# SATURATION POPULATION ANALYSIS

Long Island Sound Study - Suffolk County North Shore Watershed Management Program

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#### INTRODUCTION

The Suffolk County Department of Planning has characterized the study area portion of the North Shore Watershed in Suffolk County with respect to existing land use in 2001 and land available for development in 2001. As available land is developed or otherwise used, activities associated with land use will also change as the population increases. Understanding this changing human dimension within this study area is necessary for prudent decision-making. Hence, the remaining component of the Department of Planning's land use and demographic characterization of the North Shore Watershed study area - saturation population analysis - is the subject of this report. Saturation population is the future potential population that would exist when all available land is developed in accord with existing zoning.

It should be noted that any saturation development calculations are projections based on present-day information. This information can change. In the future, some of the land available for development in the study area may be re-zoned. These zoning changes can increase or decrease residential housing unit densities on the affected lands. Similarly, redevelopment can take place which may change the existing housing stock by either increasing or decreasing the housing unit densities on those properties. Further, future land acquisition and farmland development rights purchases by all levels of government will reduce the amount of land available for development. Each of these factors can alter the magnitude of future growth in population and the number of housing units.

#### **Study Objectives**

The objectives of this saturation population analysis are as follows:

- Calculate the year-round population and total number of dwelling units (housing units) for each town and incorporated village within the North Shore Watershed study area under saturation development conditions.
- Calculate the number of year-round versus seasonal housing units for each town and incorporated village within the North Shore Watershed study area at saturation.
- Calculate the year-round plus seasonal population for each town and incorporated village within the North Shore Watershed study area at saturation.

#### METHODOLOGY

#### **Data Sources**

Several data sources were used in producing the information contained in this report. Information concerning potential building lots and housing units was derived from 2001 Existing Land Use Inventory - Long Island Sound Study - Suffolk County North Shore Watershed Management Program (Suffolk County Department of Planning 2004) and published in the section of this report titled 2001 Land Available For Development - Long Island Sound Study - Suffolk County North Shore Watershed Management Program (Suffolk County Department of Planning 2005). The saturation population analysis of the North Shore Watershed study area required the use of population and housing data obtained from the 2000 U. S. census.

#### Procedure

In calculating saturation population, the number of housing units at saturation must first be determined. Using data on land available for development and existing zoning in the North Shore Watershed study area, the number of potential additional housing units in each town and incorporated village in the study area was determined in the report 2001 Land Available for Development -Long Island Sound Study - Suffolk County North Shore Watershed Management Program. This figure, when added to the number of existing housing units obtained from the 2000 U. S. census (and discussed in the report Population Analysis - Long Island Sound Study - Suffolk County North Shore Watershed Management Program), yielded the total number of housing units in the study area at saturation development conditions.

Next, the portion of housing units at saturation that are used for seasonal purposes was calculated. It was assumed that the percentage of housing units that are seasonal would remain the same at saturation as in 2000. The percentage of housing units that are seasonal is very small in most of the municipalities in the study area (around 1%), which is typical for areas in western Suffolk County. The percentage of housing units that were seasonal in 2000 for in each town and village was applied to the total housing units at saturation for each town and village in the North Shore Watershed study area. This calculation yielded the number of seasonal housing units at saturation.

Next, the year-round population at saturation was calculated. The number of additional *year-round* housing units at saturation was calculated by subtracting the potential additional seasonal housing units (obtained by multiplying the percentage of housing units that are seasonal by the total number of additional housing units at saturation and subtracting this number from the total number of additional housing units at saturation) from the total potential additional housing units. The additional year-round housing units at saturation were then multiplied by the 2000 persons per

household figure to obtain the additional year-round population at saturation. It was assumed that the persons per household figure would be the same at saturation as it was in 2000.<sup>1</sup> When this additional year-round population at saturation was added to the 2000 population, the year-round saturation population was obtained.

Finally, an estimate of seasonal population at saturation was calculated. The number of additional seasonal housing units at saturation (previously calculated) was multiplied by an estimated four persons per household<sup>2</sup> to yield the additional seasonal population at saturation. When added to the year-round population at saturation, an estimate of seasonal plus year-round population at saturation was then obtained.

<sup>&</sup>lt;sup>1</sup>While household size has generally been declining in western Suffolk County since the 1960s, the decline in household size in the 1990s slowed considerably. Household sizes are expected to continue to decline very slightly in the next several years and then slowly begin to increase. For these reasons, the household size reported in the 2000 census is an accurate estimate of future household size.

<sup>&</sup>lt;sup>2</sup>Seasonal homes generally contain families and children. For these reasons, the household size in seasonal housing units is estimated to be four persons per household, which is higher than the overall average household size.

# SATURATION POPULATION ANALYSIS, NORTH SHORE WATERSHED STUDY AREA

#### **Total Housing Units at Saturation**

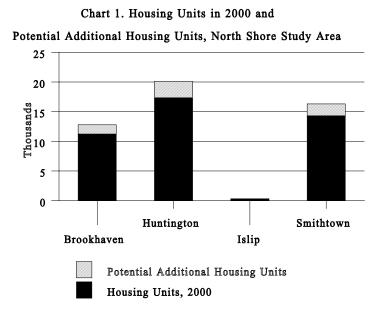
The total number of potential additional housing units under saturation development conditions was calculated in 2001 Land Available for Development - North Shore Watershed Study Area for each town and incorporated village in the North Shore Watershed study area, and are shown in Appendix Table A1. The number of housing units in the study area was 43,225 in 2000 and is expected to rise to 49,519 at saturation. This is an increase of 6,294 units, or 14.6% above the 2000 U. S. census figure. Table 1 is a summary of the number of housing units in the North Shore Watershed study area by town in 2000 and under saturation development conditions.

Town	Housing Units, 2000	Additional Housing Units At Saturation	Housing Units At Saturation	% Change - 2000 To Saturation
Brookhaven	11,243	1,543	12,786	13.7%
Huntington	17,381	2,738	20,119	15.8%
Islip	287	15	302	5.2%
Smithtown	14,314	1,998	16,312	14.0%
Study Area Total	43,225	6,294	49,519	14.6%

Table 1. Housing Units in 2000 and at Saturation, North Shore Watershed Study Area

Source: 2000 U. S. Census, Suffolk County Planning Department

Chart 1 shows the increase in housing units in the North Shore Watershed study area for each town between 2000 and saturation development conditions. The largest number of potential new housing units in the study area exists in Huntington, with a potential increase of more than 2,700 housing units, followed by Smithtown with a potential increase of nearly 2,000 units. In percentage terms, the number of housing units would increase by 15.8% in Huntington, 14.0% in Smithtown, and 13.7% in Brookhaven.



#### **Seasonal Housing Units at Saturation**

Seasonal housing units are defined as vacant housing units that are for seasonal, recreational, or occasional use. Seasonal housing is not a significant factor overall in the study area. In 2000, