figure 4). Growth through 2020 will be curtailed by the impacts of the COVID-19 pandemic, before rebounding to 2025. After 2025, growth will be driven by a continuation of the current cyclical expansion², which will transition into a period of moderate long-term growth through 2055.

² These forecasts do not attempt to predict the timing of business cycles, but are driven by the long-term historical drivers as described in Technical Memorandum 1, inclusive of cycles, which moderate expansion.

2.2.1 Total Employment

Figure 4. Employment Model County Outputs: 2055 SED Forecast

	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
FORECAST REGION	11,020,530	11,561,224	12,008,481	11,969,756	12,201,027	12,548,980	12,838,591	13,076,480	13,313,412	13,581,633	13,849,854
Bronx County	380,497	401,055	413,186	417,798	431,985	447,381	462,173	474,822	487,684	508,232	528,779
Kings County	822,989	902,713	940,561	942,296	973,658	1,013,634	1,049,302	1,084,437	1,116,162	1,149,201	1,182,241
New York County	2,488,607	2,654,265	2,832,457	2,860,002	2,890,278	2,942,140	2,983,210	3,010,676	3,038,684	3,066,962	3,095,241
Queens County	708,868	753,622	787,733	784,163	803,143	841,130	869,613	911,686	945,622	998,497	1,051,371
Richmond County	126,268	138,472	140,688	140,516	143,819	150,820	155,973	159,926	164,282	168,871	173,460
New York City Total	4,527,230	4,850,126	5,114,624	5,144,775	5,242,883	5,395,105	5,520,271	5,641,547	5,752,434	5,891,763	6,031,092
Nassau County	590,583	613,419	631,261	625,398	639,641	664,509	684,065	697,286	710,328	723,942	737,555
Suffolk County	636,565	671,508	692,427	680,943	691,838	706,072	718,637	725,741	733,667	742,046	750,425
Long Island Total	1,227,148	1,284,927	1,323,689	1,306,341	1,331,479	1,370,581	1,402,702	1,423,027	1,443,995	1,465,988	1,487,980
Dutchess County	121,287	125,663	127,640	126,192	128,259	129,967	131,855	133,305	134,659	135,806	136,952
Orange County	150,881	154,794	158,577	159,516	163,101	165,848	169,014	171,609	174,299	176,988	179,676
Putnam County	28,439	29,425	29,905	29,199	29,752	30,534	31,202	31,442	31,728	32,020	32,311
Rockland County	116,538	122,345	129,310	130,745	134,817	138,803	142,832	145,832	148,717	151,766	154,816
Sullivan County	29,577	28,673	29,047	27,451	28,222	29,970	31,229	31,312	31,497	31,731	31,965
Ulster County	70,732	71,652	73,270	73,239	74,377	77,212	79,198	80,283	81,335	82,405	83,475
Westchester County	444,936	466,908	485,847	478,943	486,943	496,332	505,026	513,648	524,016	529,678	535,340
Mid-Hudson Total	962,390	999,460	1,033,596	1,025,285	1,045,470	1,068,666	1,090,356	1,107,431	1,126,252	1,140,394	1,154,536
Bergen County	454,800	468,646	477,393	475,519	485,787	497,309	508,204	516,909	526,133	535,860	545,586
Essex County	410,788	398,558	409,911	407,505	414,227	429,799	440,946	449,357	458,421	468,066	477,710
Hudson County	289,015	302,863	316,525	320,259	330,392	346,722	359,953	370,661	381,301	392,536	403,771
Hunterdon County	56,262	60,787	60,082	57,901	58,826	60,925	62,436	62,760	63,289	64,252	65,215
Mercer County	247,294	251,046	246,405	242,188	249,047	259,787	268,587	272,404	276,978	282,546	288,114
Middlesex County	399,260	416,340	430,707	428,045	436,507	443,968	451,930	459,435	467,388	475,944	484,500
Monmouth County	287,779	290,824	297,250	293,588	296,850	304,569	310,060	314,137	319,168	324,865	330,563
Morris County	300,861	317,920	326,478	320,580	324,585	334,041	340,772	343,665	347,357	351,695	356,032
Ocean County	181,039	187,196	197,721	199,375	203,539	207,255	211,194	215,347	219,813	223,724	227,635
Passaic County	200,590	197,746	200,824	198,411	200,116	208,313	213,264	216,512	220,260	224,460	228,659
Somerset County	182,781	199,496	206,485	202,940	207,708	211,435	215,683	219,364	223,406	227,760	232,114
Sussex County	48,187	48,045	49,204	47,820	48,337	50,085	51,217	51,411	52,238	53,232	54,226
Union County	250,208	253,923	263,441	260,462	267,191	274,939	282,177	286,989	291,794	296,786	301,779
Warren County	40,045	39,397	39,586	38,021	38,605	40,423	41,624	42,371	43,070	43,644	44,218
New Jersey Total	3,348,908	3,432,786	3,522,011	3,492,615	3,561,715	3,669,570	3,758,047	3,821,323	3,890,618	3,965,369	4,040,120
Fairfield County	481,896	503,675	515,458	509,186	518,839	532,499	544,156	552,517	561,190	570,436	579,683
Litchfield County	68,609	73,635	73,473	73,061	74,076	75,147	76,190	76,746	77,331	77,936	78,540
New Haven County	404,350	416,614	425,629	418,493	426,564	437,411	446,870	453,889	461,593	469,748	477,903
Connecticut Total	954,854	993,924	1,014,561	1,000,740	1,019,479	1,045,057	1,067,216	1,083,152	1,100,113	1,118,120	1,136,126

Source: Bureau of Labor Statistics' Current Employment Statistics (CES) and Quarterly Census of Employment and Wages (QCEW); American Community Survey (ACS); NYMTC 2055 SED Forecasts

Note: Total employment includes payroll employment, self-employment, and unpaid family work, both full and part time.

From 2020 to 2055 employment gains will slow to moderate growth levels reflecting the less robust economic drivers as detailed in Section 3.3.1 of *Technical Memorandum 2: Baseline Model Update*³. Employment in the Region as a whole is expected to grow at a rate of 0.42% per year, slightly less than New York City's rate of 0.46 percent per year. Of the 886,300 jobs projected to be added in New York City from 2020 to 2055, the largest number will be located in Queens (267,200), followed by Manhattan (235,200) and Brooklyn (240,000), reflecting recent growth in these boroughs' employment hubs. Manhattan will retain the largest share of total employment. Among the suburban subregions, the New Jersey subregion will add the largest number of jobs during this period (547,500), followed by Long Island with a gain of 181,600 jobs, the Mid-Hudson (129,300), and the Connecticut subregion (135,400).

The distribution of employment throughout the region is forecasted to change little from 2020 to 2055, with the subregions outside of New York City decreasing in share by fractions of a percent over the 35-year period. New York City will maintain the largest share of employment with 43.0 percent in 2020 increasing to 43.5 percent by 2055. Figure 5 shows the distribution of employment as well as the average annual growth rate for each forecast period. It shows that Regional employment is forecast to grow at a rate of 0.42 percent each year, with New York City having a higher average rate at 0.46 percent, and the Mid-Hudson, a lower rate at 0.34 percent.

Figure 5. Projected SED 2055 Forecast Total Employment and CAGR by Subregion (2000-2055)

Employment Levels	2000	2005	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
New York City	4,559,706	4,398,674	4,527,230	4,850,126	5,114,624	5,144,775	5,242,883	5,395,105	5,520,271	5,641,547	5,752,434	5,891,763	6,031,092
Long Island	1,201,512	1,223,160	1,227,148	1,284,927	1,323,689	1,306,341	1,331,479	1,370,581	1,402,702	1,423,027	1,443,995	1,465,988	1,487,980
Mid-Hudson	977,923	1,013,155	962,390	999,460	1,033,596	1,025,285	1,045,470	1,068,666	1,090,356	1,107,431	1,126,252	1,140,394	1,154,536
New Jersey	3,458,913	3,477,018	3,348,908	3,432,786	3,522,011	3,492,615	3,561,715	3,669,570	3,758,047	3,821,323	3,890,618	3,965,369	4,040,120
Connecticut	1,030,405	997,322	954,854	993,924	1,014,561	1,000,740	1,019,479	1,045,057	1,067,216	1,083,152	1,100,113	1,118,120	1,136,126
31-County Totals	11,228,459	11,109,330	11,020,530	11,561,224	12,008,481	11,969,756	12,201,027	12,548,980	12,838,591	13,076,480	13,313,412	13,581,633	13,849,854
Avg. Annual Growth Rate		2000-2005	2005-2010	2010-2015	2015-2017	2017-2020	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045	2045-2050	2050-2055
New York City		-0.72%	+0.58%	+1.39%	+2.69%	+0.20%	+0.38%	+0.57%	+0.46%	+0.44%	+0.39%	+0.48%	+0.47%
Long Island		+0.36%	+0.07%	+0.92%	+1.50%	-0.44%	+0.38%	+0.58%	+0.46%	+0.29%	+0.29%	+0.30%	+0.30%
Mid-Hudson		+0.71%	-1.02%	+0.76%	+1.69%	-0.27%	+0.39%	+0.44%	+0.40%	+0.31%	+0.34%	+0.25%	+0.25%
New Jersey		+0.10%	-0.75%	+0.50%	+1.29%	-0.28%	+0.39%	+0.60%	+0.48%	+0.33%	+0.36%	+0.38%	+0.37%
Connecticut		-0.65%	-0.87%	+0.81%	+1.03%	-0.46%	+0.37%	+0.50%	+0.42%	+0.30%	+0.31%	+0.33%	+0.32%
31-County Totals		-0.21%	-0.16%	+0.96%	+1.92%	-0.11%	+0.38%	+0.56%	+0.46%	+0.37%	+0.36%	+0.40%	+0.39%

Source: Bureau of Labor Statistics' Current Employment Statistics (CES) and Quarterly Census of Employment and Wages (QCEW); American Community Survey (ACS); NYMTC 2055 SED Forecasts

2.2.2 Payroll Employment

The region will see an increase of some 1.8 million payroll jobs between 2017 and 2055, as shown in Figure 6. The largest share of growth (57.3% or 960,200) will be in New York City. The New Jersey subregion follows with the addition of 475,100 payroll jobs; Long Island with 143,700; the Mid-Hudson with 106,400 and the Connecticut subregion with 102,300.

³ NYMTC, *Technical Memorandum 2: Baseline Model Update*. July 2019 pp.9-12

Figure 6. Payroll Employment County Outputs: 2055 SED Forecast

	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
FORECAST REGION	9,984,474	10,499,370	10,922,607	10,893,675	11,098,608	11,410,648	11,669,135	11,882,344	12,095,336	12,337,210	12,579,084
Bronx County	350,114	369,453	380,251	385,155	398,258	412,495	426,165	437,877	449,821	468,841	487,861
Kings County	729,854	803,540	836,696	840,241	868,146	903,768	935,532	966,859	995,258	1,024,920	1,054,582
New York County	2,285,300	2,444,347	2,615,780	2,638,210	2,664,941	2,711,687	2,748,425	2,772,839	2,797,848	2,823,376	2,848,903
Queens County	627,836	676,755	709,476	706,124	723,408	757,491	783,174	820,828	851,418	898,928	946,439
Richmond County	114,997	125,739	127,816	128,002	131,060	137,418	142,126	145,795	149,830	154,069	158,308
New York City Total	4,108,101	4,419,833	4,670,018	4,697,732	4,785,814	4,922,859	5,035,422	5,144,198	5,244,175	5,370,134	5,496,093
Nassau County	528,703	548,223	564,932	559,753	572,105	594,024	611,160	622,780	634,213	646,178	658,144
Suffolk County	567,321	602,285	621,074	610,795	620,081	632,510	643,367	649,660	656,647	664,080	671,514
Long Island Total	1,096,024	1,150,508	1,186,007	1,170,548	1,192,186	1,226,534	1,254,527	1,272,441	1,290,859	1,310,259	1,329,658
Dutchess County	108,441	113,436	115,735	114,269	116,038	117,515	119,139	120,402	121,567	122,571	123,576
Orange County	139,117	141,421	145,543	146,681	149,894	152,397	155,255	157,645	160,117	162,610	165,103
Putnam County	24,397	25,749	26,182	25,538	26,022	26,707	27,291	27,517	27,779	28,046	28,312
Rockland County	101,669	109,122	115,849	116,974	120,541	124,059	127,602	130,258	132,803	135,509	138,215
Sullivan County	26,008	25,509	25,665	24,674	25,316	26,790	27,848	27,920	28,089	28,308	28,527
Ulster County	60,052	62,256	63,841	63,744	64,680	67,087	68,758	69,703	70,618	71,546	72,474
Westchester County	390,063	414,758	433,487	426,645	433,601	441,887	449,508	457,157	466,349	471,429	476,509
Mid-Hudson Total	849,747	892,251	926,302	918,527	936,092	956,442	975,400	990,602	1,007,321	1,020,019	1,032,716
Bergen County	411,785	421,284	430,535	429,205	438,328	448,647	458,368	466,196	474,510	483,298	492,085
Essex County	380,985	368,662	378,239	377,590	383,615	397,826	407,944	415,608	423,873	432,645	441,418
Hudson County	268,046	282,020	295,772	299,252	308,666	323,908	336,236	346,317	356,340	366,913	377,486
Hunterdon County	50,075	53,115	52,609	50,793	51,549	53,313	54,573	54,875	55,370	56,243	57,117
Mercer County	232,113	237,319	232,745	228,488	234,865	244,933	253,156	256,751	261,069	266,328	271,588
Middlesex County	375,008	388,309	401,397	400,291	408,007	414,923	422,238	429,201	436,560	444,502	452,444
Monmouth County	260,900	262,372	269,132	265,717	268,428	275,229	279,985	283,619	288,139	293,290	298,441
Morris County	275,776	291,622	299,863	295,279	298,774	307,369	313,413	316,000	319,341	323,287	327,233
Ocean County	161,242	166,005	175,778	177,340	181,001	184,369	187,884	191,615	195,584	199,086	202,589
Passaic County	183,961	181,477	183,759	182,371	183,851	191,265	195,712	198,709	202,184	206,083	209,983
Somerset County	167,848	185,400	191,860	188,754	193,062	196,466	200,321	203,693	207,390	211,386	215,383
Sussex County	41,274	41,935	43,551	42,059	42,455	43,943	44,884	45,067	45,811	46,703	47,596
Union County	230,920	233,011	241,763	239,876	245,911	252,933	259,461	263,855	268,239	272,803	277,368
Warren County	36,023	35,247	35,627	34,341	34,855	36,495	37,573	38,253	38,891	39,410	39,930
New Jersey Total	3,075,956	3,147,777	3,232,629	3,211,356	3,273,368	3,371,617	3,451,748	3,509,758	3,573,300	3,641,979	3,710,658
Fairfield County	425,358	445,415	455,870	450,684	458,558	470,125	479,845	486,735	493,930	501,561	509,192
Litchfield County	57,000	62,296	63,094	62,038	62,770	63,585	64,359	64,722	65,131	65,571	66,011
New Haven County	372,288	381,290	388,687	382,790	389,819	399,487	407,835	413,888	420,620	427,687	434,755
Connecticut Total	854,646	889,001	907,651	895,512	911,147	933,196	952,038	965,345	979,681	994,819	1,009,958

Source: Bureau of Labor Statistics' Current Employment Statistics (CES) and Quarterly Census of Employment and Wages (QCEW); American Community Survey (ACS); NYMTC 2055 SED Forecasts

Growth trends by industry in the 31-County NYMTC Region are detailed for 2010 and 2055⁴ in Figure 7. The Region's strongest growth is projected to be located in industries with high levels of national growth, primarily industries driven by consumer demand and protected from automation or outsourcing, as well as those industries where the region has a competitive edge over the nation as a whole and serve regional, national or global demand. The region exhibits a competitive advantage in professional, scientific, and technical services, education services, accommodations and food services. Growth in health care and social assistance, administrative, support and waste management, and construction are largely driven by local demand although supported by national growth and stable labor productivity with little risk from outsourcing or automation.

The 2055 SED Forecast projects sharper growth in the sectors of accommodation and food services, administrative, support and waste management, government, management of companies and enterprises, professional, scientific and technical services, and retail trade.

Regionally, the manufacturing industry is expected to continue losing jobs throughout the forecast period.

Figure 7. Projected SED 2055 Forecast Payroll Employment Growth by Industry, 31-County Region⁵

NAICS Industry	Levels		Average Annual Change, 2010-		Industry % of Total Growth
	2010	2055	Levels	%	
11-Agriculture	16,532	22,056	+123	+0.64%	0.2%
21-Mining	2,552	4,622	+46	+1.33%	0.1%
22-Utilities	42,626	46,426	+84	+0.19%	0.1%
23-Construction	357,623	573,879	+4,806	+1.06%	8.3%
31-33-Manufacturing	528,017	387,781	-3,116	-0.68%	-5.4%
42-Wholesale Trade	443,004	462,469	+433	+0.10%	0.8%
44-45-Retail Trade	1,012,225	1,124,795	+2,502	+0.23%	4.3%
48-49-Transportation & Warehousing	310,032	362,510	+1,166	+0.35%	2.0%
51-Information	291,979	327,992	+800	+0.26%	1.4%
52-Finance & Insurance	609,989	652,774	+951	+0.15%	1.6%
53-Real Estate, Rental & Leasing	205,321	208,493	+70	+0.03%	0.1%
54-Professional, Scientific & Technical	731,476	1,059,879	+7,298	+0.83%	12.7%
55-Management Of Companies & Enterprises	175,487	258,324	+1,841	+0.86%	3.2%
56-Administrative, Support, Waste Management	549,060	957,901	+9,085	+1.24%	15.8%
61-Educational Services	379,589	622,738	+5,403	+1.11%	9.4%
62-Health Care & Social Assistance	1,422,426	1,968,055	+12,125	+0.72%	21.0%
71-Arts, Entertainment & Recreation	157,929	210,198	+1,162	+0.64%	2.0%
72-Accommodation & Food Services	649,414	1,037,253	+8,619	+1.05%	14.9%
81-Other Services	511,749	602,758	+2,022	+0.36%	3.5%
92-Government	1,587,442	1,688,179	+2,239	+0.14%	3.9%
Total-All Industries	9,984,474	12,579,084	+57,658	+0.51%	100.0%

Source: Bureau of Labor Statistics' Current Employment Statistics (CES) and Quarterly Census of Employment and Wages (QCEW); American Community Survey (ACS); NYMTC 2055 SED Forecasts

⁴ Employment by industry is calculated within the employment model and therefore extends only to the 2050 forecast year. Documentation for the employment model specifies that the forecast years cannot be extended beyond 2050.

⁵ Sectors with projected growth greater than 10% are highlighted in darker blue; sectors with growth between 5% and 10% in lighter blue. Sectors with projected job loss are highlighted in pink.

2.2.3 Self-Employment

As shown in Figure 8, self-employment is expected to increase by 184,900 workers regionally between 2017 and 2055. The largest number of these will be in New York City (90,400), followed by the New Jersey subregion (40,500). The Long Island and Connecticut subregions will see their self-employment grow by 20,600 and 19,300 jobs, respectively from 2017 to 2055. The Mid-Hudson subregion will see only 14,500 new self-employed jobs in that period.

Trends in the self-employed forecast, which includes proprietors and self-employed and unpaid family workers are similar to the total employment forecast with the share of self-employment to total employment remaining stable at roughly nine percent from 2010 through 2055 as shown in Figure 8. The distribution of self-employed workers by place of work differs marginally from payroll employment. In 2017, 40.9 percent of self-employed workers were located in New York City compared with 42.8 percent of payroll workers. This ratio is forecast to gradually increase to 42.1 percent for self-employed workers and to 43.7 percent for payroll employees by 2055.

Figure 8. Projected SED 2055 Forecast Self-Employment and CAGR by Subregion (2000-2055)

Employment Levels	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
New York City	419,128	430,293	444,606	447,043	457,070	472,247	484,849	497,349	508,259	521,629	534,998
Long Island	131,124	134,419	137,682	135,793	139,292	144,048	148,175	150,586	153,135	155,729	158,323
Mid-Hudson	112,644	107,209	107,294	106,759	109,378	112,223	114,956	116,829	118,931	120,375	121,819
New Jersey	272,952	285,009	289,382	281,259	288,347	297,953	306,299	311,565	317,317	323,390	329,462
Connecticut	100,208	104,923	106,910	105,228	108,332	111,861	115,177	117,807	120,433	123,300	126,168
31-County Totals	1,036,056	1,061,853	1,085,874	1,076,082	1,102,420	1,138,331	1,169,456	1,194,136	1,218,075	1,244,423	1,270,771
Self-Employment Rate	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
New York City	9.3%	8.9%	8.7%	8.7%	8.7%	8.8%	8.8%	8.8%	8.8%	8.9%	8.9%
Long Island	10.7%	10.5%	10.4%	10.4%	10.5%	10.5%	10.6%	10.6%	10.6%	10.6%	10.6%
Mid-Hudson	11.7%	10.7%	10.4%	10.4%	10.5%	10.5%	10.5%	10.5%	10.6%	10.6%	10.6%
New Jersey	8.2%	8.3%	8.2%	8.1%	8.1%	8.1%	8.2%	8.2%	8.2%	8.2%	8.2%
Connecticut	10.5%	10.6%	10.5%	10.5%	10.6%	10.7%	10.8%	10.9%	10.9%	11.0%	11.1%
31-County Totals	9.4%	9.2%	9.0%	9.0%	9.0%	9.1%	9.1%	9.1%	9.1%	9.2%	9.2%

Source: Bureau of Labor Statistics' Current Employment Statistics (CES) and Quarterly Census of Employment and Wages (QCEW); American Community Survey (ACS); NYMTC 2055 SED Forecasts

The ratio of self-employment to total employment is projected to remain at roughly 9 percent throughout the 2010-2055 period. New York City is expected to maintain an 8.9 percent self-employment rate, slightly higher than the New Jersey subregion (8.2%). New York workers outside of the urban core of the City in the Long Island and Mid-Hudson subregions, as well as those in the Connecticut subregion have much higher rates of self-employment at 10.6 percent and 11.0 percent, respectively.

Figure 9. Employment County Outputs: 2055 SED Self-Employment

	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
FORECAST REGION	1,036,056	1,061,853	1,085,874	1,076,082	1,102,420	1,138,331	1,169,456	1,194,136	1,218,075	1,244,423	1,270,771
Bronx County	30,383	31,602	32,935	32,643	33,727	34,886	36,008	36,945	37,864	39,390	40,917
Kings County	93,135	99,173	103,865	102,056	105,512	109,865	113,770	117,578	120,905	124,282	127,659
New York County	203,307	209,918	216,677	221,791	225,337	230,453	234,784	237,837	240,835	243,586	246,338
Queens County	81,032	76,867	78,257	78,039	79,735	83,639	86,439	90,858	94,204	99,568	104,932
Richmond County	11,271	12,733	12,872	12,514	12,758	13,403	13,847	14,131	14,452	14,802	15,152
New York City Total	419,128	430,293	444,606	447,043	457,070	472,247	484,849	497,349	508,259	521,629	534,998
Nassau County	61,880	65,196	66,329	65,646	67,535	70,485	72,905	74,506	76,115	77,763	79,411
Suffolk County	69,244	69,223	71,353	70,147	71,757	73,562	75,270	76,081	77,020	77,966	78,912
Long Island Total	131,124	134,419	137,682	135,793	139,292	144,048	148,175	150,586	153,135	155,729	158,323
Dutchess County	12,846	12,227	11,905	11,922	12,221	12,452	12,716	12,903	13,092	13,234	13,376
Orange County	11,764	13,373	13,034	12,835	13,207	13,451	13,759	13,963	14,183	14,378	14,572
Putnam County	4,042	3,676	3,723	3,661	3,730	3,828	3,911	3,925	3,948	3,974	4,000
Rockland County	14,869	13,223	13,461	13,771	14,276	14,744	15,230	15,575	15,914	16,258	16,601
Sullivan County	3,569	3,164	3,382	2,777	2,906	3,180	3,382	3,392	3,409	3,423	3,437
Ulster County	10,681	9,396	9,429	9,495	9,696	10,125	10,440	10,580	10,717	10,859	11,001
Westchester County	54,873	52,150	52,360	52,298	53,342	54,445	55,518	56,491	57,667	58,249	58,832
Mid-Hudson Total	112,644	107,209	107,294	106,759	109,378	112,223	114,956	116,829	118,931	120,375	121,819
Bergen County	43,015	47,362	46,858	46,315	47,459	48,662	49,836	50,713	51,623	52,562	53,501
Essex County	29,803	29,896	31,672	29,915	30,612	31,973	33,002	33,748	34,548	35,420	36,293
Hudson County	20,969	20,843	20,753	21,008	21,726	22,814	23,717	24,344	24,961	25,623	26,285
Hunterdon County	6,186	7,672	7,473	7,108	7,277	7,612	7,863	7,885	7,918	8,008	8,098
Mercer County	15,181	13,727	13,660	13,700	14,182	14,854	15,432	15,654	15,909	16,218	16,526
Middlesex County	24,252	28,031	29,310	27,754	28,500	29,046	29,692	30,234	30,828	31,442	32,056
Monmouth County	26,879	28,452	28,118	27,871	28,422	29,340	30,075	30,518	31,028	31,576	32,123
Morris County	25,085	26,298	26,615	25,300	25,811	26,673	27,359	27,665	28,016	28,408	28,799
Ocean County	19,797	21,191	21,943	22,036	22,537	22,886	23,311	23,732	24,229	24,637	25,046
Passaic County	16,629	16,269	17,065	16,040	16,265	17,048	17,552	17,803	18,076	18,376	18,676
Somerset County	14,933	14,096	14,625	14,186	14,645	14,970	15,361	15,671	16,017	16,374	16,731
Sussex County	6,913	6,110	5,653	5,761	5,881	6,142	6,333	6,344	6,427	6,529	6,630
Union County	19,288	20,912	21,678	20,585	21,280	22,006	22,716	23,134	23,556	23,983	24,411
Warren County	4,021	4,150	3,959	3,680	3,750	3,927	4,051	4,118	4,179	4,234	4,288
New Jersey Total	272,952	285,009	289,382	281,259	288,347	297,953	306,299	311,565	317,317	323,390	329,462
Fairfield County	56,537	58,260	59,588	58,502	60,281	62,375	64,311	65,783	67,260	68,875	70,491
Litchfield County	11,609	11,339	10,379	11,023	11,306	11,562	11,831	12,024	12,200	12,364	12,529
New Haven County	32,062	35,324	36,943	35,703	36,745	37,924	39,035	40,001	40,973	42,061	43,148
Connecticut Total	100,208	104,923	106,910	105,228	108,332	111,861	115,177	117,807	120,433	123,300	126,168

Source: Bureau of Labor Statistics' Current Employment Statistics (CES) and Quarterly Census of Employment and Wages (QCEW); American Community Survey (ACS); NYMTC 2055 SED Forecasts

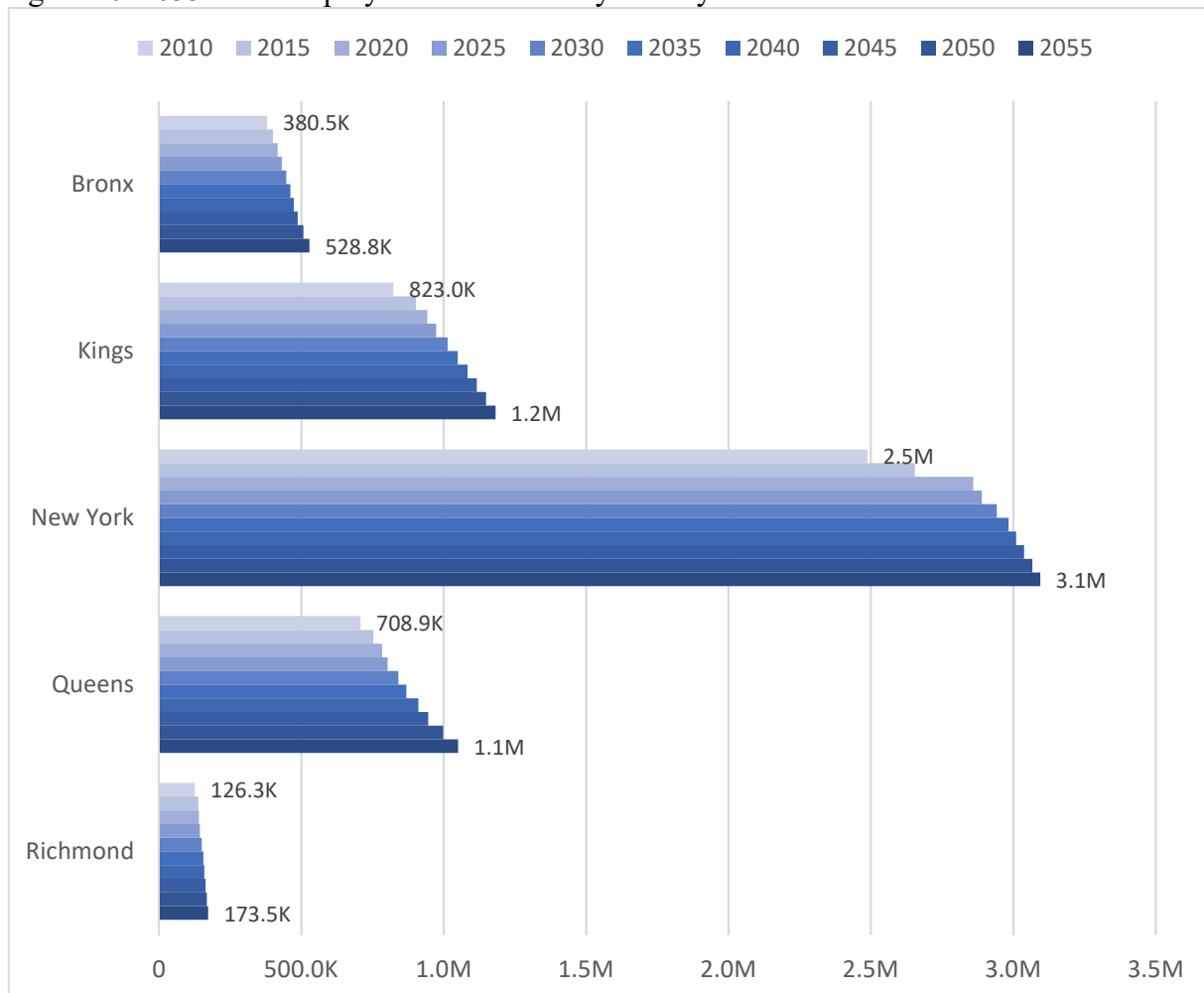
2.3 Subregional Employment Detail

2.3.1 New York City

In New York City, (see Figure 10), the 2055 SED Forecast projects stronger growth over each 5-year forecast period than the 2050 SED Forecast due to the significant growth seen since 2010. Growth rates in the 2055 SED Forecast are strongest in the 2025-2030 and 2030-2035 recovery years and moderate somewhat in later years.

Of the 916,000 jobs projected to be added in New York City from 2017 to 2055, the largest number will be located in Queens (264,000), followed by Manhattan (263,000) and Brooklyn (242,000), reflecting recent growth in these boroughs' employment hubs. Though its growth is anticipated to slow, Manhattan will retain the largest share of total employment in the region.

Figure 10. 2055 SED Employment Forecasts by County: NYC

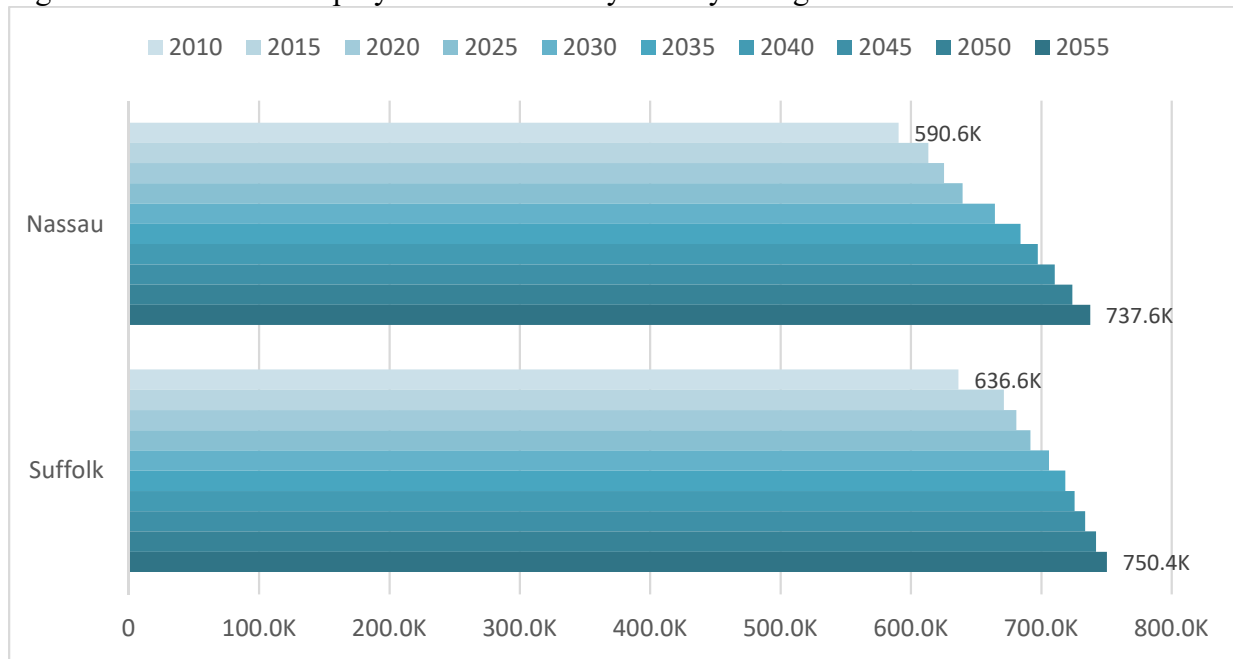


Source: NYMTC 2055 SED Forecast

2.3.2 Long Island

In the long term, both Nassau and Suffolk are anticipated to experience steadily rising job growth, adding 164,000 jobs from 2017 to 2055 (see Figure 11). Several factors will contribute to an expansion of employment growth in Nassau County including increased local multifamily housing development and the completion of major transportation investments such as East Side Access and the addition of a third track to the Mainline Branch between Floral Park LIRR Station and Hicksville LIRR Station, are both expected to result in reverse commute benefits as well as commuting ease from Long Island to NYC.

Figure 11. 2055 SED Employment Forecasts by County: Long Island

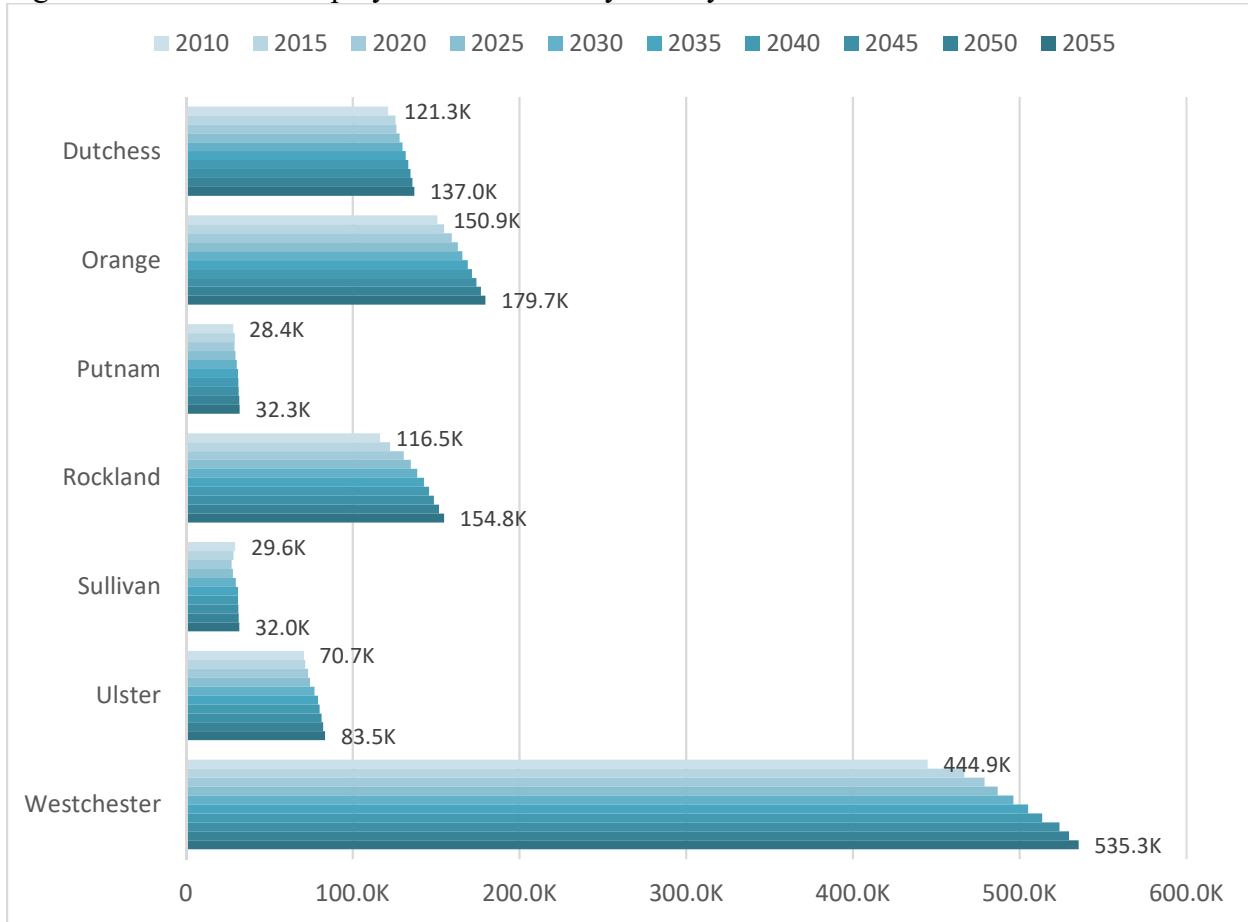


Source: NYMTC 2055 SED Forecast

2.3.3 Mid-Hudson

As shown in Figure 12, the 2055 SED Forecast projects increasing employment in all counties of the Mid-Hudson subregion with gains of 121,000 jobs from 2017 to 2055. Over that period, Westchester County will add nearly 50,000 jobs. Rockland and Orange County will add another 25,500 and 21,100 jobs respectively, in the forecast period. New office development activity anticipated to drive employment growth in future years is expected to be concentrated in downtown New Rochelle as well as smaller urban centers in Westchester County and suburban areas of Orange, Rockland and Dutchess counties.

Figure 12. 2055 SED Employment Forecasts by County: Mid-Hudson

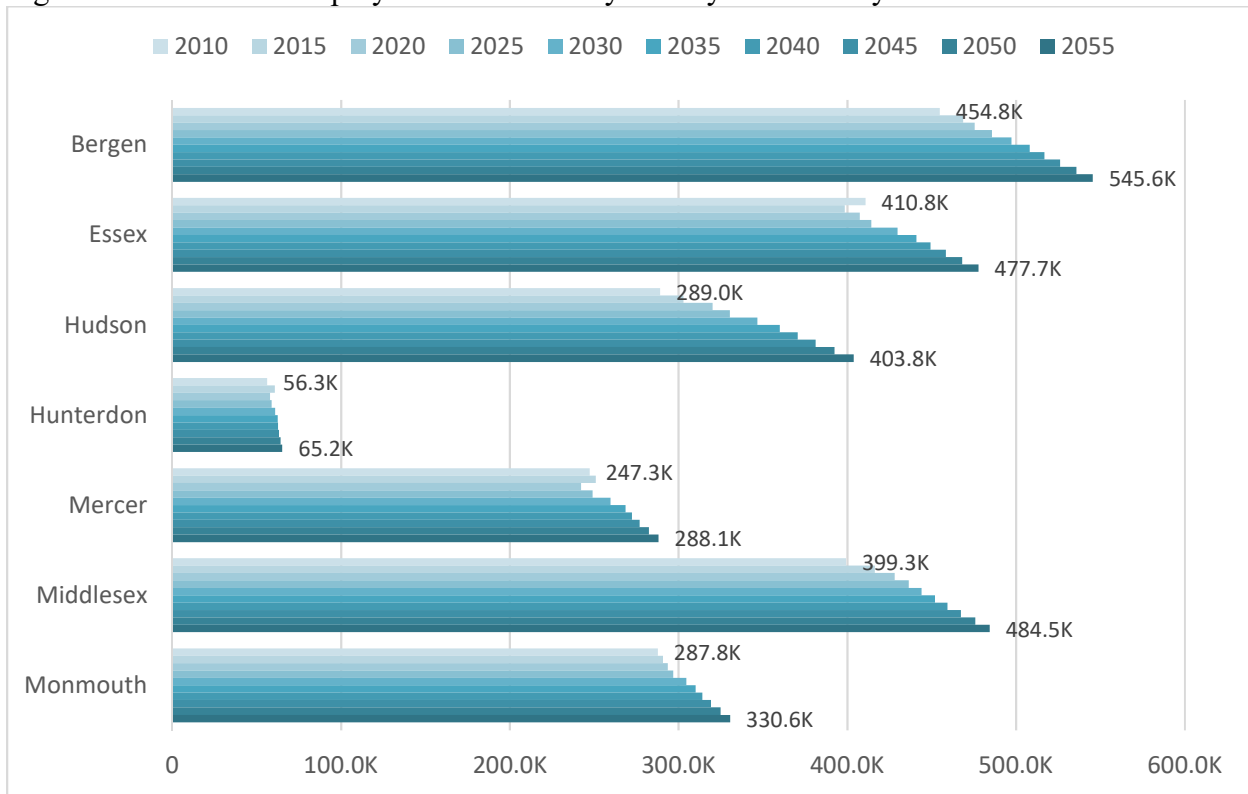


Source: NYMTC 2055 SED Forecast

2.3.4 New Jersey

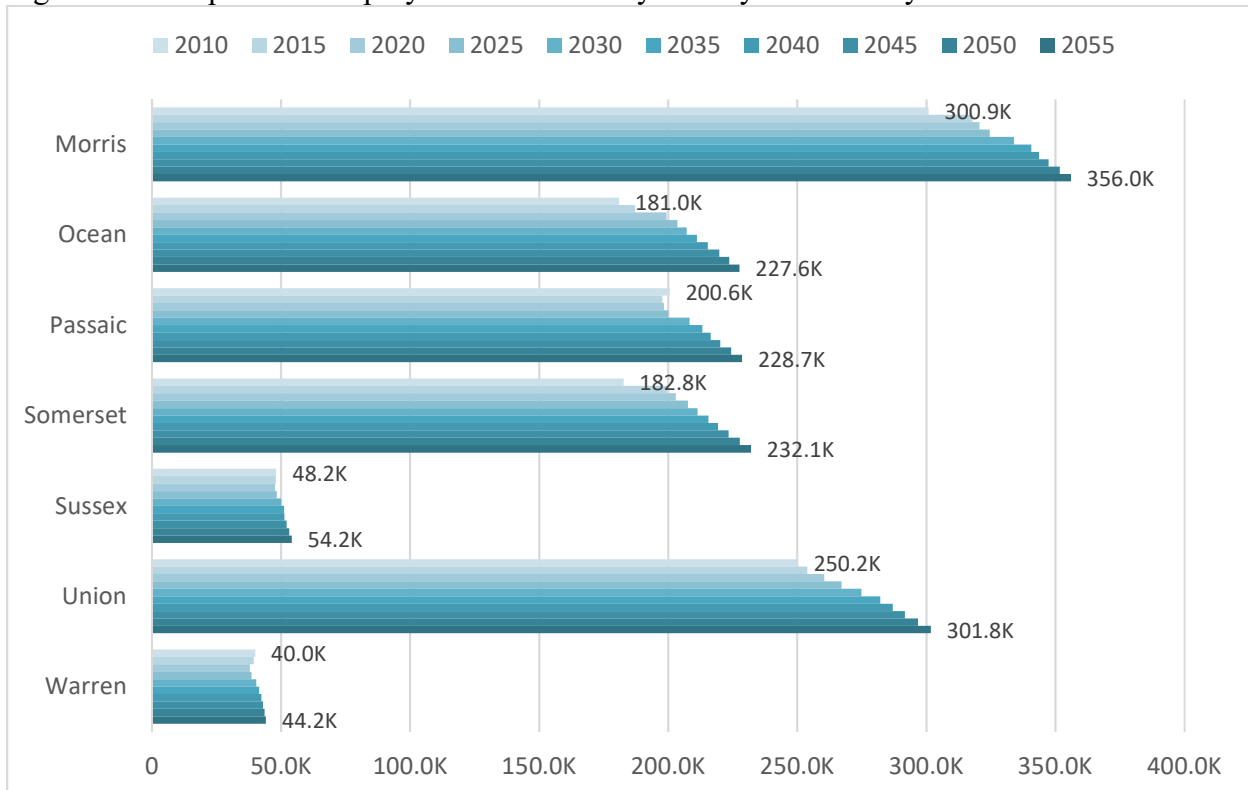
The 2055 SED forecast projects strong employment growth in the New Jersey subregion, increasing by nearly 15 percent from 2017 to 2055. The subregion's most urban counties will lead employment growth with Hudson County adding more than 87,000 jobs while Essex and Bergen counties will add nearly 70,000 workers each. In addition to major development planned in Jersey City and Newark, large mixed-use projects, such as the Riverton in Middlesex County and the redevelopment of the Meadowlands in Bergen County, will generate job growth across the subregion's suburban communities. The phased expansion and renovation of the Northeast Corridor (NEC) rail line between Newark, New Jersey and New York City will provide additional job opportunities on either side of the Hudson River.

Figure 13. 2055 SED Employment Forecasts by County: New Jersey Pt. 1



Source: NYMTC 2055 SED Forecast

Figure 14. Comparative Employment Forecasts by County: New Jersey Pt. 2

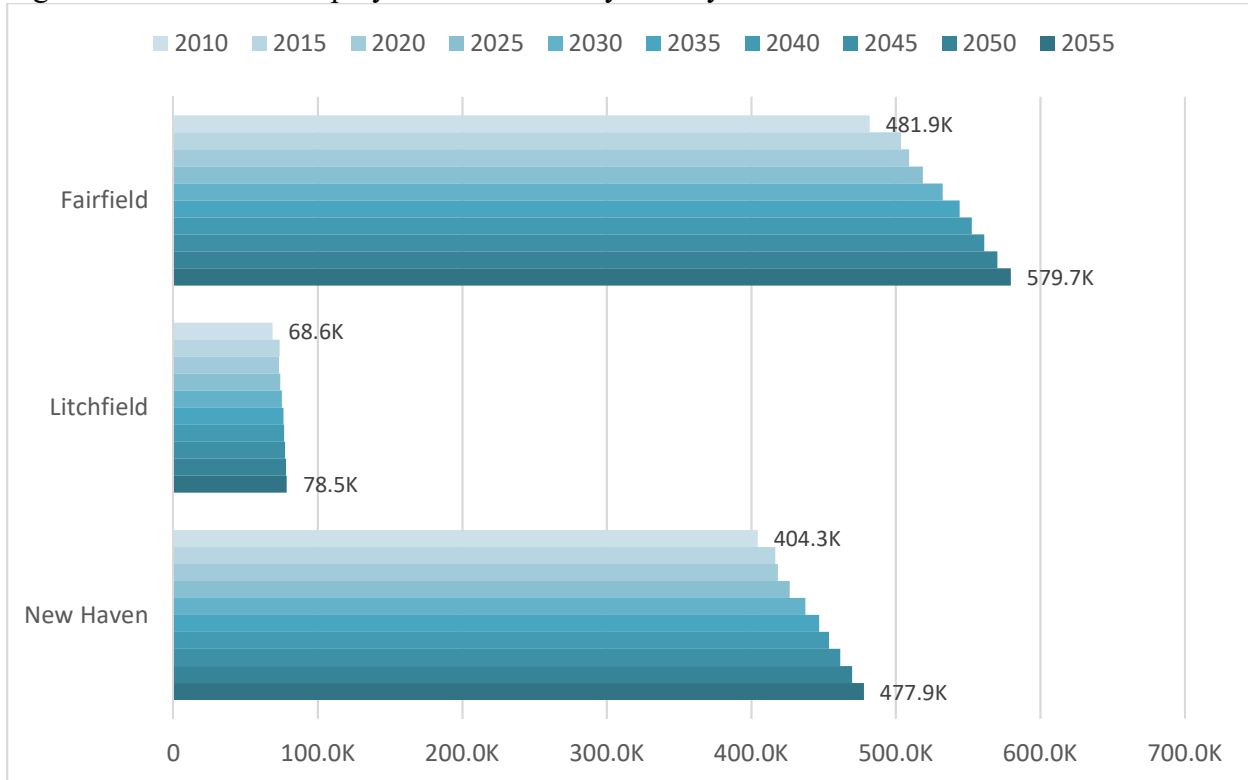


Source: NYMTC 2055 SED Forecast

2.3.5 Connecticut

As shown in Figure 15, the 2055 SED Forecast projects moderate growth in the Connecticut subregion with gains of more than 121,000 jobs from 2017 to 2055. The forecast projects strong growth of 3.2 percent over the 2020-2025 recovery period which levels to 1.6 percent by 2050-2055. Growth rates in Litchfield County are forecasted to be considerably less than that of New Haven and Fairfield counties.

Figure 15. 2055 SED Employment Forecasts by County: Connecticut



Source: NYMTC 2055 SED Forecast

3.0 Population

3.1 Methodological Overview

The population model for the NYC subregion is prepared separately by New York City Department of City Planning (NYCDCP) from the model used for all other subregions and then incorporated into the regional Population Model.

The cohort-component model, discussed in *Technical Memorandum 2: Baseline Model Update*, was used to project the population for the NYC counties for the 2055 SED Forecasts, where the inputs are births, deaths and net migration. The methodology for each of the input variables are detailed in *Technical Memorandum 2: Baseline Model Update*. In addition to the demographic model, a NYC land use scenario was used as well. Each of these approaches inform the other and were brought in sync by adjusting the crude migration rates. The NYC forecasts were then entered into the regional Population Model.

The population models for the subregions outside of New York City are also cohort-component models, the key components of which are births, deaths, and net migration as detailed in *Technical Memorandum 2: Baseline Model Update*.

Linked within the Population Model is a sub-model for Civilian Labor Force, which reconciles the cohort component population model using labor force participation rates with employment inputs including the forecasts and the 31-County Closed Commutation Matrix (see the spreadsheet appendix delivered with this document). The outputs of the population and labor force models are then input into the employment model so that unemployment and multiple job-holding rates can be identified. The latter are a vital tool in determining the rationality of the population-employment balance.

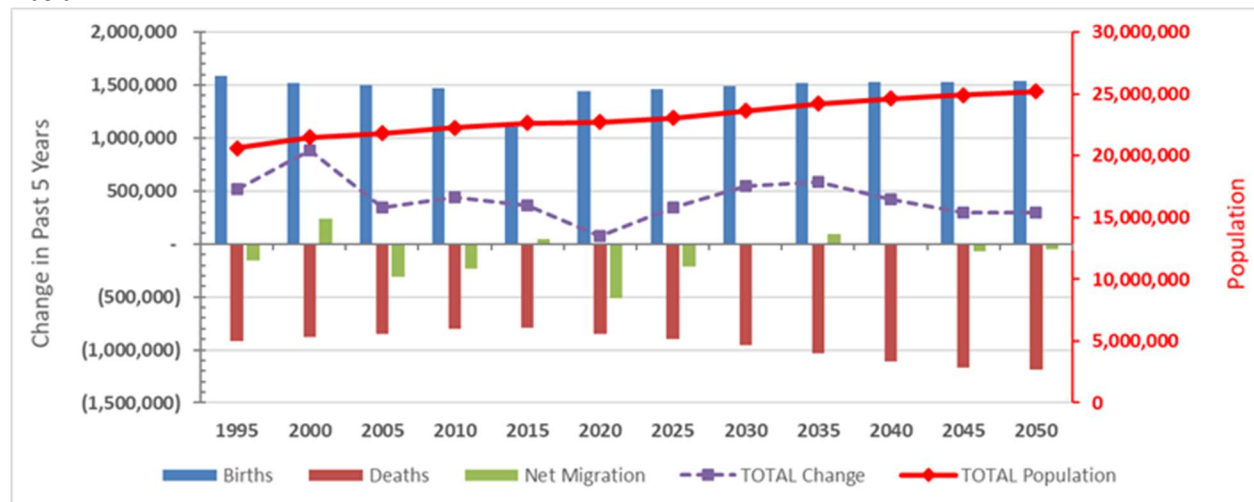
3.1.1 COVID-19 Adjustments

Because development of the 2055 SED NYMTC forecasts began over a year ago and data inputs to the model are released on a delayed schedule and do not yet reflect recent trends, its ability to reflect immediate or longer-term effects of the COVID-19 pandemic is constrained. The NYC population projections have not incorporated any COVID-19 related adjustments, while the only changes to population in the other subregions are solely the impact of less labor-induced migration due to slowed employment growth.

3.1.2 Cohort-Component Model Adjustments

The components of the population model updated to the 2055 SED include natural increase (fertility, mortality) and net migration, all of which were discussed at length in *Technical Memorandum 2: Baseline Model Update* submitted on July 18, 2019. Figure 16 presents the standard components of change for the 31-County region from 1995 to forecast year 2050.⁶ This modeling results in a 2050 population total of just under 25 million.

Figure 16: Regional Births, Deaths, Net Migration, Total Change and Total Population 1995-2050



Note: Births, deaths, and net migration not forecasted in the population model for the forecast year 2055.

⁶ The population model does not forecast births, deaths, or net migration out to forecast year 2055. The 2055 total population forecast is developed based on a continuation of the population forecast trend using a simple least squares linear trend of the forecast based on the years 2000-2050.

Source: NYMTC 2055 SED Forecast

The standard components of change do not take into account the labor-induced migration that reflects the increase in population driven by local employment. It is the labor-induced migration controls that have been adjusted for this work product as detailed in section 3.1.3, below.

3.1.3 Labor Induced Migration Adjustments (LIMA)

The population model provides several methods for adjusting the components, the most powerful of which are the adjustments to migration. The migration adjustments built in to the model include:

- Labor Induced Migration Adjustment (LIMA): The LIMA adjustment within the Population Model increases the net migration component of population in keeping with forecasted employment growth; therefore any changes to employment ripple through the population model, ultimately changing all of the population-based variables.
- Constrained NYC: The Constrained NYC adjustment restricts labor-induced migration in NYC, in order to maintain NYCDP's population projections even when the Labor Induced Migration Adjustment is activated. This effectively shifts labor-induced population growth away from New York City into the surrounding subregions.
- Manually Input Adjustments to Migration Controls: The final models run for the 2055 SED Forecasts included manual adjustments to population, much like those used for the employment forecasts and described in Section 2.1.1. The manual adjustments were used to further increase the modeled population to reflect the knowledge of the FWG members as shared during the 2055 SED Forecast adoption process.

In the reconciliation process of the 2055 SED Forecasts, all three adjustments were used; Labor Induced Migration was activated and Constrained for New York City. Further, the manually input migration controls were adjusted to reflect local knowledge of FWG member across subregions and counties within the regions. The resulting population and labor force forecasts reconciled with the employment forecasts are shown in Figure 17. While the forecasts do reconcile, it is notable that total employment exceeds the available regional labor force from 2020 on, leading to an increased multiple job-holding rate of up to 8.2 percent.

Figure 17. Regional Reconciliation Table

<u>PLACE OF RESIDENCE</u>	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
Population	22,282,010	22,645,974	22,869,314	22,927,086	23,395,599	23,807,305	24,406,004	24,862,623	25,193,199	25,508,292	25,807,114
Total Labor Force	11,568,295	11,834,620	11,792,890	11,725,928	12,066,479	12,132,133	12,431,924	12,682,100	12,909,152	13,121,698	13,273,319
Unemployment Rate	10.4%	10.4%	8.4%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%
Unemployment	1,197,608	1,227,142	994,484	645,330	667,291	671,646	687,500	700,753	712,868	723,641	731,556
Forecast Area Employment by POR	10,370,686	10,607,477	10,798,406	11,080,598	11,399,188	11,460,488	11,744,423	11,981,346	12,196,283	12,398,057	12,541,763
Out-Commuting Rate	1.7%	1.6%	1.7%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
Out-Commuters	186,768	190,474	203,543	193,353	197,089	202,710	207,388	211,231	215,058	219,390	223,723
<u>PLACE OF WORK</u>	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
Wage & Salary Employment	9,984,474	10,499,370	10,922,607	10,893,675	11,098,608	11,410,648	11,669,135	11,882,344	12,095,336	12,337,210	12,579,084
Self-Employment	1,036,056	1,061,853	1,085,874	1,076,082	1,102,420	1,138,331	1,169,456	1,194,136	1,218,075	1,244,423	1,270,771
Forecast Area Employment by POW	11,020,530	11,561,224	12,008,481	11,969,756	12,201,027	12,548,980	12,838,591	13,076,480	13,313,412	13,581,633	13,849,854
In-Commuting Rate	3.0%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
In-Commuters	312,077	293,579	306,419	306,833	315,565	319,787	326,810	333,137	339,516	346,287	350,301
Gross Labor Supply (Residents)	10,682,764	10,901,056	11,104,825	11,387,431	11,714,753	11,780,275	12,071,234	12,314,484	12,535,799	12,744,344	12,892,064
Gross Labor Demand (Total Jobs)	11,207,298	11,751,698	12,212,023	12,163,110	12,398,116	12,751,689	13,045,979	13,287,710	13,528,469	13,801,023	14,073,577
Count of Non-Primary Jobs	493,966	808,531	1,052,351	736,694	648,213	923,459	926,624	925,086	943,526	1,004,503	1,123,847
Derived Multiple Job-Holding Rate	4.7%	7.2%	9.1%	6.4%	5.5%	7.6%	7.5%	7.3%	7.3%	7.7%	8.4%

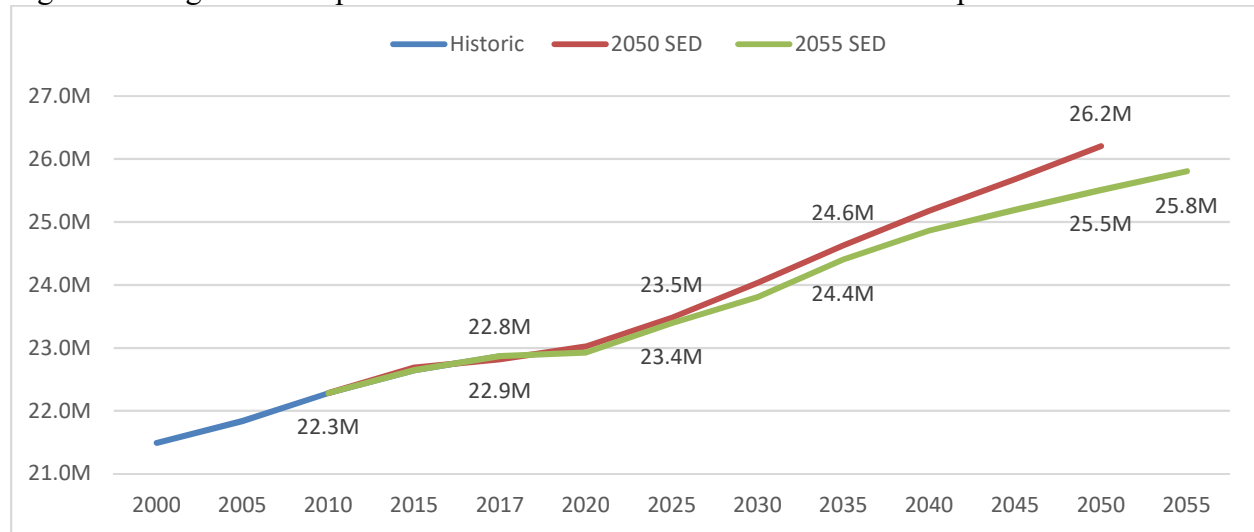
Source: NYMTC 2055 SED Forecast

3.2 Regional Model Total Population Results

What follows is a discussion of the agreed-upon Population forecast.

Figure 18 and Figure 19 compare the Regional and Subregional 2050 SED forecast to the 2055 SED Population forecasts. The 2055 SED Forecast shows population growing at an annual average rate of 0.3 percent for the NYMTC region, reaching a total of 25.8 million by 2055. Reflecting growth constraints and an aging population in a mature region, the forecast rates of growth slow in later years of the projection. Population growth between 2020 and 2050 region-wide is projected to be 2.6 million in the 2055 SED Forecast, below the 3.2 million previously forecast growth over the 30-year period in the 2050 SED forecast.

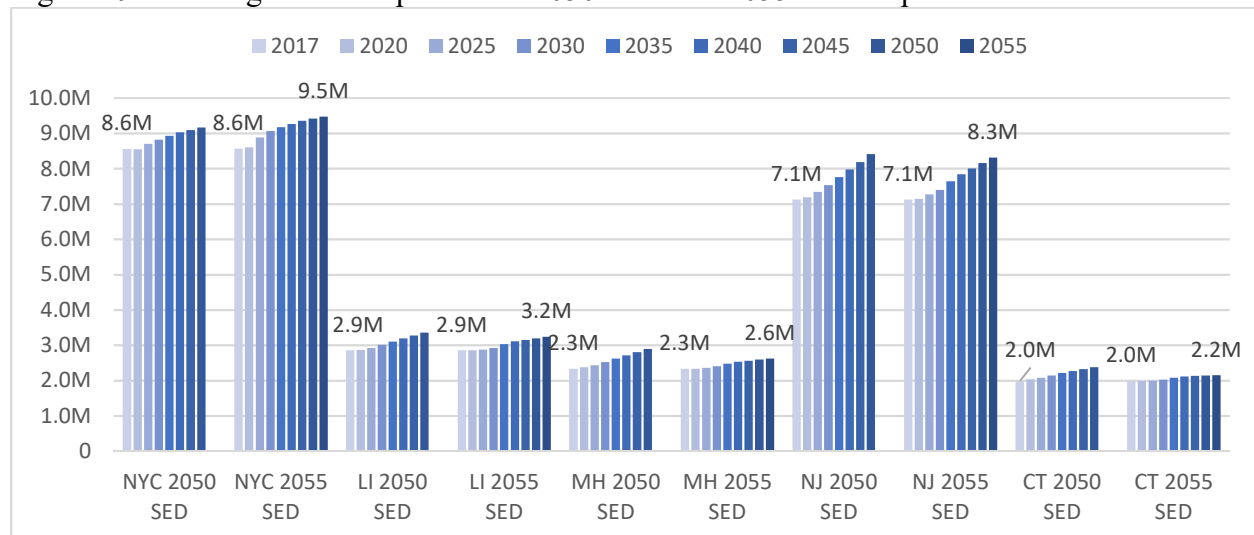
Figure 18. Regional Comparison of 2050 SED and 2055 SED Forecast Population Forecasts



Source: NYMTC 2050 SED Forecast, NYMTC 2055 SED Forecast

Note: Actual 2017 population was included for reference in the 2050 SED forecasts. Labeled for the years of 2010, 2017, 2025, 2050, and 2055.

Figure 19. Sub-Regional Comparison of 2050 SED and 2055 SED Population Forecasts



Source: NYMTC 2050 SED Forecast, NYMTC 2055 SED Forecast

Note: Actual 2017 population was included for reference in the 2050 SED forecasts.

Figure 20 presents the average annual percent change in population as forecasted. In the 2055 SED Population forecast, New York City is the only subregion that is expected to demonstrate higher population growth than previously forecasted in the 2020-2025 forecast period reflecting the strong population growth in the period since the previous forecasts were adopted. All the subregions, except for Connecticut where growth will be moderately reduced, are expected to grow at faster rates in the 2025-2030 and 2030-2035 forecast periods, reflecting the labor-induced migration derived from the rebound in employment. After the 2035 forecast year, population growth is expected to slow throughout the region.

Figure 20. 2050 SED and 2055 SED Forecast Compounded Average Annual Percent Change in Forecasted Population

	2017-2020	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045	2045-2050	2050-2055
Region 2050 SED	+0.29%	+0.40%	+0.47%	+0.49%	+0.44%	+0.40%	+0.40%	N/A
Region 2055 SED	+0.08%	+0.41%	+0.35%	+0.50%	+0.37%	+0.26%	+0.25%	+0.23%
NYC 2050 SED	+0.36%	+0.35%	+0.28%	+0.25%	+0.21%	+0.15%	+0.15%	N/A
NYC2055 SED	+0.16%	+0.64%	+0.40%	+0.24%	+0.20%	+0.19%	+0.15%	+0.11%
LI 2050 SED	+0.09%	+0.37%	+0.60%	+0.62%	+0.57%	+0.50%	+0.49%	N/A
LI 2055 SED	-0.06%	+0.16%	+0.27%	+0.78%	+0.51%	+0.22%	+0.30%	+0.30%
MH 2050 SED	+0.23%	+0.51%	+0.72%	+0.76%	+0.68%	+0.65%	+0.68%	N/A
MH 2055 SED	+0.04%	+0.27%	+0.36%	+0.59%	+0.43%	+0.25%	+0.23%	+0.22%
NJ 2050 SED	+0.32%	+0.42%	+0.52%	+0.60%	+0.55%	+0.52%	+0.54%	N/A
NJ 2055 SED	+0.12%	+0.33%	+0.35%	+0.67%	+0.52%	+0.40%	+0.39%	+0.38%
CT 2050 SED	+0.28%	+0.44%	+0.60%	+0.59%	+0.53%	+0.49%	+0.48%	N/A
CT 2055 SED	-0.12%	+0.16%	+0.24%	+0.52%	+0.33%	+0.16%	+0.12%	+0.12%

Source: NYMTC 2050 SED Forecast, NYMTC 2055 SED Forecast

The population forecasts by county are found in Figure 21 on the following page.

Figure 21. Population Model County Outputs: 2055 SED Forecast

	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
FORECAST REGION	22,282,010	22,645,974	22,869,314	22,927,086	23,395,599	23,807,305	24,406,004	24,862,623	25,193,199	25,508,292	25,807,114
Bronx County	1,385,108	1,423,160	1,443,220	1,454,816	1,515,667	1,548,245	1,573,786	1,595,881	1,616,845	1,633,550	1,646,673
Kings County	2,552,911	2,593,655	2,650,441	2,647,112	2,760,391	2,820,822	2,860,506	2,894,388	2,928,160	2,956,932	2,980,001
New York County	1,585,873	1,636,537	1,663,244	1,668,548	1,698,050	1,735,482	1,754,534	1,768,412	1,781,885	1,791,292	1,796,986
Queens County	2,250,002	2,294,943	2,323,062	2,349,324	2,418,636	2,463,405	2,483,716	2,500,457	2,517,076	2,528,763	2,537,200
Richmond County	468,730	477,525	482,793	484,897	491,202	495,047	498,769	502,327	505,464	507,920	510,354
New York City Total	8,242,624	8,425,820	8,562,760	8,604,697	8,883,946	9,063,001	9,171,311	9,261,465	9,349,430	9,418,457	9,471,214
Nassau County	1,339,532	1,354,612	1,363,069	1,354,852	1,363,996	1,383,374	1,440,708	1,479,799	1,493,007	1,520,308	1,547,609
Suffolk County	1,493,350	1,501,373	1,497,595	1,500,734	1,515,084	1,535,434	1,593,636	1,632,768	1,653,573	1,673,844	1,694,114
Long Island Total	2,832,882	2,855,985	2,860,664	2,855,585	2,879,080	2,918,808	3,034,344	3,112,567	3,146,580	3,194,151	3,241,723
Dutchess County	297,488	296,928	295,685	298,978	302,733	306,661	311,939	315,981	317,344	318,345	319,345
Orange County	372,813	375,384	378,174	382,922	396,313	413,156	433,295	452,288	468,310	484,820	501,330
Putnam County	99,710	99,488	99,464	98,919	99,187	101,005	104,221	106,526	107,614	108,090	108,566
Rockland County	311,687	320,688	325,027	321,338	332,006	343,484	360,101	376,095	390,377	405,819	421,262
Sullivan County	77,547	76,330	75,783	79,676	81,833	83,347	86,642	87,146	87,055	86,735	86,415
Ulster County	182,493	181,300	180,129	182,027	183,140	183,767	186,836	186,221	184,029	181,786	179,544
Westchester County	949,113	967,315	975,321	968,823	969,277	975,585	995,611	1,008,590	1,009,785	1,008,044	1,006,303
Mid-Hudson Total	2,290,851	2,317,433	2,329,583	2,332,682	2,364,487	2,407,004	2,478,645	2,532,847	2,564,513	2,593,639	2,622,766
Bergen County	905,116	926,330	937,920	929,861	944,937	965,414	997,118	1,028,379	1,055,613	1,083,869	1,112,125
Essex County	783,969	791,609	800,401	800,276	812,142	822,081	856,747	879,863	900,211	920,335	940,458
Hudson County	634,266	662,619	679,756	675,060	698,570	719,878	760,716	794,388	824,306	856,947	889,588
Hunterdon County	127,351	126,250	125,717	126,922	127,051	127,632	130,230	131,183	132,031	132,858	133,685
Mercer County	367,511	370,212	373,362	387,645	390,091	392,365	405,455	409,910	412,348	415,236	418,123
Middlesex County	809,858	830,300	837,288	837,396	854,613	871,636	896,183	915,202	927,323	939,723	952,123
Monmouth County	630,380	629,185	627,551	630,213	632,219	633,313	645,951	659,385	665,963	669,624	673,285
Morris County	492,276	498,192	498,847	500,829	502,637	505,284	513,852	518,916	524,363	528,760	533,156
Ocean County	576,567	583,450	589,699	597,539	616,017	638,917	663,764	686,473	707,129	727,653	748,176
Passaic County	501,226	507,574	510,563	515,029	524,618	535,109	558,963	574,967	588,041	599,628	611,215
Somerset County	323,444	330,604	333,316	336,521	341,784	346,043	353,811	360,297	363,037	363,486	363,934
Sussex County	149,265	145,930	143,570	146,004	146,474	146,866	149,705	151,604	151,762	152,337	152,911
Union County	536,499	548,744	557,320	554,212	563,662	576,297	595,930	616,885	634,789	652,581	670,373
Warren County	108,692	107,226	107,088	109,717	110,796	111,473	113,886	114,573	115,129	115,320	115,512
New Jersey Total	6,946,420	7,058,225	7,122,398	7,147,224	7,265,611	7,392,309	7,642,310	7,842,026	8,002,046	8,158,355	8,314,664
Fairfield County	916,829	939,983	947,328	944,219	953,407	970,387	1,007,001	1,036,974	1,059,030	1,078,948	1,098,866
Litchfield County	189,927	186,304	184,454	183,699	180,486	177,584	174,954	170,067	163,015	155,294	147,573
New Haven County	862,477	862,224	862,127	858,979	868,582	878,212	897,440	906,677	908,586	909,447	910,307
Connecticut Total	1,969,233	1,988,511	1,993,909	1,986,897	2,002,475	2,026,183	2,079,395	2,113,718	2,130,631	2,143,689	2,156,747

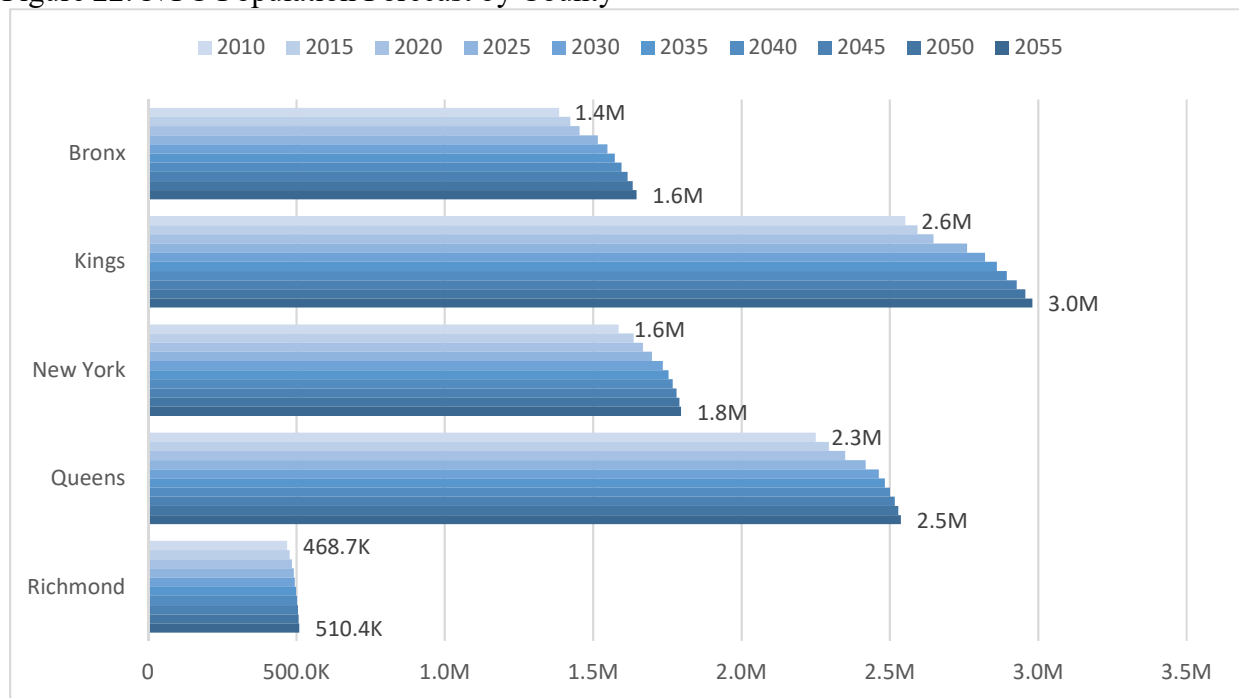
Source: NYMTC 2055 SED Forecast

3.3 Subregional Total Population Detail

3.3.1 New York City

The New York City subregion is projected to reach 9.47 million people by 2055, an increase of 908,500 people between 2017 and 2055. Figure 22 below illustrates NYC's population by county, which shows large increases from 2010-2025 due to significant increases in the number of housing units in the prior decade and expected in the early part of this decade. After this period, all counties in NYC are forecasted to grow, but are projected to increase at a decreasing rate.

Figure 22: NYC Population Forecast by County



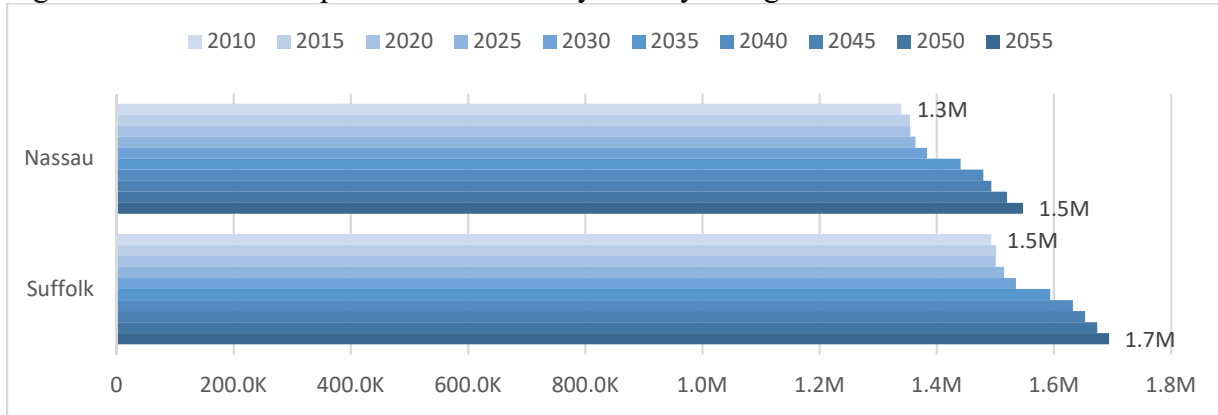
Source: NYMTC 2055 SED Forecast

3.3.2 Long Island

The Long Island subregional totals in Figure 21 show a gain of 381,100 residents between 2017 and the 2055 forecast year. Figure 23 illustrates Long Island's population forecast by county, which shows flat growth in both counties through 2025, before increasing after 2030 supported by infrastructure investment on the Long Island Railroad including the Expansion Project, Third Track and East Side Access.

It is notable that in all of Long Island, population growth is slower in the 2017 to 2030 period due to an aging population and a slowed economy. Nassau County's population is anticipated to grow at a compounded rate of 0.1 percent per year during that period, before increasing in the last 25 years of the forecast period to a pace of 0.4 percent per annum. Suffolk County's population grows at an overall annual average rate of 0.3 percent, ultimately reaching a 2055 total of 1.7 million residents.

Figure 23. 2055 SED Population Forecasts by County: Long Island

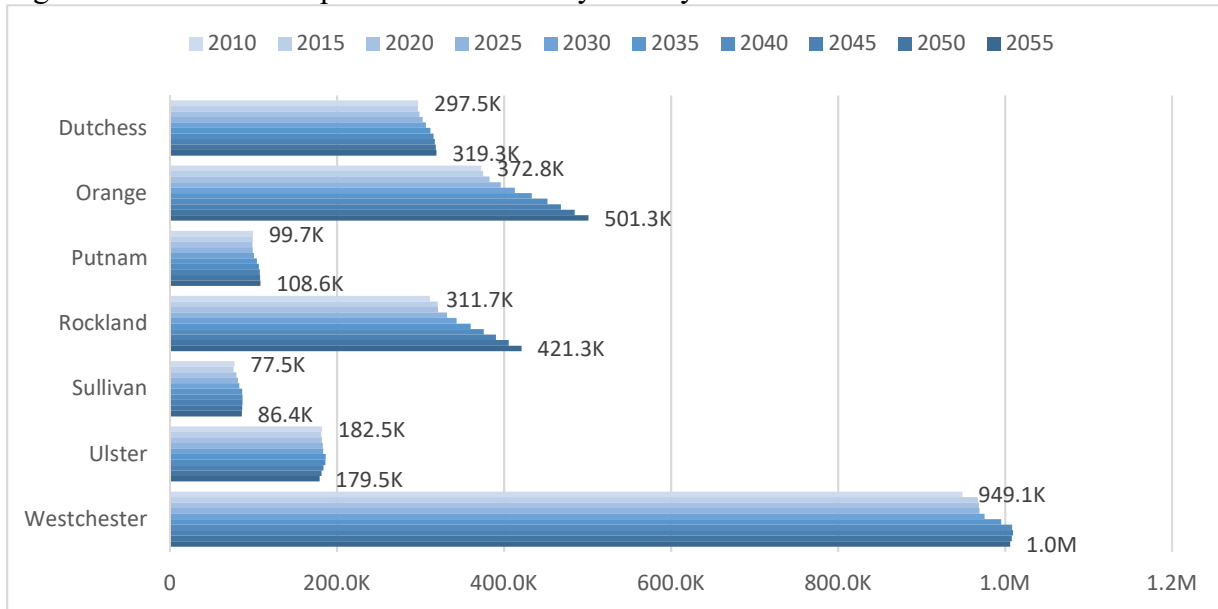


Source: NYMTC 2055 SED Forecast

3.3.2 Mid-Hudson

As shown in Figure 24 at the subregion level, in the 2055 SED forecast, the Mid-Hudson will grow by 293,200 residents between 2017 and the 2055 forecast year, largely due to a strong economy and labor-induced migration. The majority of population growth will occur in Orange and Rockland counties while the remaining counties hold relatively steady over the 38-year forecast period.

Figure 24. 2055 SED Population Forecasts by County: Mid-Hudson

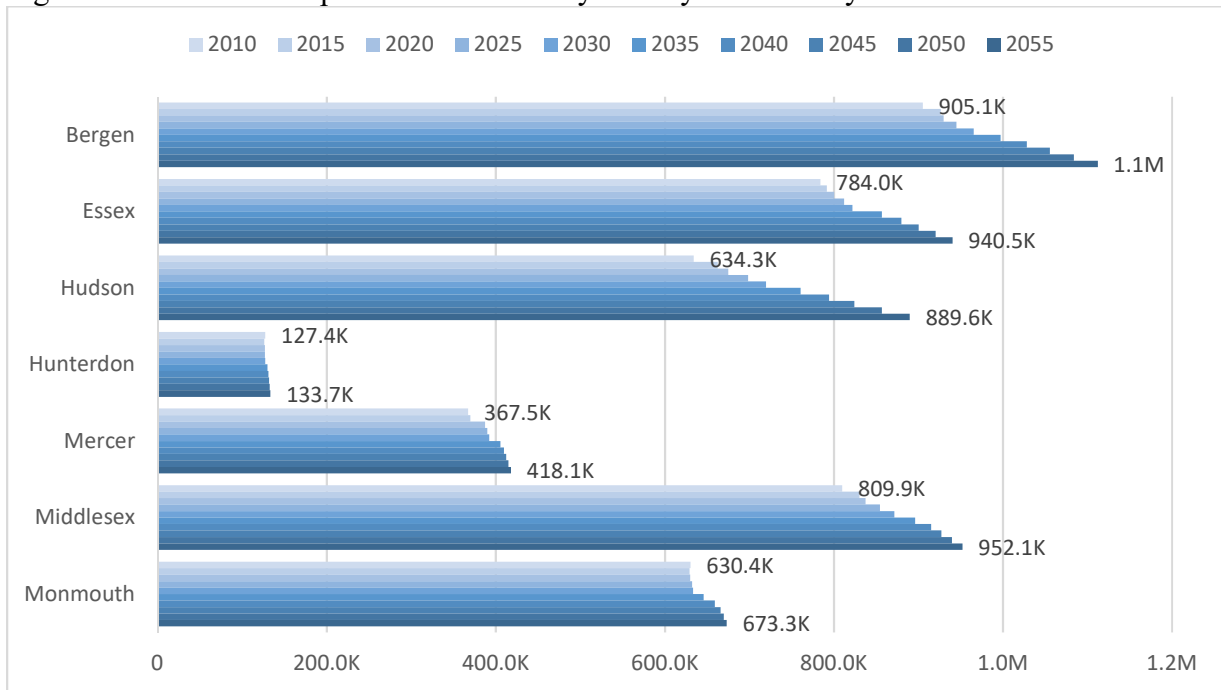


Source: NYMTC 2055 SED Forecast

3.3.4 New Jersey

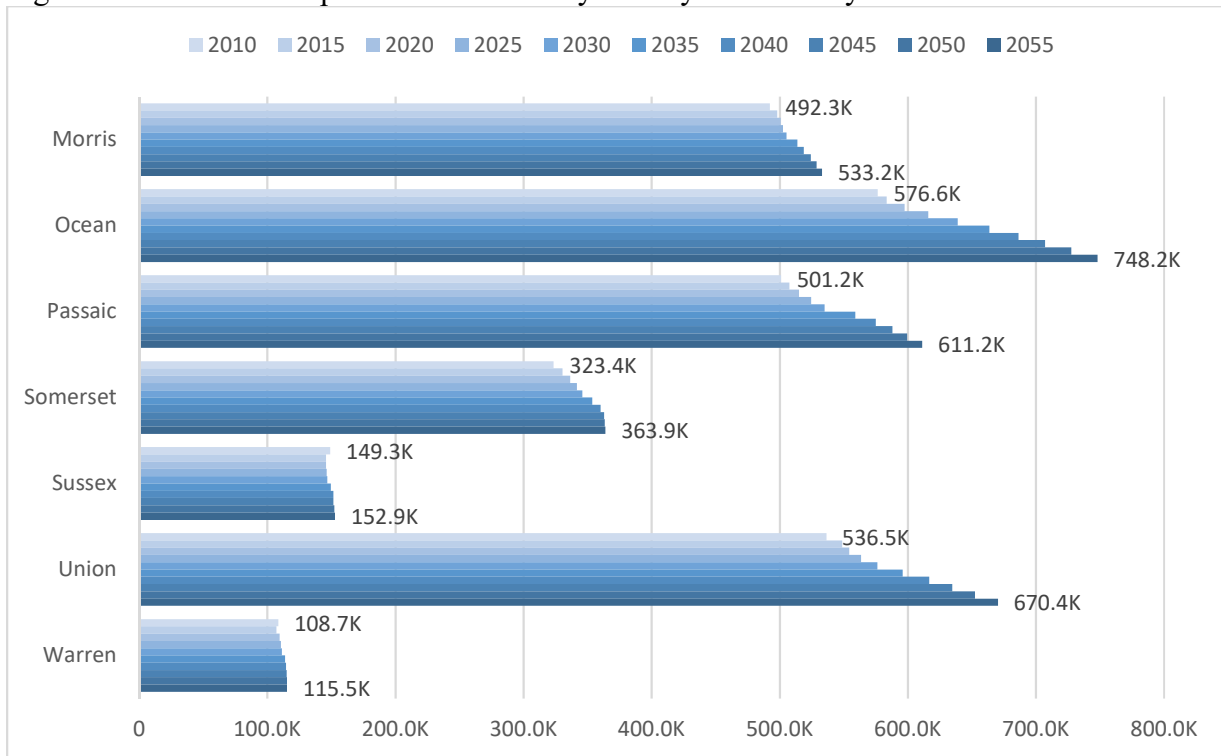
The New Jersey subregion will see an increase of 1.2 million people between 2017 and 2055, or an annual average increase of 0.4 percent. Based on the cohort-component models with the adjustments to labor-induced migration illustrated in Figure 25 and Figure 26, growth is expected in all counties over the period from 2017 to 2055. Hunterdon, Monmouth, Morris, Somerset, Sussex and Warren counties will experience compounded annual average growth of 0.1 to 0.3 percent while all other counties will expand by 0.4 to 0.7 percent annually.

Figure 25. 2055 SED Population Forecasts by County: New Jersey Pt. 1



Source: NYMTC 2055 SED Forecast

Figure 26. 2055 SED Population Forecasts by County: New Jersey Pt. 2

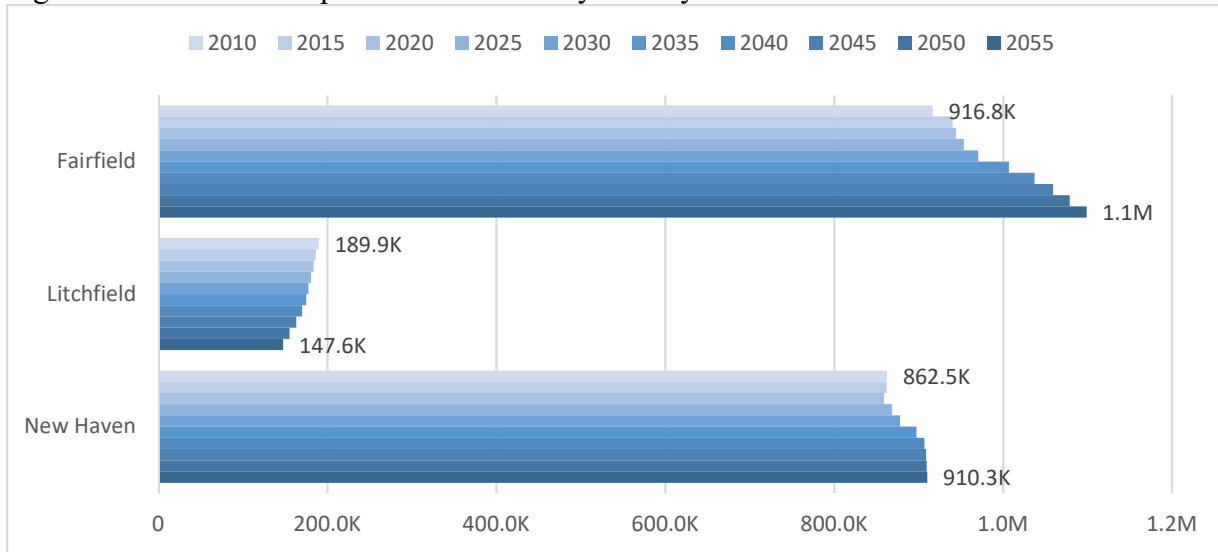


Source: NYMTC 2055 SED Forecast

3.3.5 Connecticut

The Connecticut subregion will see population growth in the 2055 SED forecast with Fairfield and New Haven counties increasing by 151,500 and 48,200 respectively, while Litchfield loses 36,900 residents in the 2017 to 2055 forecast year period. The population loss expected in Litchfield County follows long-term historic trends where deaths have outpaced births and little job growth has encouraged the County's youngest population to relocate elsewhere. Projected population growth in Fairfield and New Haven counties are attributed to continued job growth and higher birth rates in urban centers including Bridgeport, Stamford, and New Haven.

Figure 27. 2055 SED Population Forecasts by County: Connecticut

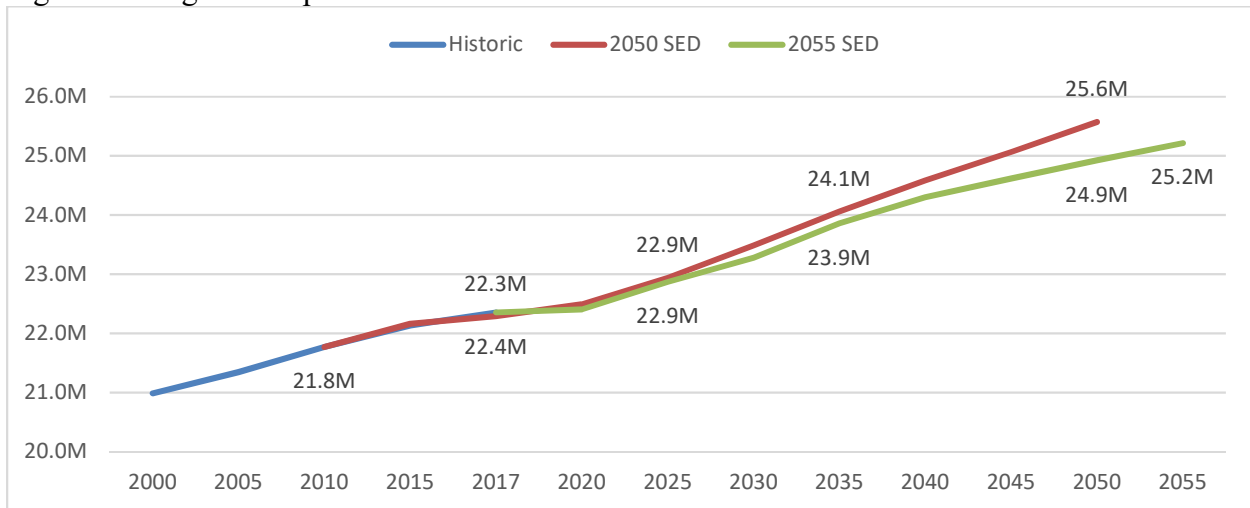


Source: NYMTC 2055 SED Forecast

3.4 Household Population Model Results

Technical Memorandum 2: Baseline Model Update describes the methodology for forecasting the household population. Figure 28 compares the 2055 SED and 2050 SED household population forecasts at the regional level. As shown, population growth between 2020 and 2050 region-wide is 2.5 million, 560,000 less than the previously forecast growth over the 30-year period. For all of the subregions outside of New York City, the aging population, lower birth rates and land use constraints will almost universally curtail population growth.

Figure 28. Regional Population in Households Forecasts: 2050 SED and 2055 SED Forecast



Source: NYMTC 2050 SED Forecast, NYMTC 2055 SED Forecast

Note: Labeled for the years of 2010, 2017, 2025, 2050, and 2055.

3.5 Subregional Population in Households Detail

Figure 29 looks at the differences in the 2055 SED and 2050 SED population forecasts for the NYMTC subregions. Following the same pattern as the Total Population, Population in Households generally increases at a lesser rate than the previous forecast. The 2055 SED Forecast projects increases most rapidly during the 2020-2040 period, reflecting the labor-induced migration from the anticipated economic recovery.

Figure 29. 2050 SED and 2055 SED Forecast Compounded Average Annual Percent Change in Forecasted Population in Households

	2017-2020	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045	2045-2050	2050-2055
Region 2050 SED	+0.30%	+0.40%	+0.47%	+0.48%	+0.43%	+0.39%	+0.40%	N/A
Region 2055 SED	+0.07%	+0.41%	+0.35%	+0.50%	+0.37%	+0.26%	+0.25%	+0.23%
NYC 2050 SED	+0.37%	+0.35%	+0.28%	+0.25%	+0.21%	+0.15%	+0.15%	N/A
NYC 2055 SED	+0.17%	+0.65%	+0.41%	+0.24%	+0.20%	+0.19%	+0.15%	+0.11%
LI 2050 SED	+0.08%	+0.37%	+0.60%	+0.61%	+0.56%	+0.49%	+0.49%	N/A
LI 2055 SED	-0.06%	+0.17%	+0.27%	+0.77%	+0.50%	+0.21%	+0.30%	+0.29%
MH 2050 SED	+0.24%	+0.51%	+0.72%	+0.75%	+0.67%	+0.63%	+0.68%	N/A
MH 2055 SED	-0.00%	+0.28%	+0.37%	+0.59%	+0.42%	+0.24%	+0.22%	+0.22%
NJ 2050 SED	+0.31%	+0.41%	+0.51%	+0.59%	+0.53%	+0.51%	+0.53%	N/A
NJ 2055 SED	+0.10%	+0.33%	+0.34%	+0.66%	+0.51%	+0.40%	+0.38%	+0.38%
CT 2050 SED	+0.29%	+0.44%	+0.60%	+0.58%	+0.51%	+0.47%	+0.47%	N/A
CT 2055 SED	-0.13%	+0.17%	+0.24%	+0.51%	+0.31%	+0.14%	+0.12%	+0.11%

Source: NYMTC 2050 SED Forecast, NYMTC 2055 SED Forecast

The county level population in households forecast is found in Figure 30.

Figure 30. Population in Households County Outputs: 2055 SED Forecast

	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
FORECAST REGION	21,767,983	22,135,811	22,353,914	22,403,458	22,870,708	23,275,233	23,858,806	24,299,967	24,617,916	24,924,025	25,213,863
Bronx County	1,338,398	1,376,450	1,396,510	1,408,106	1,468,957	1,501,535	1,527,076	1,549,171	1,570,135	1,586,840	1,599,963
Kings County	2,517,302	2,558,046	2,614,832	2,611,503	2,724,782	2,785,213	2,824,897	2,858,779	2,892,551	2,921,323	2,944,392
New York County	1,518,500	1,569,164	1,595,871	1,601,175	1,630,677	1,668,109	1,687,161	1,701,039	1,714,512	1,723,919	1,729,613
Queens County	2,222,002	2,266,943	2,295,062	2,321,324	2,390,636	2,435,405	2,455,716	2,472,457	2,489,076	2,500,763	2,509,200
Richmond County	460,892	469,687	474,955	477,059	483,364	487,209	490,931	494,489	497,626	500,082	502,516
New York City Total	8,057,094	8,240,290	8,377,230	8,419,167	8,698,416	8,877,471	8,985,781	9,075,935	9,163,900	9,232,927	9,285,684
Nassau County	1,317,866	1,334,110	1,341,860	1,332,558	1,341,943	1,360,795	1,417,236	1,455,485	1,468,602	1,495,629	1,522,656
Suffolk County	1,463,944	1,469,364	1,466,116	1,470,061	1,484,064	1,503,425	1,559,508	1,596,377	1,615,287	1,634,224	1,653,161
Long Island Total	2,781,810	2,803,474	2,807,976	2,802,620	2,826,008	2,864,219	2,976,744	3,051,861	3,083,889	3,129,853	3,175,816
Dutchess County	277,523	278,598	276,805	279,258	283,436	287,563	292,355	295,479	296,022	296,553	297,084
Orange County	360,583	363,736	366,142	370,319	383,294	399,653	419,059	437,079	452,266	468,042	483,818
Putnam County	97,118	96,967	96,895	96,271	96,495	98,223	101,308	103,502	104,516	104,958	105,401
Rockland County	304,504	313,688	317,718	313,569	323,825	334,797	350,930	366,540	380,461	395,600	410,740
Sullivan County	73,722	72,173	71,782	75,905	78,026	79,489	82,632	83,096	82,983	82,670	82,357
Ulster County	170,720	169,346	168,367	170,555	171,834	172,445	175,214	174,402	172,204	169,985	167,765
Westchester County	920,409	940,266	947,004	938,600	939,563	946,223	965,529	977,633	978,116	976,081	974,046
Mid-Hudson Total	2,204,579	2,234,774	2,244,713	2,244,477	2,276,475	2,318,392	2,387,027	2,437,733	2,466,568	2,493,889	2,521,211
Bergen County	894,694	915,062	926,752	918,847	933,834	953,953	985,259	1,015,884	1,042,467	1,070,339	1,098,211
Essex County	760,197	770,219	778,002	776,005	787,412	796,731	830,094	852,532	872,139	891,579	911,018
Hudson County	624,888	655,357	671,568	665,492	688,674	709,257	749,135	782,169	811,750	843,972	876,194
Hunterdon County	123,780	121,947	121,561	122,983	123,221	123,796	126,414	127,258	127,955	128,643	129,331
Mercer County	347,708	351,214	353,823	367,238	369,897	372,030	384,486	388,548	390,529	392,936	395,343
Middlesex County	786,023	802,652	810,944	813,018	829,611	845,991	869,751	887,906	899,318	911,109	922,900
Monmouth County	622,710	622,518	620,408	622,315	624,162	624,982	637,163	649,984	656,139	659,673	663,206
Morris County	483,410	489,144	489,531	491,006	492,773	495,318	503,711	508,322	513,236	517,212	521,187
Ocean County	569,404	576,313	582,532	590,471	608,933	631,391	655,662	677,979	698,290	718,573	738,856
Passaic County	490,207	498,115	500,397	503,803	513,210	523,405	546,682	562,273	574,871	586,070	597,269
Somerset County	319,474	326,282	328,883	331,993	337,102	341,130	348,626	354,739	357,190	357,489	357,787
Sussex County	147,523	143,804	141,520	144,028	144,342	144,509	147,105	148,759	148,755	149,242	149,729
Union County	529,695	541,525	550,168	547,162	556,491	568,798	588,100	608,690	626,304	643,889	661,474
Warren County	106,724	105,117	105,025	107,723	108,792	109,430	111,670	112,150	112,527	112,576	112,624
New Jersey Total	6,806,437	6,919,269	6,981,114	7,002,085	7,118,453	7,240,720	7,483,858	7,677,194	7,831,470	7,983,301	8,135,131
Fairfield County	897,661	921,584	928,120	923,805	933,149	949,701	985,327	1,014,223	1,035,197	1,054,382	1,073,568
Litchfield County	187,123	183,017	181,378	180,941	177,673	174,589	171,729	166,699	159,608	152,039	144,470
New Haven County	833,279	833,403	833,383	830,363	840,534	850,140	868,340	876,323	877,285	877,634	877,983
Connecticut Total	1,918,063	1,938,004	1,942,881	1,935,109	1,951,356	1,974,430	2,025,396	2,057,244	2,072,089	2,084,055	2,096,021

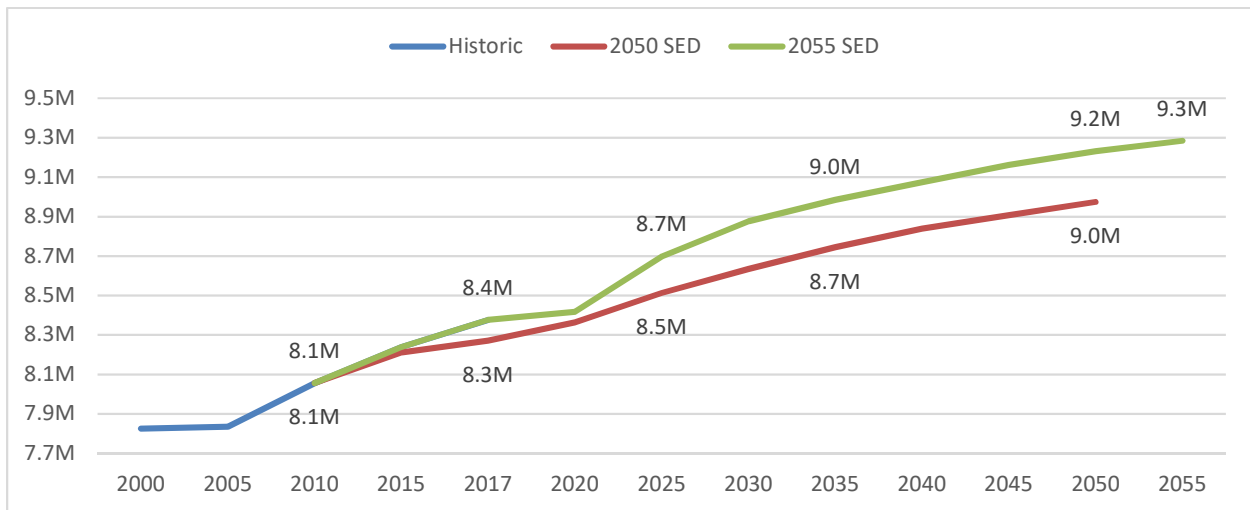
Source: NYMTC 2055 SED Forecast

3.5.1 New York City

Figure 31 to Figure 35 present the comparison of Population in the Households in 2055 SED and 2050 SED forecasts for each of the NYMTC subregions.

In the New York City subregion, the 2055 SED forecast for the 2050 forecast year is 257,400 persons greater than the 2050 SED forecast (see Figure 31).). The household population for both the 2050 and 2055 SED forecasts follow the same growth pattern as the total population, as household population was calculated by subtracting the constant group quarters population from the total population at each time point. Growth in population in households from 2010-2025 in the 2055 SED forecast is driven by construction of housing units in the past decade and continued construction anticipated in the first half of the current decade. In both the 2050 and 2055 SED forecasts, all counties continue to grow in the later periods, but at a decreasing rate.

Figure 31: New York City Subregion Population in Households Forecasts: 2050 SED and 2055 SED Forecasts



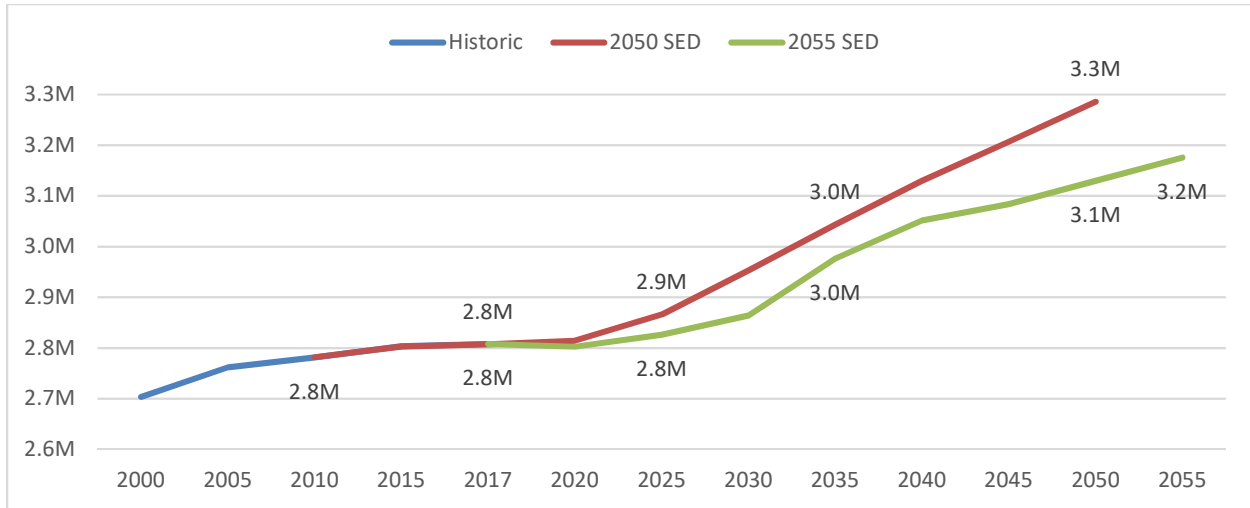
Source: NYMTC 2050 SED Forecast, NYMTC 2055 SED Forecast

Note: Labeled for the years of 2010, 2017, 2025, 2050, and 2055.

3.5.2 Long Island

As shown in Figure 32, the 2055 SED forecast in the Long Island subregion is nearly 156,000 persons less in the 2050 forecast year than in the 2050 SED forecast. Further, the 2050 SED forecast in Long Island shows a straight line of growth from 2015 to 2050; whereas the 2055 SED forecast shows robust growth in the periods between 2030 and 2040 before leveling out for the remainder of the forecast period. However, even though the 2055 SED projects less growth than the 2050 SED, growth throughout the forecast period is at higher rates than shown 2000 to 2017.

Figure 32. Long Island Subregion Population in Households Forecasts: 2050 SED and 2055 SED Forecasts



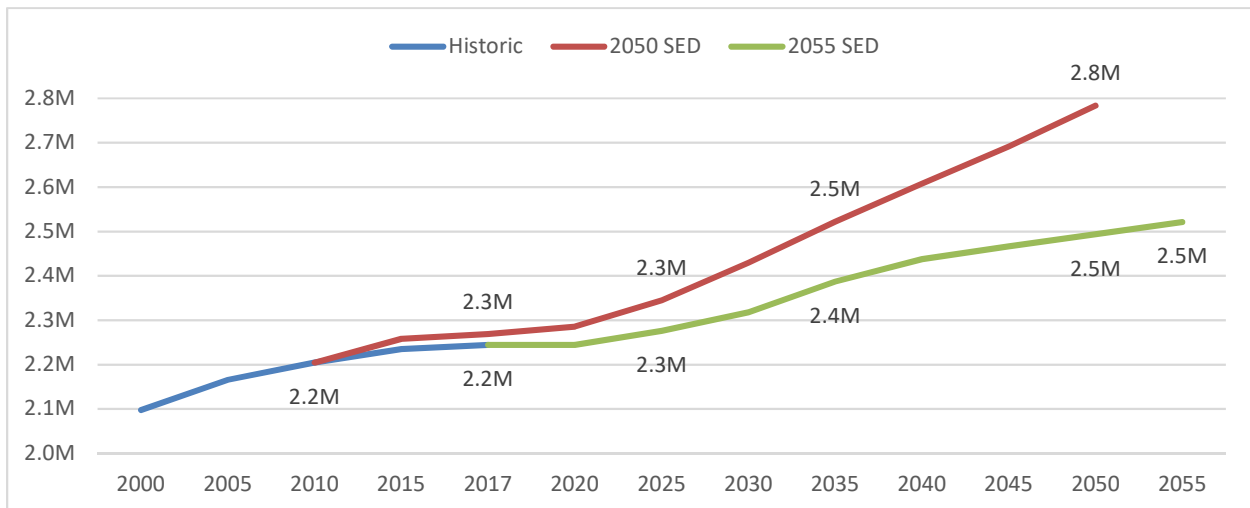
Source: NYMTC 2050 SED Forecast, NYMTC 2055 SED Forecast

Note: Labeled for the years of 2010, 2017, 2025, 2050, and 2055.

3.5.3 Mid-Hudson

The Mid-Hudson subregion 2055 SED forecast is nearly 290,000 persons lower than anticipated in the 2050 SED forecast for the 2050 forecast year. This reduction in population in the outer years reflects input from the FWG regarding land use constraints to new housing; however the forecasts still present greater than historic growth rates.

Figure 33. Mid-Hudson Subregion Population in Households Forecasts: 2050 SED and 2055 SED Forecasts



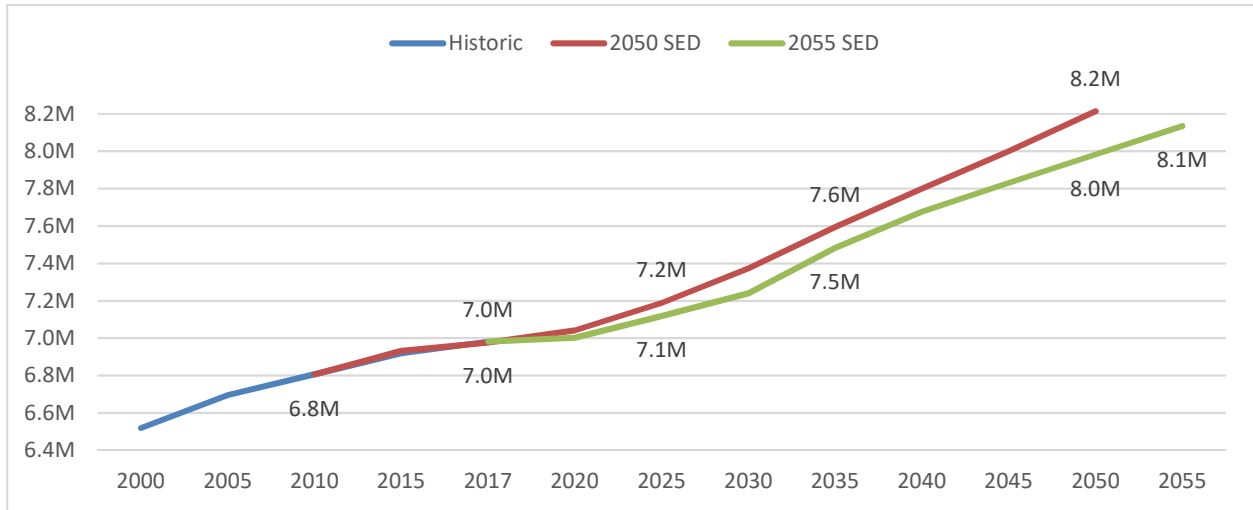
Source: NYMTC 2050 SED Forecast, NYMTC 2055 SED Forecast

Note: Labeled for the years of 2010, 2017, 2025, 2050, and 2055.

3.5.4 New Jersey

As shown in Figure 34, the 2055 SED forecast in the New Jersey subregion follows the same trajectory as the 2050 SED forecast, but at a slightly lower rate, reflecting declining natural increase despite the increased levels of development in recent years in counties such as Hudson, Bergen, and Essex.

Figure 34. New Jersey Subregion Population in Households Forecasts: 2050 SED and 2055 SED Forecasts



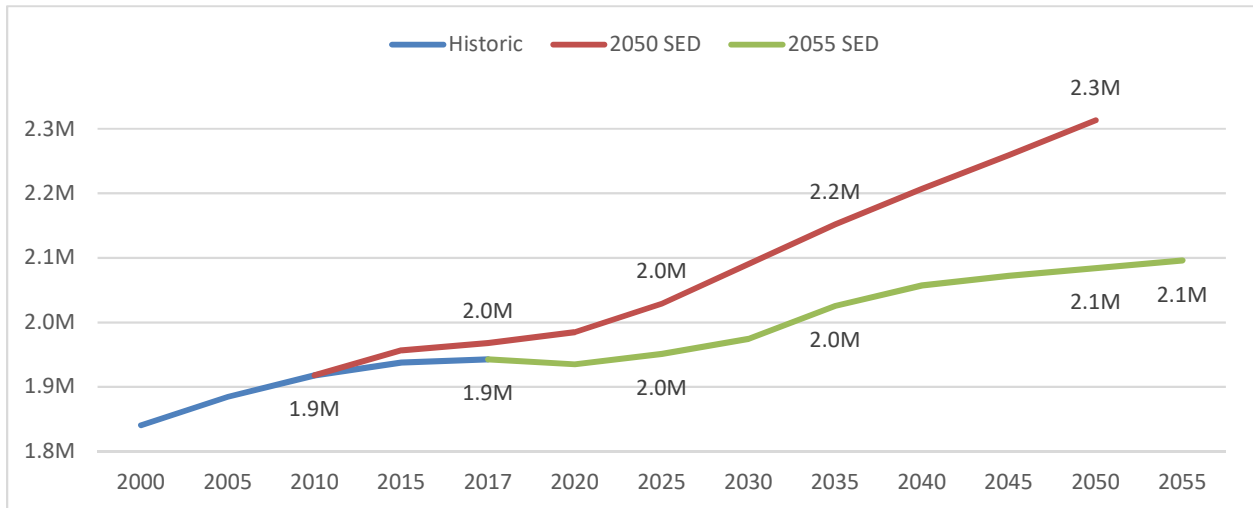
Source: NYMTC 2050 SED Forecast, NYMTC 2055 SED Forecast

Note: Labeled for the years of 2010, 2017, 2025, 2050, and 2055.

3.5.5 Connecticut

The 2055 SED forecast in the Connecticut subregion projects a less aggressive trajectory than the 2050 SED forecast due to reduced migration, low levels of population growth, and less intensive development activity in recent years.

Figure 35. Connecticut Subregion Population in Households Forecasts: 2050 SED and 2055 SED Forecasts



Source: NYMTC 2050 SED Forecast, NYMTC 2055 SED Forecast

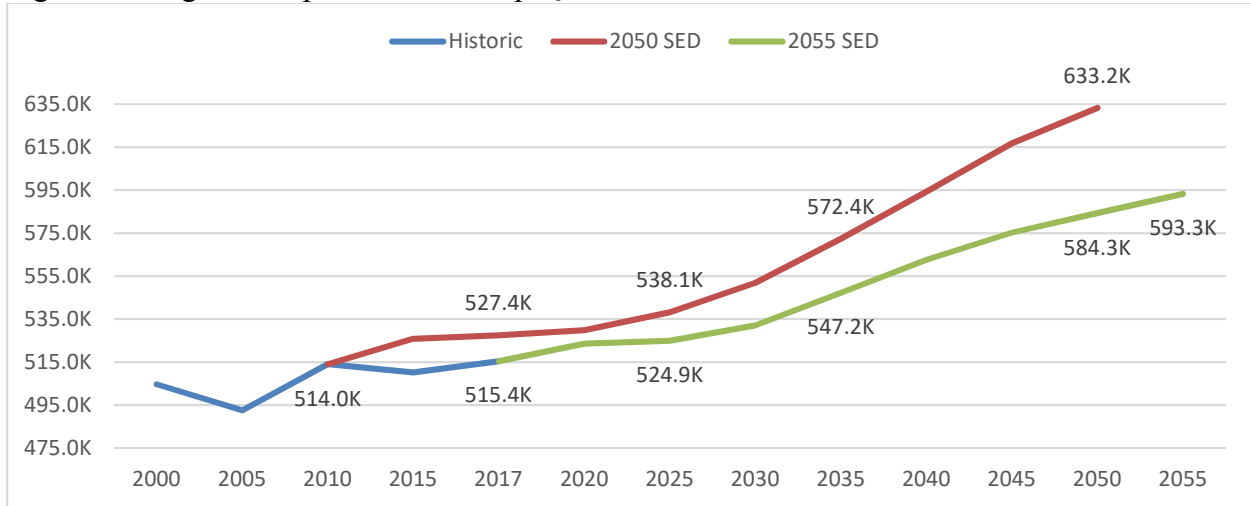
Note: Labeled for the years of 2010, 2017, 2025, 2050, and 2055.

3.6 Group Quarters Population

Technical Memorandum 2: Baseline Model Update describes the methodology for the group quarters population forecasts. Figure 36 compares the 2055 SED forecast to the 2050 SED forecast for the region. As shown, the population in group quarters is expected to grow at a slower rate in

the 2055 SED forecast than in the 2050 SED forecast, with the 2050 total being roughly 49,000 less than previously forecasted.

Figure 36. Regional Population in Group Quarters Forecasts: 2050 SED and 2055 SED Forecasts



Source: NYMTC 2050 SED Forecast, NYMTC 2055 SED Forecast

Note: Labeled for the years of 2010, 2017, 2025, 2050, and 2055.

Given the very minor changes in the group quarters forecasts, they will not be discussed in depth; however the full forecast results for the Group Quarters Population on a county-by-county basis is found in Figure 37 on the following page.

Figure 37. Group Quarters Population County Outputs: 2055 Forecast

	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
FORECAST REGION	514,027	510,163	515,400	523,628	524,891	532,072	547,199	562,656	575,283	584,267	593,251
Bronx County	46,710	46,710	46,710	46,710	46,710	46,710	46,710	46,710	46,710	46,710	46,710
Kings County	35,609	35,609	35,609	35,609	35,609	35,609	35,609	35,609	35,609	35,609	35,609
New York County	67,373	67,373	67,373	67,373	67,373	67,373	67,373	67,373	67,373	67,373	67,373
Queens County	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000
Richmond County	7,838	7,838	7,838	7,838	7,838	7,838	7,838	7,838	7,838	7,838	7,838
New York City Total	185,530	185,530	185,530	185,530	185,530	185,530	185,530	185,530	185,530	185,530	185,530
Nassau County	21,666	20,502	21,209	22,293	22,053	22,579	23,472	24,315	24,405	24,679	24,953
Suffolk County	29,406	32,009	31,479	30,672	31,019	32,009	34,129	36,392	38,286	39,620	40,954
Long Island Total	51,072	52,511	52,688	52,966	53,072	54,588	57,600	60,706	62,691	64,299	65,907
Dutchess County	19,965	18,330	18,880	19,720	19,296	19,097	19,584	20,501	21,322	21,792	22,261
Orange County	12,230	11,648	12,032	12,602	13,019	13,503	14,236	15,209	16,044	16,778	17,512
Putnam County	2,592	2,521	2,569	2,648	2,691	2,782	2,914	3,024	3,098	3,132	3,165
Rockland County	7,183	7,000	7,309	7,769	8,180	8,687	9,172	9,554	9,916	10,219	10,522
Sullivan County	3,825	4,157	4,001	3,771	3,806	3,858	4,010	4,050	4,072	4,065	4,058
Ulster County	11,773	11,954	11,762	11,472	11,306	11,322	11,622	11,819	11,824	11,802	11,779
Westchester County	28,704	27,049	28,317	30,224	29,713	29,362	30,082	30,956	31,669	31,963	32,257
Mid-Hudson Total	86,272	82,659	84,870	88,205	88,013	88,612	91,618	95,114	97,945	99,750	101,555
Bergen County	10,422	11,268	11,168	11,014	11,103	11,462	11,859	12,495	13,147	13,530	13,914
Essex County	23,772	21,390	22,399	24,271	24,730	25,350	26,654	27,332	28,072	28,756	29,440
Hudson County	9,378	7,262	8,188	9,567	9,896	10,622	11,581	12,220	12,556	12,975	13,394
Hunterdon County	3,571	4,303	4,156	3,939	3,830	3,837	3,816	3,925	4,075	4,215	4,354
Mercer County	19,803	18,998	19,539	20,406	20,194	20,335	20,968	21,361	21,819	22,300	22,780
Middlesex County	23,835	27,648	26,344	24,378	25,002	25,645	26,431	27,296	28,005	28,614	29,223
Monmouth County	7,670	6,667	7,143	7,899	8,057	8,332	8,788	9,400	9,824	9,951	10,079
Morris County	8,866	9,048	9,316	9,823	9,864	9,966	10,141	10,594	11,128	11,548	11,968
Ocean County	7,163	7,137	7,167	7,068	7,084	7,526	8,102	8,494	8,840	9,080	9,320
Passaic County	11,019	9,459	10,166	11,226	11,408	11,704	12,280	12,694	13,170	13,558	13,946
Somerset County	3,970	4,322	4,433	4,528	4,682	4,913	5,185	5,557	5,847	5,997	6,147
Sussex County	1,742	2,126	2,050	1,976	2,132	2,357	2,600	2,845	3,007	3,094	3,182
Union County	6,804	7,219	7,152	7,049	7,171	7,499	7,831	8,195	8,486	8,692	8,899
Warren County	1,968	2,109	2,063	1,994	2,004	2,043	2,216	2,423	2,602	2,745	2,888
New Jersey Total	139,983	138,956	141,284	145,138	147,158	151,589	158,452	164,832	170,576	175,055	179,533
Fairfield County	19,168	18,399	19,208	20,414	20,258	20,686	21,674	22,751	23,833	24,565	25,298
Litchfield County	2,804	3,287	3,076	2,758	2,813	2,996	3,225	3,368	3,407	3,256	3,104
New Haven County	29,198	28,821	28,744	28,616	28,048	28,072	29,100	30,354	31,301	31,813	32,324
Connecticut Total	51,170	50,507	51,028	51,788	51,118	51,753	53,999	56,473	58,541	59,634	60,726

Source: NYMTC 2055 SED Forecast

4.0 Labor Force

As with population, labor force is a place-of-residence factor, with the results driven by population as well as labor force participation rates applied by sex and age cohort at the county level as discussed in *Technical Memorandum 2: Baseline Model Update*. The labor force forecasts that follow are derived from the labor force sub-model with the 2055 SED population model as of August 20, 2020.

4.1 Labor Force Participation Rates

The labor force participation rates (LFPR) for the forecast years are derived from the Bureau of Labor Statistics' (BLS) forecasts of labor force participation through 2026. The LFPR for 2020 and 2025 reflect the BLS forecasts directly; the outlying years are held constant at 2025 levels. Figure 38 shows the LFPR for the region on average. LFPR vary by county; county level tables may be found in the Excel appendix that accompanies this Technical Memorandum.

Figure 38. 2055 SED Forecast Regional Labor Force Participation Rates by Gender and Age Cohort

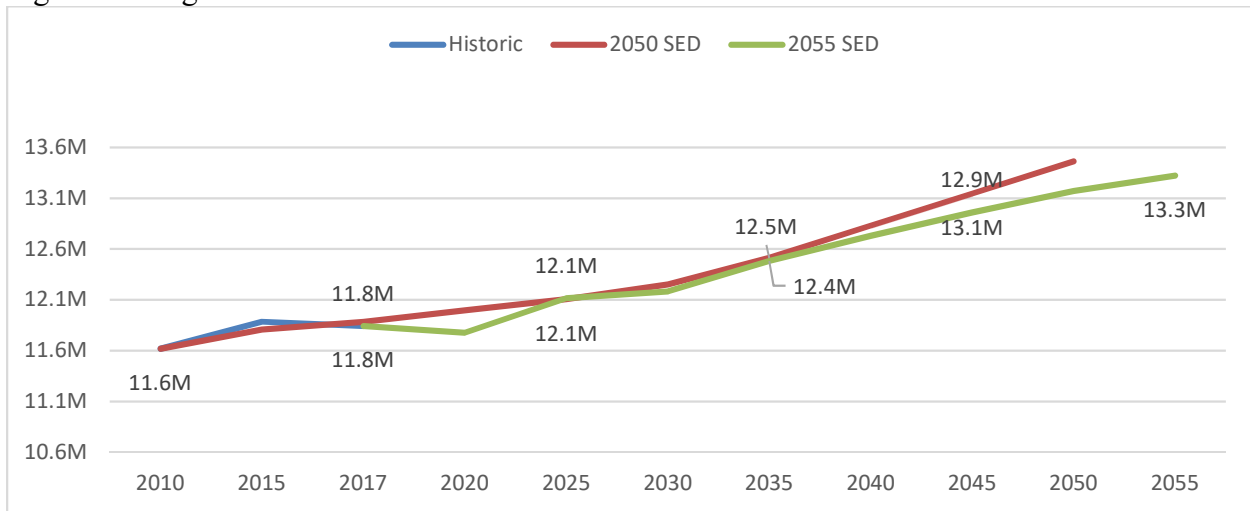
Region	Gender	Age	Labor Force Participation Rates									
			PUMS Estimates			2020	2025	2030	2035	2040	2045	2050
			2010	2012	2015							
Forecast Region	Females	16 - 19	30.0%	31.4%	29.8%	29.1%	29.1%	29.1%	29.1%	29.1%	29.1%	29.1%
Forecast Region	Females	20 - 24	66.6%	66.8%	65.2%	65.1%	64.9%	64.9%	64.9%	64.9%	64.9%	64.9%
Forecast Region	Females	25 - 29	77.0%	79.9%	78.9%	79.4%	80.2%	80.2%	80.2%	80.2%	80.2%	80.2%
Forecast Region	Females	30 - 34	75.9%	77.4%	77.2%	77.7%	78.5%	78.5%	78.5%	78.5%	78.5%	78.5%
Forecast Region	Females	35 - 39	75.0%	75.5%	75.9%	76.0%	76.1%	76.1%	76.1%	76.1%	76.1%	76.1%
Forecast Region	Females	40 - 44	74.8%	76.6%	76.0%	76.1%	76.3%	76.3%	76.3%	76.3%	76.3%	76.3%
Forecast Region	Females	45 - 49	77.6%	77.8%	77.4%	78.2%	79.5%	79.5%	79.5%	79.5%	79.5%	79.5%
Forecast Region	Females	50 - 54	77.6%	77.4%	76.4%	77.2%	78.5%	78.5%	78.5%	78.5%	78.5%	78.5%
Forecast Region	Females	55 - 59	70.7%	71.6%	71.5%	73.1%	75.9%	75.9%	75.9%	75.9%	75.9%	75.9%
Forecast Region	Females	60 - 64	55.9%	56.6%	56.9%	58.8%	62.2%	62.2%	62.2%	62.2%	62.2%	62.2%
Forecast Region	Females	65+	14.2%	15.2%	16.2%	17.0%	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%
Forecast Region	Males	16 - 19	27.8%	29.0%	28.3%	27.2%	25.4%	25.4%	25.4%	25.4%	25.4%	25.4%
Forecast Region	Males	20 - 24	68.7%	68.0%	68.3%	67.5%	66.1%	66.1%	66.1%	66.1%	66.1%	66.1%
Forecast Region	Males	25 - 29	86.9%	85.7%	86.2%	85.8%	85.3%	85.3%	85.3%	85.3%	85.3%	85.3%
Forecast Region	Males	30 - 34	91.3%	90.4%	90.3%	89.9%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%
Forecast Region	Males	35 - 39	91.9%	91.8%	91.7%	91.4%	91.0%	91.0%	91.0%	91.0%	91.0%	91.0%
Forecast Region	Males	40 - 44	90.7%	91.4%	91.0%	90.7%	90.3%	90.3%	90.3%	90.3%	90.3%	90.3%
Forecast Region	Males	45 - 49	89.3%	89.2%	89.2%	88.9%	88.3%	88.3%	88.3%	88.3%	88.3%	88.3%
Forecast Region	Males	50 - 54	86.3%	86.1%	86.1%	85.8%	85.2%	85.2%	85.2%	85.2%	85.2%	85.2%
Forecast Region	Males	55 - 59	81.5%	80.8%	81.1%	80.9%	80.6%	80.6%	80.6%	80.6%	80.6%	80.6%
Forecast Region	Males	60 - 64	64.6%	65.9%	66.2%	66.6%	67.4%	67.4%	67.4%	67.4%	67.4%	67.4%
Forecast Region	Males	65+	24.1%	24.9%	25.4%	26.0%	27.0%	27.0%	27.0%	27.0%	27.0%	27.0%

Source: NYMTC 2055 SED Forecast

4.2 Civilian Labor Force

Figure 39 presents a comparison of the 2055 SED and 2050 SED forecasts of civilian labor force for the Region. While the 2055 SED forecast dips slightly in 2020, it matches up with the 2050 SED forecast in 2025. The 2055 SED forecast diverges from the 2050 SED forecast with comparatively lesser growth after 2035. By 2050, the 2055 SED forecast projects the civilian labor force to be 2.2 percent less or 291,000 laborers fewer than the 2050 SED forecast.

Figure 39. Regional Labor Force Forecasts: 2050 SED and 2055 SED Forecasts



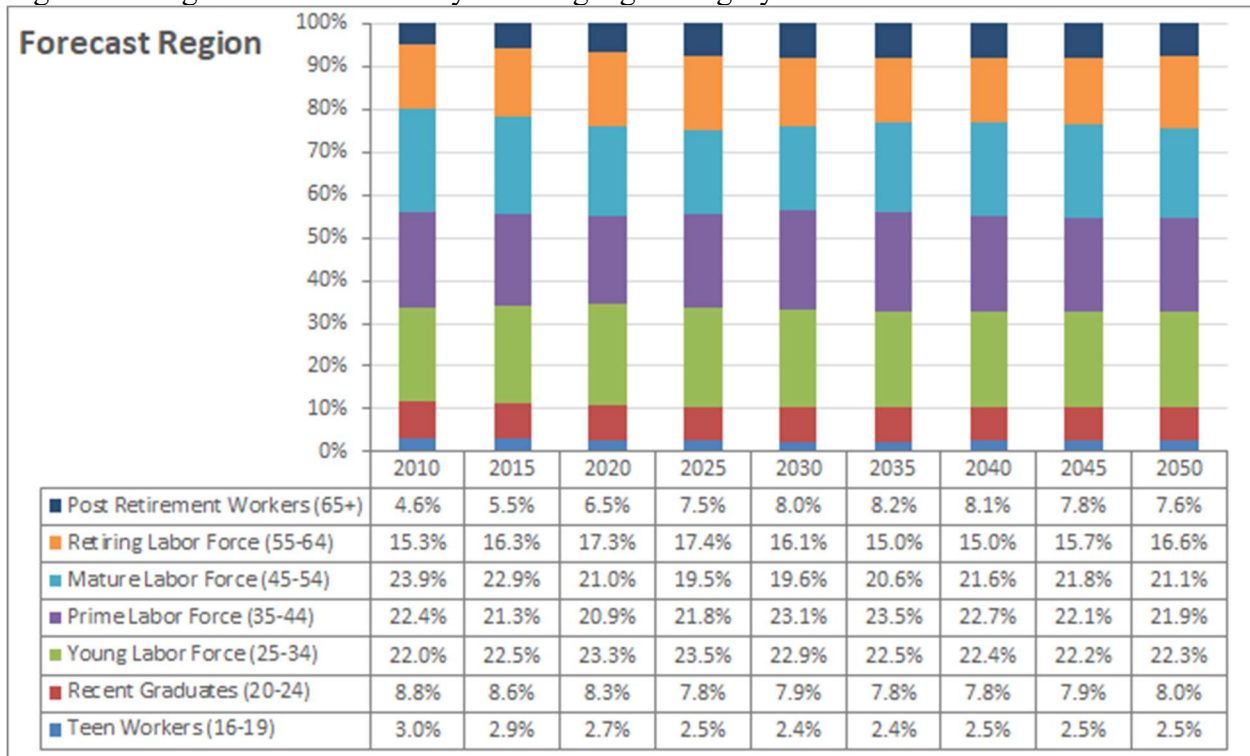
Source: NYMTC 2050 SED Forecast, NYMTC 2055 SED Forecast

Note: Labeled for the years of 2010, 2017, 2025, 2050, and 2055.

Figure 40 to Figure 45 on the following pages show the makeup of the regional and subregional labor force in terms of working age category from 2010 to 2050. These tables are calculated within the Labor Force sub-model drawing from the subregional cohort-component models, therefore they do not include the 2055 forecast point which was determined by linear regression of the category totals.

As shown in Figure 40, the labor force is aging throughout the region. The retiring and post-retirement age groups are increasing in share (from 15.3% to 16.6% and from 4.6% to 7.6%, respectively) while all other working age categories decline through 2050. The Young, Prime and Mature labor force categories shift from an aggregate share of 68.3 percent in 2010 to 65.3 percent in 2050. The aging of the labor force has implications on the ability of the labor supply to meet demand as labor force participation rates decrease as the population ages as shown in Figure 38.

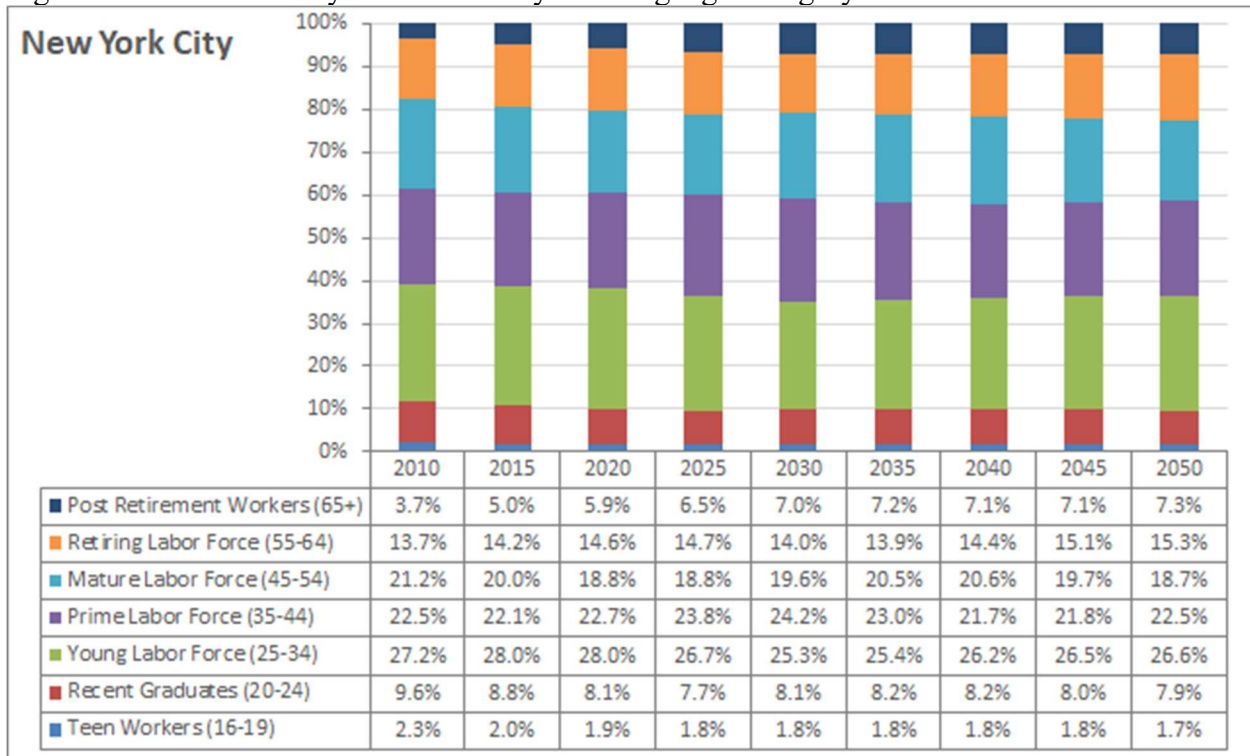
Figure 40. Regional Labor Force by Working Age Category: 2055 SED Forecast



Source: NYMTC 2055 SED Forecast

Figure 41 present the age-cohorts for the New York City labor force. While the City is also seeing increases in the Retiring and Post-Retirement age groups, these are balanced to some extent by the larger combined share of Young, Prime and Mature categories, which total 70.9 percent of the labor force in 2010 and 67.8 percent in 2050. Further, the City's resident labor force has the greatest share of Young Workers in the Region at more than 1 in 4 throughout the forecast period.

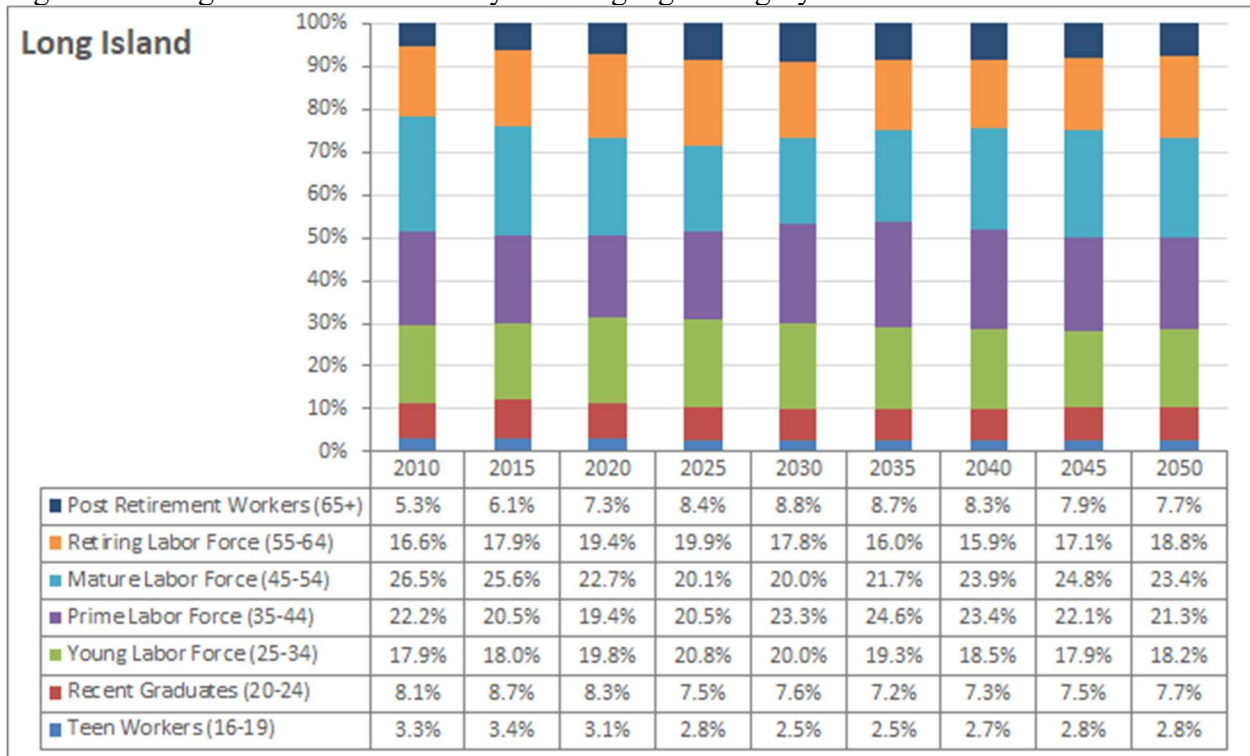
Figure 41. New York City Labor Force by Working Age Category: 2055 SED Forecast



Source: NYMTC 2055 SED Forecast

The Long Island labor force is aging more rapidly than the region as a whole, as seen in Figure 42. The subregion shows the same decline in Teens and Recent Graduates, but with 26.5 percent of the civilian labor force being 55 or older by 2050.

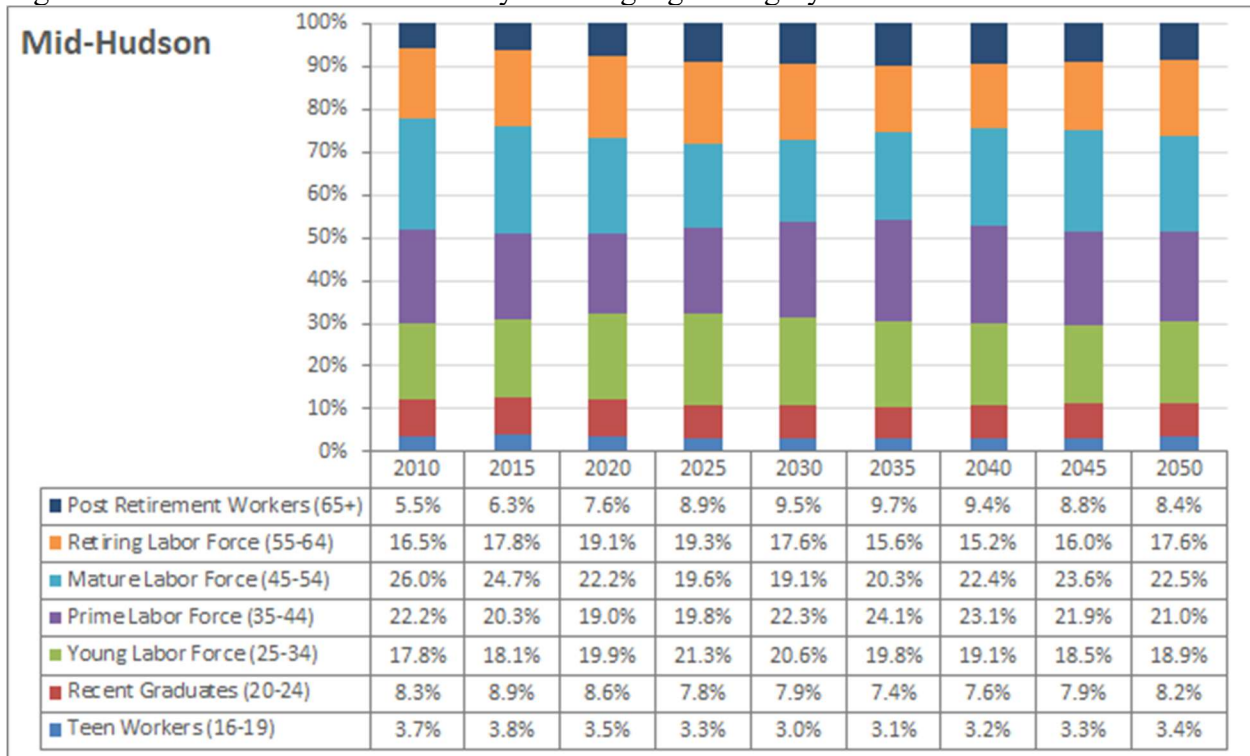
Figure 42. Long Island Labor Force by Working Age Category: 2055 SED Forecast



Source: NYMTC 2055 SED Forecast

The Mid-Hudson is unique in that its share of Teen and Recent Graduate workers change very little from 2010 to 2050 (see Figure 43). However, the shifts in the mid-range and older categories follow the regional trend with a loss of 3 percentage points in the combined Young, Prime, Mature categories and an increase of the Retiring and Post Retirement age groups to greater than 25 percent.

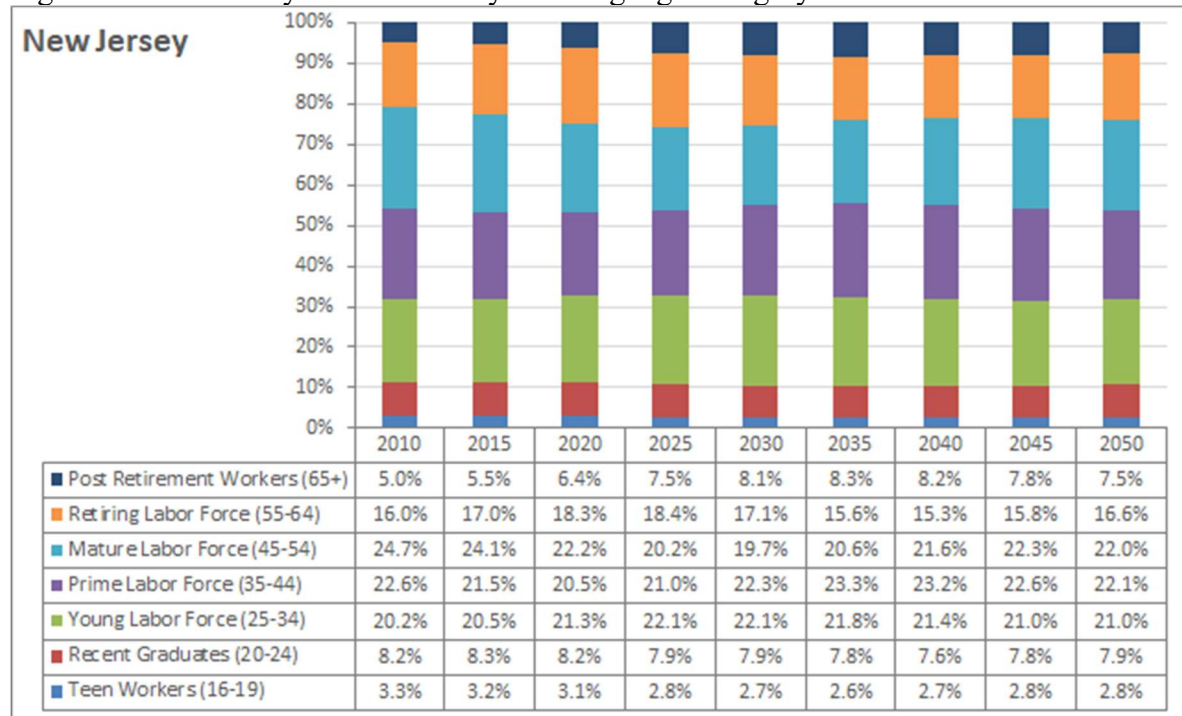
Figure 43. Mid-Hudson Labor Force by Working Age Category: 2055 SED Forecast



Source: NYMTC 2055 SED Forecast

The age structure of the New Jersey subregion's labor force is almost a duplicate of the region as a whole, as seen in Figure 44. With the Young, Prime, and Mature age groups having a combined share of 65 percent of the labor force by 2050; the Retiring and Post-Retirement age groups at 24 percent and those under the age of 25, making up the remaining 11 percent.

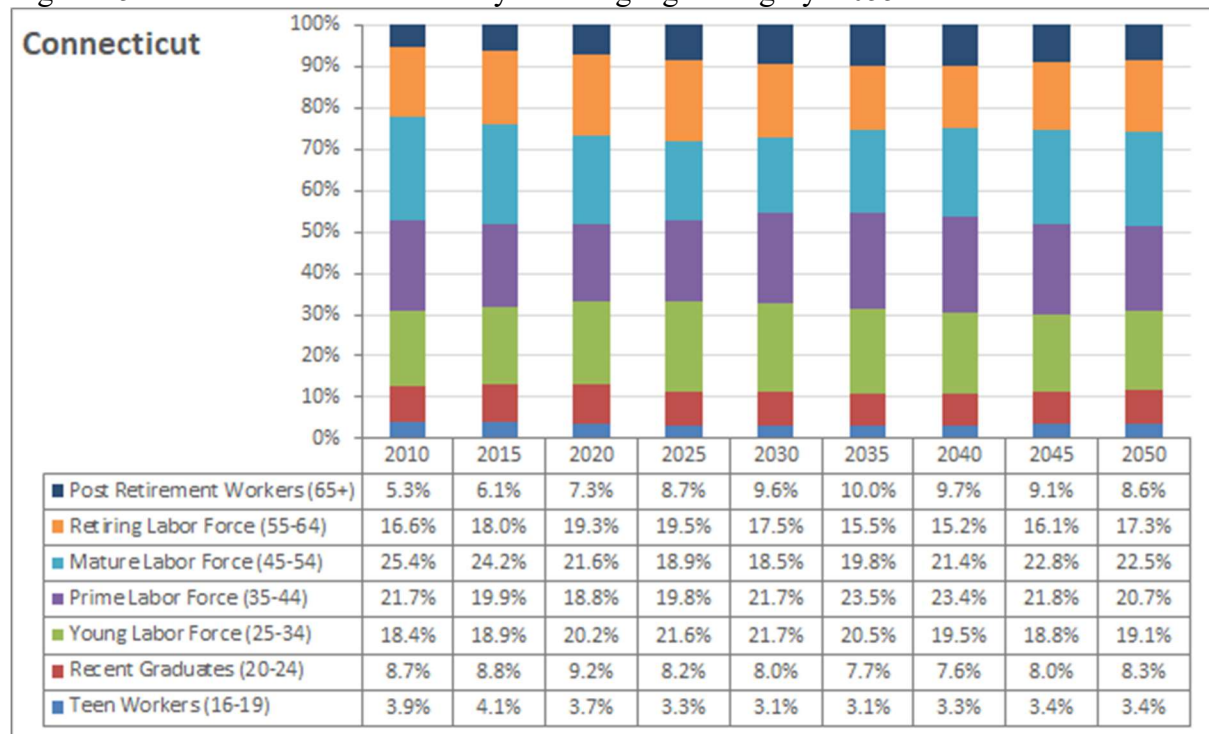
Figure 44. New Jersey Labor Force by Working Age Category: 2055 SED Forecast



Source: NYMTC 2055 SED Forecast

Connecticut's labor force is the oldest of any of the subregions, with only 62.3 percent being in the Young, Prime, and Mature categories. By 2050, a full 26.0 percent of the labor force is 55 or older, while only 11.7 percent is under the age of 25 (see Figure 45).

Figure 45. Connecticut Labor Force by Working Age Category: 2055 SED Forecast



Source: NYMTC 2055 SED Forecast

Figure 46, on the following page, provides a county-by-county forecast of the civilian labor force.

Figure 46. Civilian Labor Force County Outputs: 2055 SED Forecast

	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
FORECAST REGION	11,568,295	11,834,620	11,792,890	11,725,928	12,066,479	12,132,133	12,431,924	12,682,100	12,909,152	13,121,698	13,273,319
Bronx County	617,531	664,751	664,284	662,777	718,970	730,985	743,520	757,398	769,790	777,721	784,153
Kings County	1,236,176	1,281,742	1,269,138	1,247,724	1,339,322	1,360,341	1,383,128	1,403,816	1,415,189	1,418,039	1,429,237
New York County	921,966	961,362	949,425	929,097	985,368	999,514	1,012,384	1,027,168	1,039,221	1,041,058	1,044,496
Queens County	1,185,673	1,205,994	1,198,856	1,185,994	1,254,207	1,266,892	1,274,800	1,284,862	1,292,907	1,296,473	1,300,847
Richmond County	217,944	226,088	224,525	221,910	227,394	226,278	227,167	229,767	232,850	234,843	235,986
New York City Total	4,179,290	4,339,937	4,306,228	4,247,502	4,525,261	4,584,011	4,640,999	4,703,011	4,749,957	4,768,134	4,794,719
Nassau County	688,439	709,511	704,762	697,444	702,747	706,793	751,139	778,830	791,362	812,586	827,270
Suffolk County	784,674	785,860	783,049	778,294	778,939	770,720	794,941	815,840	834,344	854,418	864,318
Long Island Total	1,473,113	1,495,371	1,487,811	1,475,738	1,481,686	1,477,514	1,546,080	1,594,670	1,625,706	1,667,004	1,691,588
Dutchess County	155,789	158,378	157,996	157,576	156,504	153,724	153,668	156,137	159,034	161,638	161,927
Orange County	182,275	185,311	184,927	184,215	189,032	193,339	200,982	210,528	220,720	230,765	238,543
Putnam County	54,348	53,667	53,310	52,980	52,434	52,029	52,791	54,095	55,205	56,259	56,496
Rockland County	150,999	159,108	157,934	156,027	160,902	166,260	175,566	184,627	193,322	202,345	210,089
Sullivan County	39,099	37,857	38,469	39,459	39,636	39,489	41,297	41,227	41,425	41,432	41,276
Ulster County	94,826	92,228	91,911	91,419	90,860	88,872	90,108	89,726	89,664	89,304	88,138
Westchester County	497,887	503,094	501,191	499,800	501,656	502,529	510,528	518,066	522,754	527,857	526,756
Mid-Hudson Total	1,175,224	1,189,644	1,185,738	1,181,476	1,191,024	1,196,241	1,224,941	1,254,407	1,282,124	1,309,600	1,323,225
Bergen County	480,575	492,904	493,066	493,030	501,513	507,221	521,999	536,441	552,446	571,742	586,630
Essex County	400,430	411,910	409,968	412,339	419,408	422,535	443,987	453,477	463,769	474,834	485,188
Hudson County	360,289	373,676	373,290	372,067	383,896	393,614	421,877	441,378	458,478	473,369	491,442
Hunterdon County	69,840	70,166	70,473	71,032	69,719	67,622	67,747	67,879	69,188	71,532	71,915
Mercer County	195,951	195,081	199,218	206,216	203,579	201,198	208,451	209,584	212,447	215,139	216,457
Middlesex County	433,695	433,624	432,825	431,327	438,574	442,722	454,965	463,402	470,000	478,388	484,579
Monmouth County	333,624	334,800	333,675	333,571	331,322	324,638	329,327	335,556	342,789	348,776	350,644
Morris County	268,515	276,335	276,044	278,160	278,240	273,040	273,581	274,051	280,503	286,359	288,560
Ocean County	271,103	269,643	271,835	270,881	276,807	283,287	294,604	306,984	319,631	331,474	340,831
Passaic County	250,474	251,900	252,959	254,526	258,551	260,801	273,982	281,151	288,249	295,940	301,595
Somerset County	180,098	182,372	184,775	185,835	188,612	187,701	189,402	191,936	194,225	197,455	197,620
Sussex County	82,916	82,796	81,698	81,496	79,731	76,965	77,198	78,003	79,176	80,724	80,988
Union County	290,559	296,709	296,922	297,060	301,358	305,321	316,468	326,644	336,366	347,147	356,628
Warren County	58,848	59,168	59,689	60,530	60,181	58,717	59,255	59,384	60,442	61,462	61,489
New Jersey Total	3,676,918	3,731,084	3,736,438	3,748,070	3,791,491	3,805,382	3,932,843	4,025,871	4,127,709	4,234,344	4,314,566
Fairfield County	485,934	509,387	510,415	511,618	516,921	518,268	533,430	548,300	563,979	580,828	591,397
Litchfield County	106,195	106,282	104,987	103,035	98,383	93,075	89,707	87,429	85,778	83,457	79,302
New Haven County	471,620	462,915	461,273	458,489	461,714	457,642	463,925	468,410	473,899	478,331	478,521
Connecticut Total	1,063,750	1,078,584	1,076,675	1,073,142	1,077,018	1,068,986	1,087,061	1,104,140	1,123,656	1,142,616	1,149,220

Source: NYMTC 2055 SED Forecasts

4.3 Unemployment Rates

The 2055 SED unemployment rate by county, held constant for each of the forecast years, is applied to the civilian labor force. The model does have the option of using the BLS projections to provide a forecast of future year unemployment rates, but these forecasts, based on national averages, trend down to the extent that the regional unemployment declines from 5.5 percent in 2017 to only 3.8 percent by 2050. Further, given the pandemic-induced increase in unemployment⁷, the 5.5 percent regional unemployment rate is the more realistic long-term assumption.

Figure 47. Unemployment Rates by County 2017-2050: 2055 SED Forecast

	2017	2020	2025	2030	2035	2040	2045	2050
FORECAST REGION	8.4%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%
Bronx County	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%
Kings County	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
New York County	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%
Queens County	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%
Richmond County	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%
Nassau County	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
Suffolk County	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Dutchess County	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%
Orange County	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%
Putnam County	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%
Rockland County	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%
Sullivan County	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%
Ulster County	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%
Westchester County	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%
Bergen County	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
Essex County	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%
Hudson County	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
Hunterdon County	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%
Mercer County	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%
Middlesex County	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%
Monmouth County	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Morris County	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%
Ocean County	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%
Passaic County	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%
Somerset County	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
Sussex County	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%
Union County	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%
Warren County	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%
Fairfield County	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
Litchfield County	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%
New Haven County	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%

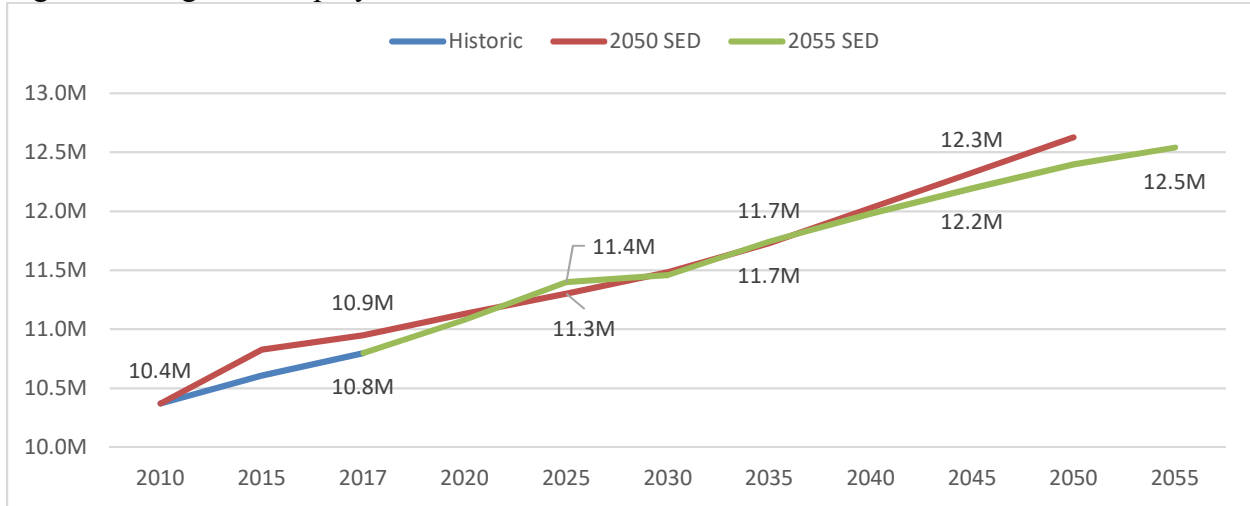
Source: American Community Survey 2017, NYMTC 2055 SED Forecasts

⁷ The impacts of the shutdown due to COVID-19 has had devastating impacts on many industries and current unemployment is extremely high. However, it is too early to know how permanent these employment losses will be. Real unemployment data that is based on more than a few months will be available for the next SED forecasting effort.

4.3 Employed Labor Force

The employed labor force is derived from applying the forecasted unemployment rates as described in *Technical Memorandum 2: Baseline Model Update* to the forecasted civilian labor force. As shown in Figure 48, the employed labor force will continue to grow on a regional basis in the 2020-2055 forecast term although at a somewhat lesser rate than the 2050 SED forecast after 2040. Growth rates over that period are expected to be strongest in the New Jersey subregion where commercial development activity is strong, followed by the Long Island subregion. The employed labor force is expected to expand the least in the Connecticut subregion reflecting recent trends.

Figure 48. Regional Employed Labor Force Forecasts: 2050 SED and 2055 SED Forecasts



Source: NYMTC 2050 SED Forecast, NYMTC 2055 SED Forecast

Note: Labeled for the years of 2010, 2017, 2025, 2050, and 2055.

The complete employed labor force forecasts by county from the 2055 SED forecast follow are presented in Figure 49.

Figure 49. Employed Labor Force County Outputs: 2055 SED Forecast

	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
FORECAST REGION	10,370,686	10,607,477	10,798,406	11,080,598	11,399,188	11,460,488	11,744,423	11,981,346	12,196,283	12,398,057	12,541,763
Bronx County	520,228	560,007	572,450	590,394	640,450	651,153	662,319	674,682	685,720	692,785	698,514
Kings County	1,101,924	1,142,541	1,153,492	1,167,569	1,253,282	1,272,952	1,294,274	1,313,633	1,324,276	1,326,943	1,337,421
New York County	837,475	873,261	876,614	879,351	932,609	945,998	958,178	972,171	983,578	985,317	988,571
Queens County	1,054,073	1,072,139	1,093,929	1,124,569	1,189,250	1,201,278	1,208,776	1,218,317	1,225,946	1,229,327	1,233,475
Richmond County	198,188	205,594	208,391	212,328	217,575	216,507	217,358	219,846	222,795	224,702	225,796
New York City Total	3,711,889	3,853,542	3,904,875	3,974,212	4,233,167	4,287,888	4,340,906	4,398,649	4,442,316	4,459,074	4,483,778
Nassau County	631,146	650,464	659,965	674,027	679,151	683,062	725,919	752,680	764,791	785,303	799,494
Suffolk County	719,152	720,239	731,369	747,548	748,168	740,274	763,538	783,611	801,384	820,665	830,174
Long Island Total	1,350,298	1,370,704	1,391,334	1,421,575	1,427,319	1,423,336	1,489,457	1,536,292	1,566,175	1,605,968	1,629,668
Dutchess County	140,167	142,496	145,843	151,010	149,982	147,318	147,265	149,631	152,407	154,902	155,180
Orange County	167,127	169,911	172,444	176,114	180,718	184,836	192,144	201,269	211,013	220,616	228,052
Putnam County	49,413	48,794	49,308	50,272	49,754	49,370	50,093	51,331	52,384	53,383	53,608
Rockland County	139,826	147,335	147,983	148,816	153,467	158,577	167,453	176,095	184,388	192,994	200,380
Sullivan County	33,369	32,309	33,503	35,360	35,518	35,386	37,007	36,944	37,121	37,128	36,987
Ulster County	85,282	82,946	84,391	86,543	86,013	84,132	85,302	84,940	84,882	84,541	83,437
Westchester County	455,021	459,779	465,070	474,395	476,157	476,985	484,578	491,733	496,182	501,026	499,981
Mid-Hudson Total	1,070,207	1,083,572	1,098,543	1,122,510	1,131,610	1,136,604	1,163,840	1,191,943	1,218,377	1,244,591	1,257,626
Bergen County	439,847	451,131	460,313	473,818	481,970	487,456	501,658	515,538	530,919	549,462	563,771
Essex County	344,101	353,966	362,636	380,516	387,040	389,926	409,722	418,480	427,977	438,189	447,743
Hudson County	313,256	324,896	337,247	355,159	366,450	375,727	402,705	421,320	437,643	451,858	469,109
Hunterdon County	62,863	63,157	65,226	68,425	67,160	65,140	65,260	65,387	66,649	68,907	69,275
Mercer County	174,984	174,207	182,094	194,673	192,183	189,936	196,783	197,852	200,555	203,097	204,341
Middlesex County	390,279	390,216	398,577	410,834	417,737	421,688	433,349	441,386	447,670	455,659	461,556
Monmouth County	304,710	305,784	309,633	316,910	314,773	308,423	312,877	318,795	325,667	331,356	333,131
Morris County	245,210	252,350	257,582	267,887	267,965	262,957	263,478	263,931	270,144	275,784	277,904
Ocean County	241,314	240,015	248,322	256,760	262,377	268,519	279,247	290,981	302,968	314,194	323,063
Passaic County	222,718	223,987	231,347	242,369	246,201	248,343	260,895	267,721	274,480	281,804	287,189
Somerset County	167,223	169,334	174,044	178,664	181,333	180,457	182,092	184,528	186,730	189,835	189,993
Sussex County	73,759	73,652	74,524	77,199	75,528	72,907	73,128	73,891	75,002	76,469	76,718
Union County	254,625	260,014	267,957	279,698	283,746	287,477	297,972	307,554	316,707	326,858	335,785
Warren County	53,593	53,885	55,296	57,470	57,139	55,749	56,259	56,383	57,387	58,355	58,380
New Jersey Total	3,288,483	3,336,593	3,424,797	3,560,382	3,601,601	3,614,704	3,735,427	3,823,747	3,920,498	4,021,827	4,097,959
Fairfield County	433,778	454,714	464,161	478,015	482,970	484,229	498,395	512,288	526,937	542,680	552,554
Litchfield County	95,796	95,874	96,380	97,129	92,744	87,741	84,565	82,418	80,862	78,674	74,757
New Haven County	420,236	412,479	418,317	426,775	429,777	425,986	431,834	436,010	441,118	445,244	445,421
Connecticut Total	949,810	963,067	978,858	1,001,919	1,005,491	997,956	1,014,794	1,030,716	1,048,917	1,066,597	1,072,732

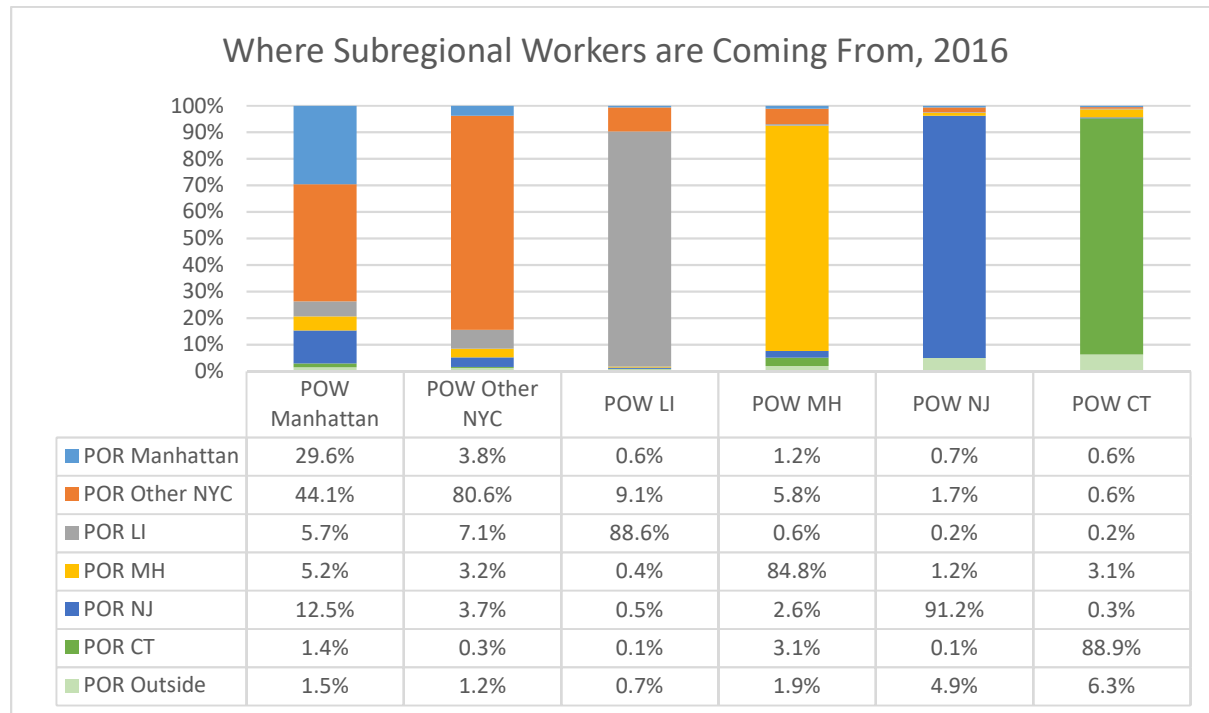
Source: NYMTC 2055 SED Forecast

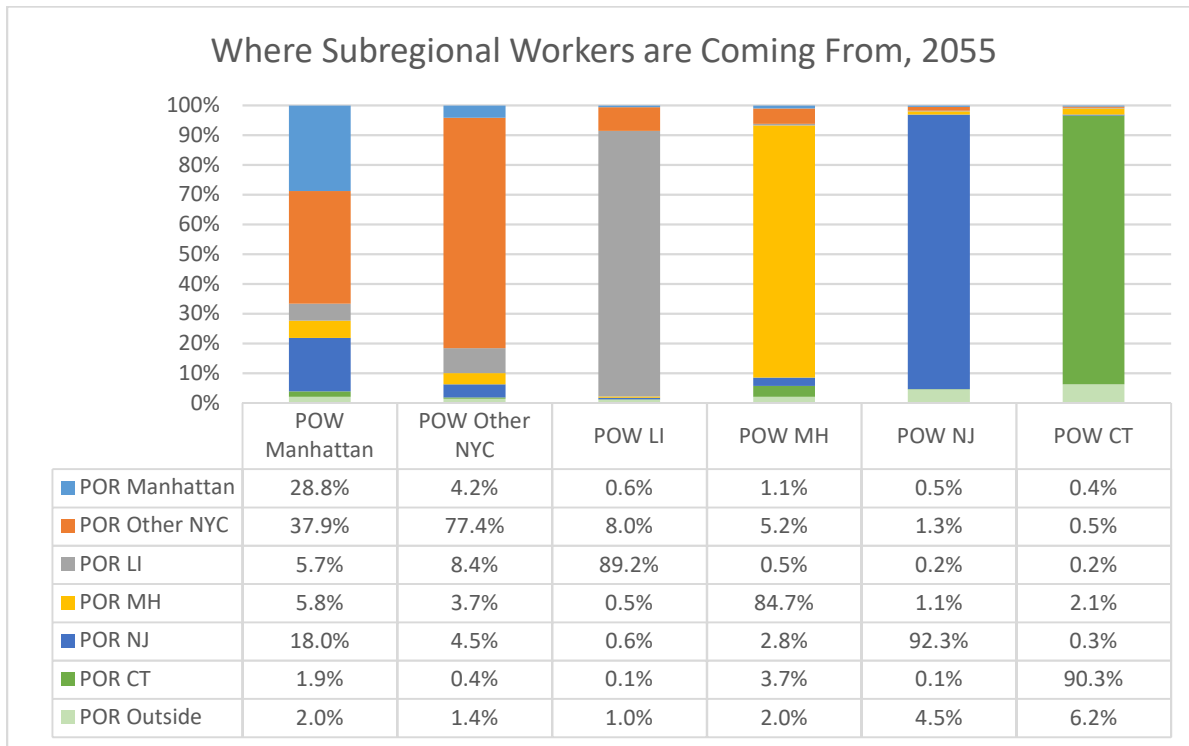
4.5 Commuter Flows

The commuter flows built into the employment model were updated as noted in *Technical Memorandum 2: Baseline Model Update* to the latest available American Community Survey county-to-county commuter flows, which at the time were the 2016 flows. These flows form the basis of the reconciliation of the employment and population models are adjusted for the historic year 2017 and each of the forecast years. Comparing the subregional flows allows us to see the likely impacts the current forecasts will have on transportation demand.

Figure 50 shows the distribution of workers by place of residence for each subregional place of work (i.e., where workers are coming from), with Manhattan set apart from the rest of New York City. The most significant finding is that given the current employment and population balance, a greater share of New York City workers will be coming from elsewhere. New Jersey, in particular, will provide a greater share of New York City workers, increasing from 12.5 percent of Manhattan and 3.7 percent of other NYC in 2016 to 18.0 percent and 4.5 percent in 2055, respectively. Meanwhile, all other subregions see increasing shares of local workers who: commute into the outer boroughs of NYC and live and work within the same subregion. While the New York City, Mid-Hudson and Long Island subregions will see increased shares of people traveling in to work from homes outside of the 31-County region, New Jersey and Connecticut will see declines as regional residents take greater shares of local jobs.

Figure 50. Comparison of 2016 and 2055 Distribution of Sub-Regional Workers by Place of Residence: 2055 SED Forecast

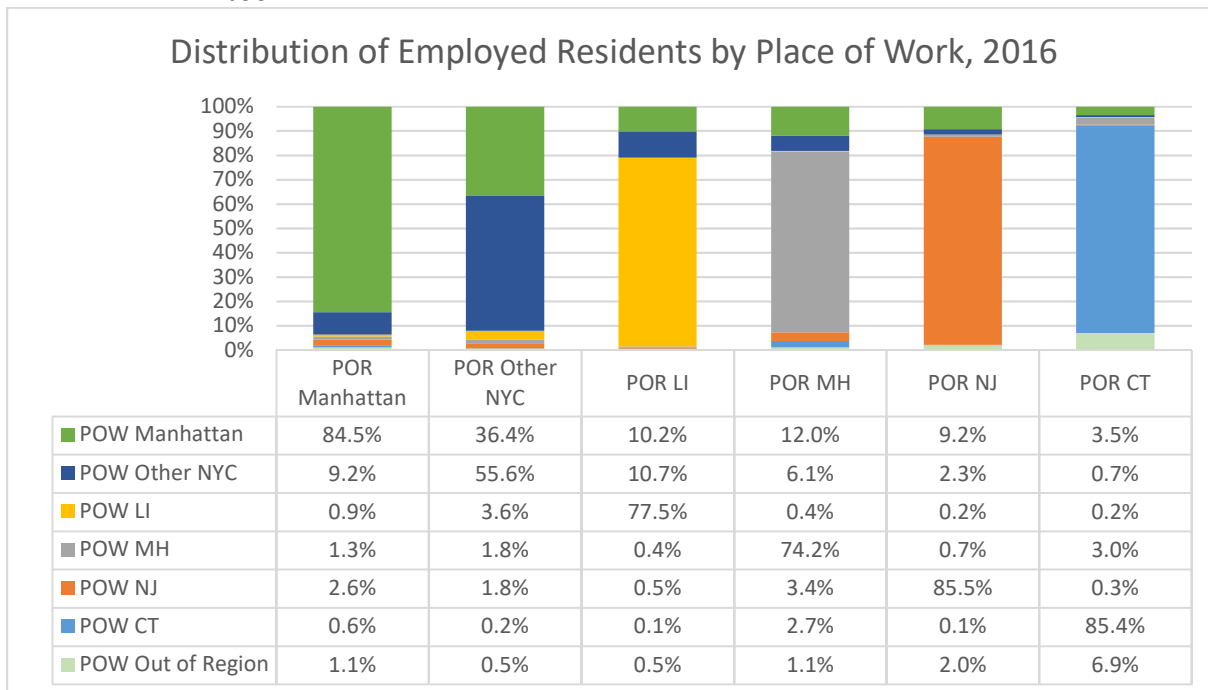


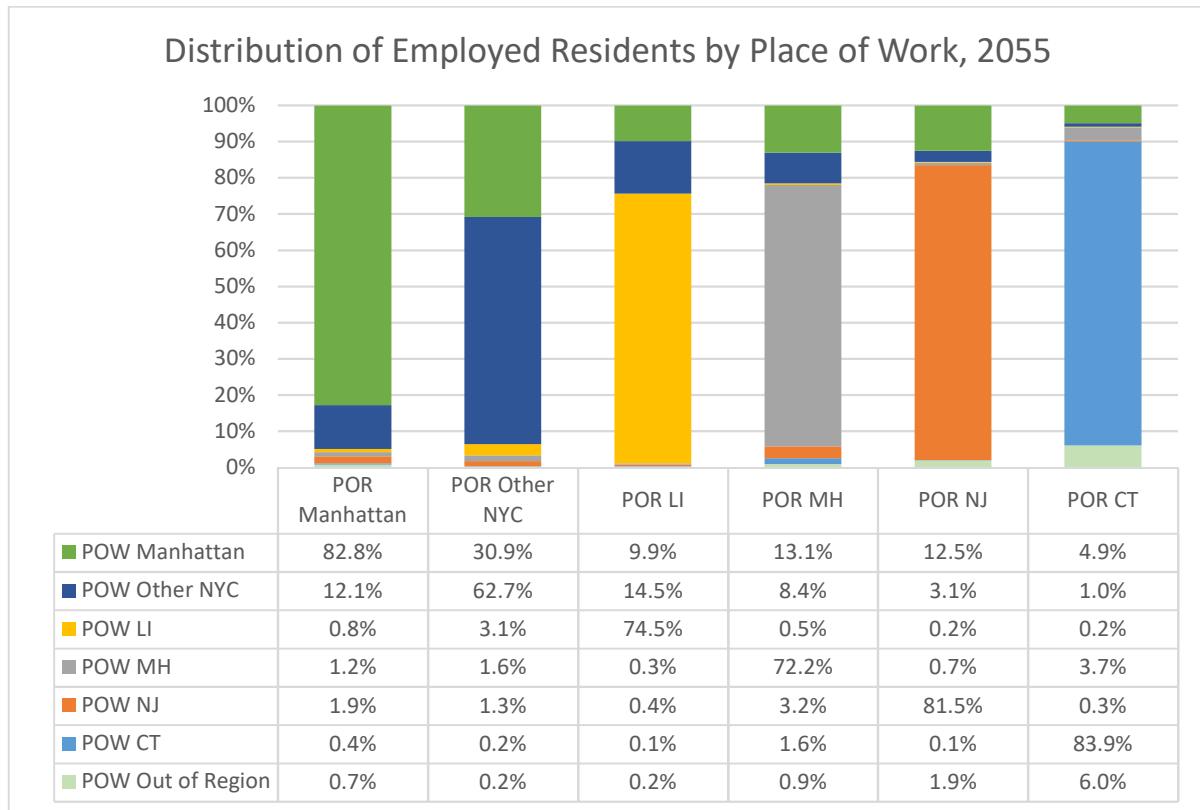


Source: NYMTC 2055 SED Forecast

Figure 51 presents the commuter flows from the perspective of place of residence (i.e., where residents go to work). Once again, New Jersey demonstrates the greatest difference, with the number of residents leaving the subregion to work increasing from 14.5 percent in 2016 to 18.5 percent by 2055. The other significant shift is the increase in shares of residents from all subregions who are working in the outer-boroughs of New York City, reflecting the commercial development that is taking place particularly in Brooklyn and Queens.

Figure 51. Comparison of 2016 and 2055 Distribution of Sub-Regional Employed Residents by Place of Work: 2055 SED Forecast





Source: NYMTC 2055 SED Forecast

5.0 Households

As with population, the household forecasts for New York City are prepared separately by NYC DCP. This section describes the results of both the NYC and Non-NYC subregional household forecasts. *Technical Memorandum 2: Baseline Model Update*, describes the methodology used to estimate the number of households. The county-by-county forecasts of total households are detailed in the Figure 52 table.

Figure 52. Household County Outputs: 2055 SED Forecast

	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
FORECAST REGION	8,178,733	8,334,057	8,428,326	8,506,688	8,776,463	8,967,010	9,180,596	9,324,405	9,427,784	9,539,646	9,651,509
Bronx County	483,449	494,756	501,845	506,154	530,243	542,132	551,486	558,897	566,308	573,719	581,130
Kings County	934,946	958,492	981,525	979,385	1,031,237	1,056,704	1,074,406	1,089,095	1,103,783	1,118,472	1,133,160
New York County	763,846	778,952	793,410	795,367	826,742	845,984	855,913	861,581	867,248	872,916	878,583
Queens County	787,335	801,735	812,485	821,820	853,420	872,590	883,105	889,983	896,860	903,738	910,615
Richmond County	165,516	167,740	169,587	170,348	173,351	174,983	176,576	177,741	178,905	180,070	181,234
New York City Total	3,135,092	3,201,675	3,258,852	3,273,074	3,414,993	3,492,393	3,541,486	3,577,295	3,613,105	3,648,913	3,684,722
Nassau County	448,528	451,250	449,798	453,801	460,933	468,197	481,493	490,765	494,027	503,443	512,859
Suffolk County	499,922	503,402	507,534	514,986	528,657	539,635	557,594	568,926	574,479	580,120	585,761
Long Island Total	948,450	954,652	957,332	968,788	989,590	1,007,832	1,039,087	1,059,691	1,068,506	1,083,563	1,098,620
Dutchess County	107,965	110,501	111,685	113,285	116,401	118,583	120,265	120,941	120,713	120,407	120,101
Orange County	125,925	128,057	130,035	133,547	139,854	146,451	153,144	159,010	163,823	168,967	174,112
Putnam County	35,041	35,598	35,847	36,302	37,039	37,885	38,723	39,070	39,208	39,182	39,155
Rockland County	99,242	102,754	103,210	103,733	106,952	109,964	114,739	119,281	123,073	127,591	132,110
Sullivan County	30,139	29,778	30,681	32,097	33,533	34,562	36,158	36,619	36,668	36,449	36,230
Ulster County	71,049	72,353	73,078	74,147	76,001	77,044	78,493	78,115	77,218	76,178	75,137
Westchester County	347,232	357,013	356,049	359,265	363,088	366,892	373,267	376,192	376,073	375,935	375,796
Mid-Hudson Total	816,593	836,055	840,585	852,376	872,869	891,382	914,788	929,229	936,777	944,709	952,642
Bergen County	335,730	339,063	340,819	343,890	352,681	361,878	372,203	380,506	387,033	395,182	403,332
Essex County	283,712	291,618	290,673	296,343	303,842	310,253	324,051	333,117	339,431	346,413	353,396
Hudson County	246,437	262,052	264,329	267,164	277,383	286,487	303,686	318,300	332,295	346,175	360,056
Hunterdon County	47,169	47,714	48,177	48,959	50,250	50,937	51,396	51,403	51,411	51,416	51,421
Mercer County	133,155	132,583	136,531	139,759	142,453	144,224	148,770	150,173	150,414	151,198	151,981
Middlesex County	281,186	286,145	289,796	290,824	298,752	306,491	315,646	321,615	324,764	327,983	331,202
Monmouth County	233,983	235,513	237,428	241,408	246,605	249,227	253,762	257,452	258,527	259,244	259,961
Morris County	180,534	184,295	185,396	188,681	191,968	194,072	196,307	196,434	197,645	198,929	200,212
Ocean County	221,111	223,780	230,110	229,507	236,391	245,182	254,381	261,901	267,988	273,651	279,314
Passaic County	166,785	170,943	172,585	175,028	179,318	183,299	191,159	196,413	200,862	204,845	208,829
Somerset County	117,759	117,583	119,903	121,790	125,927	128,972	132,057	133,727	133,943	133,954	133,965
Sussex County	54,752	54,507	54,842	56,354	57,448	57,757	58,594	59,103	59,105	59,110	59,115
Union County	188,118	190,038	191,078	192,798	196,961	201,894	208,602	214,897	219,843	224,786	229,728
Warren County	41,480	41,549	42,372	43,662	44,895	45,659	46,694	46,877	47,199	47,254	47,309
New Jersey Total	2,531,911	2,577,382	2,604,038	2,636,167	2,704,875	2,766,332	2,857,308	2,921,917	2,970,460	3,020,141	3,069,821
Fairfield County	335,545	346,930	347,394	352,329	360,192	368,359	380,180	388,466	394,461	401,033	407,605
Litchfield County	76,640	78,202	78,699	79,429	79,439	78,653	77,363	74,719	71,279	67,801	64,323
New Haven County	334,502	339,159	341,425	344,524	354,504	362,058	370,384	373,087	373,196	373,486	373,775
Connecticut Total	746,687	764,292	767,518	776,283	794,136	809,071	827,927	836,272	838,937	842,320	845,703

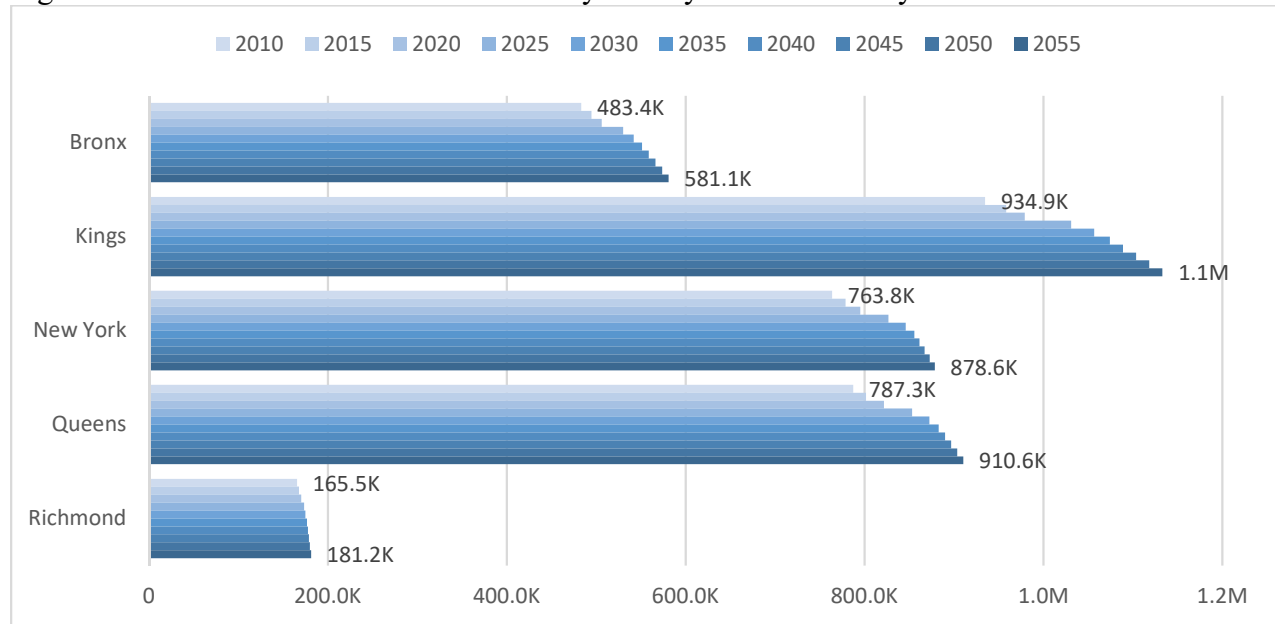
Source: NYMTC 2055 SED Forecast

5.1 Subregional Household Detail

County-level household forecasts are derived from household formation rates by age applied to total population by age for each county outside of New York City. For the New York City counties, the number of households at each time point was calculated by applying the average household size to the population in households. Figure 53 to Figure 58 present the household forecasts based on the 2055 SED Population for each subregion. Households are expected to increase at a slightly higher rate in suburban subregions compared with New York City over the period from 2017 to 2055, expanding by 15.4 percent versus 13.1 percent in New York City.

5.1.2 New York City

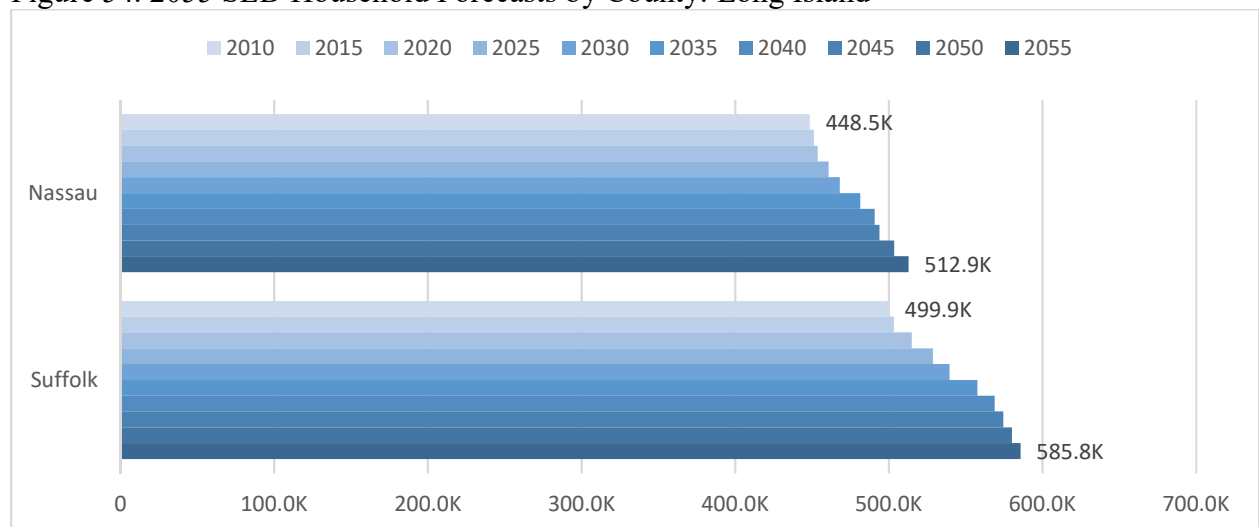
Figure 53. 2055 SED Household Forecasts by County: New York City



Source: NYMTC 2055 SED Forecast

5.1.3 Long Island

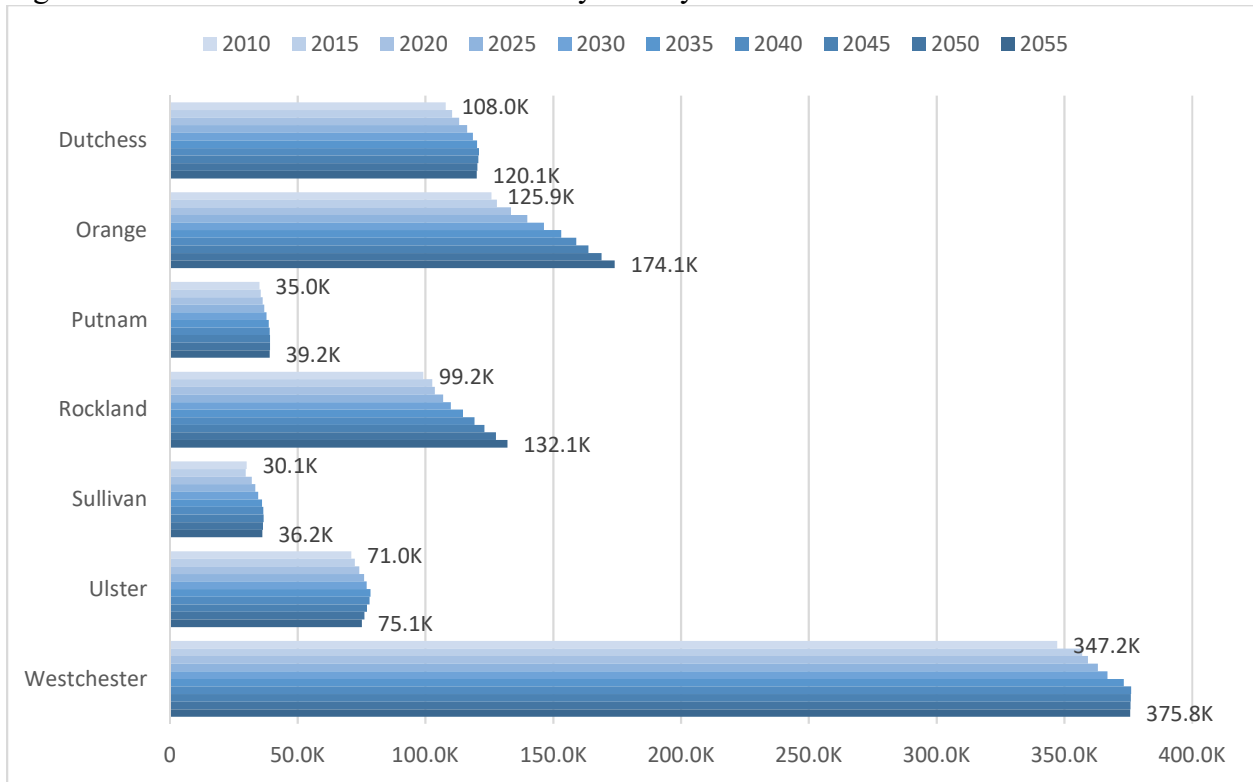
Figure 54. 2055 SED Household Forecasts by County: Long Island



Source: NYMTC 2055 SED Forecast

5.1.3 Mid-Hudson

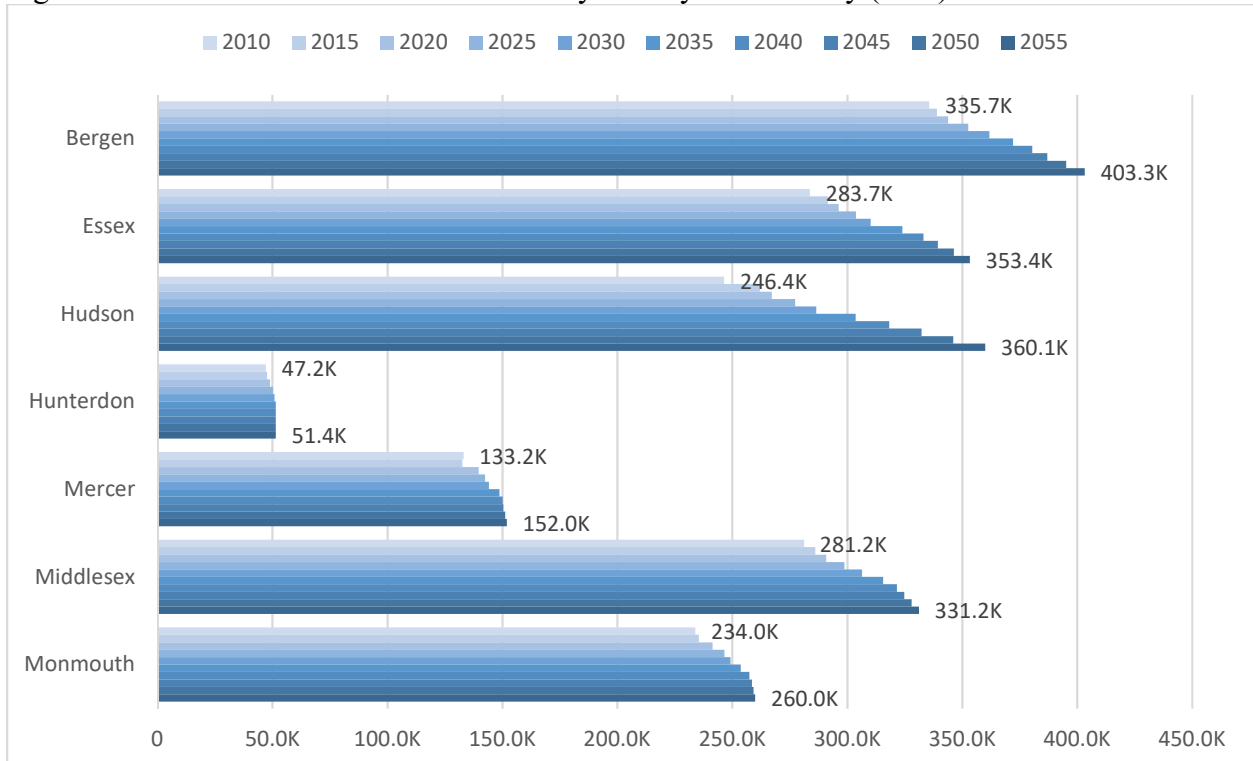
Figure 55. 2055 SED Household Forecasts by County: Mid-Hudson



Source: NYMTC 2055 SED Forecast

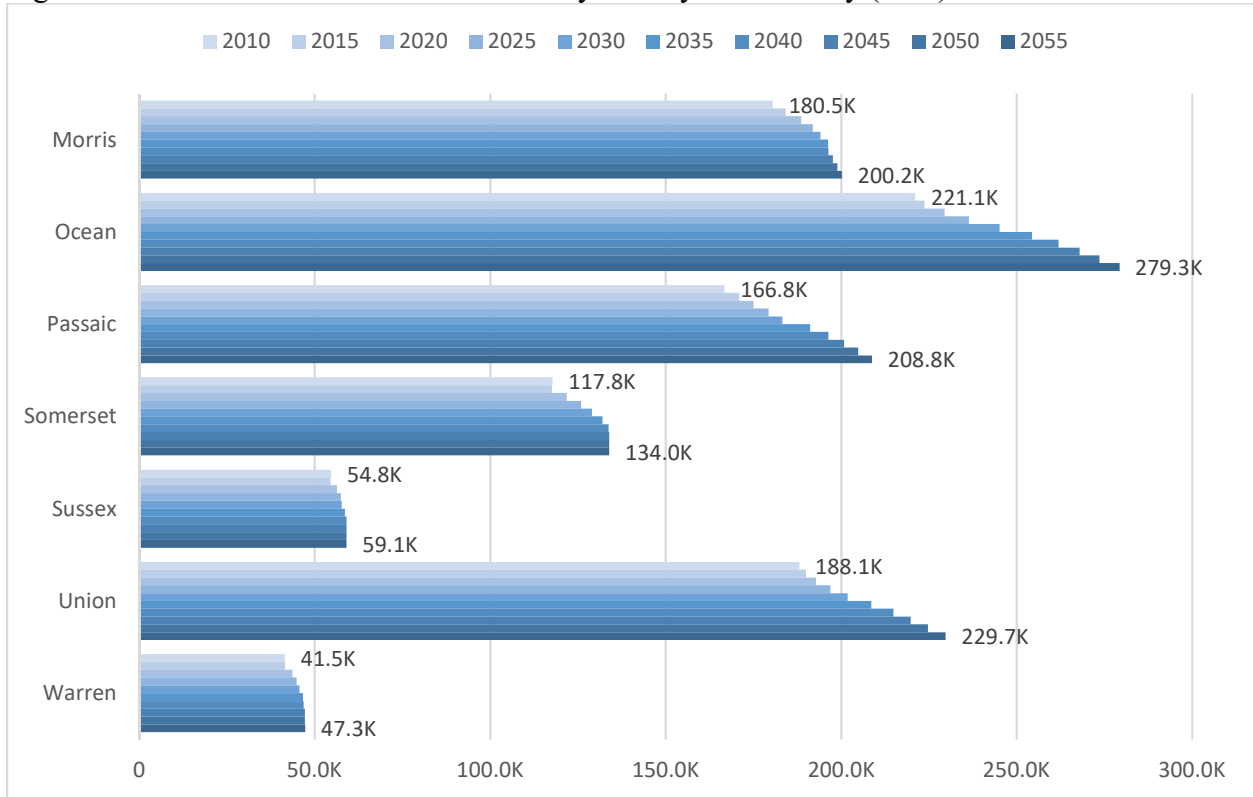
5.1.4 New Jersey

Figure 56. 2055 SED Household Forecasts by County: New Jersey (Pt. 1)



Source: NYMTC 2055 SED Forecast

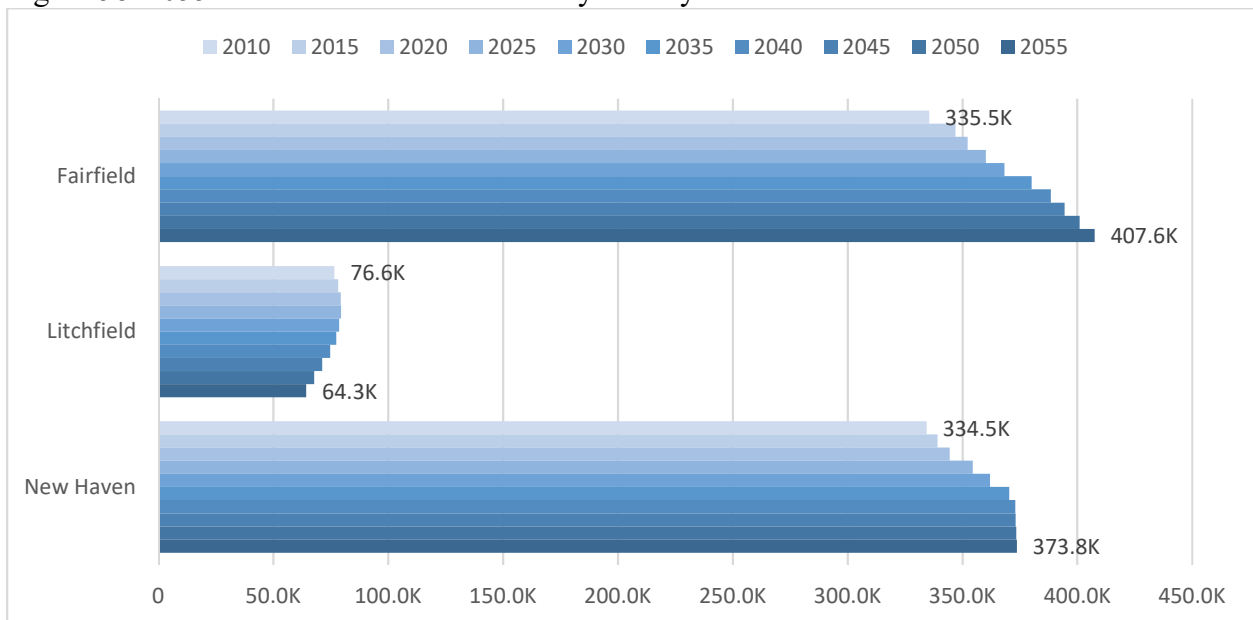
Figure 57. 2055 SED Household Forecasts by County: New Jersey (Pt. 2)



Source: NYMTC 2055 SED Forecast

5.1.5 Connecticut

Figure 58. 2055 SED Household Forecasts by County: Connecticut



Source: NYMTC 2055 SED Forecast

5.2 Average Household Size

Trends in average household size are detailed in Figure 59, showing a marginal decline region-wide from 2.66 persons per household in 2017, down to 2.61 persons per household in 2055. Along with NYC, the more urban counties (Essex, Hudson, and Westchester) will also see declining average household sizes through 2055. The majority of other counties will see some decline from 2020 to 2030, but then an increase from 2040 to 2055. This is reflective of household turnover of older 1 and 2-person households in single-family homes to younger families.

Figure 59. Average Household Size County Outputs: 2055 SED Forecast

	2010	2015	2017	2020	2025	2030	2035	2040	2045	2050	2055
FORECAST REGION	2.66	2.66	2.66	2.63	2.61	2.60	2.60	2.61	2.61	2.61	2.61
Bronx County	2.77	2.78	2.78	2.78	2.77	2.77	2.77	2.77	2.77	2.77	2.75
Kings County	2.69	2.67	2.66	2.67	2.64	2.64	2.63	2.62	2.62	2.61	2.60
New York County	1.99	2.01	2.01	2.01	1.97	1.97	1.97	1.97	1.98	1.97	1.97
Queens County	2.82	2.83	2.82	2.82	2.80	2.79	2.78	2.78	2.78	2.77	2.76
Richmond County	2.78	2.80	2.80	2.80	2.79	2.78	2.78	2.78	2.78	2.78	2.77
New York City Total	2.57	2.57	2.57	2.57	2.55	2.54	2.54	2.54	2.54	2.53	2.52
Nassau County	2.94	2.96	2.98	2.94	2.91	2.91	2.94	2.97	2.97	2.97	2.97
Suffolk County	2.93	2.92	2.89	2.85	2.81	2.79	2.80	2.81	2.81	2.82	2.82
Long Island Total	2.93	2.94	2.93	2.89	2.86	2.84	2.86	2.88	2.89	2.89	2.89
Dutchess County	2.57	2.52	2.48	2.47	2.43	2.42	2.43	2.44	2.45	2.46	2.47
Orange County	2.86	2.84	2.82	2.77	2.74	2.73	2.74	2.75	2.76	2.77	2.78
Putnam County	2.77	2.72	2.70	2.65	2.61	2.59	2.62	2.65	2.67	2.68	2.69
Rockland County	3.07	3.05	3.08	3.02	3.03	3.04	3.06	3.07	3.09	3.10	3.11
Sullivan County	2.45	2.42	2.34	2.36	2.33	2.30	2.29	2.27	2.26	2.27	2.27
Ulster County	2.40	2.34	2.30	2.30	2.26	2.24	2.23	2.23	2.23	2.23	2.23
Westchester County	2.65	2.63	2.66	2.61	2.59	2.58	2.59	2.60	2.60	2.60	2.59
Mid-Hudson Total	2.70	2.67	2.67	2.63	2.61	2.60	2.61	2.62	2.63	2.64	2.65
Bergen County	2.66	2.70	2.72	2.67	2.65	2.64	2.65	2.67	2.69	2.71	2.72
Essex County	2.68	2.64	2.68	2.62	2.59	2.57	2.56	2.56	2.57	2.57	2.58
Hudson County	2.54	2.50	2.54	2.49	2.48	2.48	2.47	2.46	2.44	2.44	2.43
Hunterdon County	2.62	2.56	2.52	2.51	2.45	2.43	2.46	2.48	2.49	2.50	2.52
Mercer County	2.61	2.65	2.59	2.63	2.60	2.58	2.58	2.59	2.60	2.60	2.60
Middlesex County	2.80	2.81	2.80	2.80	2.78	2.76	2.76	2.76	2.77	2.78	2.79
Monmouth County	2.66	2.64	2.61	2.58	2.53	2.51	2.51	2.52	2.54	2.54	2.55
Morris County	2.68	2.65	2.64	2.60	2.57	2.55	2.57	2.59	2.60	2.60	2.60
Ocean County	2.58	2.58	2.53	2.57	2.58	2.58	2.58	2.59	2.61	2.63	2.65
Passaic County	2.94	2.91	2.90	2.88	2.86	2.86	2.86	2.86	2.86	2.86	2.86
Somerset County	2.71	2.77	2.74	2.73	2.68	2.65	2.64	2.65	2.67	2.67	2.67
Sussex County	2.69	2.64	2.58	2.56	2.51	2.50	2.51	2.52	2.52	2.52	2.53
Union County	2.82	2.85	2.88	2.84	2.83	2.82	2.82	2.83	2.85	2.86	2.88
Warren County	2.57	2.53	2.48	2.47	2.42	2.40	2.39	2.39	2.38	2.38	2.38
New Jersey Total	2.69	2.68	2.68	2.66	2.63	2.62	2.62	2.63	2.64	2.64	2.65
Fairfield County	2.68	2.66	2.67	2.62	2.59	2.58	2.59	2.61	2.62	2.63	2.63
Litchfield County	2.44	2.34	2.30	2.28	2.24	2.22	2.22	2.23	2.24	2.24	2.25
New Haven County	2.49	2.46	2.44	2.41	2.37	2.35	2.34	2.35	2.35	2.35	2.35
Connecticut Total	2.57	2.54	2.53	2.49	2.46	2.44	2.45	2.46	2.47	2.47	2.48

Source: NYMTC 2055 SED Forecast

6.0 Conclusion

The agreed-upon NYMTC 2055 SED forecasts show both employment and population growing regionwide from 2017 to the 2055 forecast year. Employment, although lagged in the near term to acknowledge the economic slowdown caused by the pandemic, will exceed that projected by the 2050 SED forecasts, reflecting the strong economic growth of past decades. The 2055 SED forecast of population will show growth as well, albeit at a slower rate than shown in the 2050 SED forecasts as reflects recent historic growth trends as well as anticipated constraints on development potential. Subsequently, the number of households will projected are fewer than in the 2050 SED forecasts. Slower rates of population growth in light of greater numbers of jobs may be predictive of labor shortages in the long term and will require increased multiple job holding rates.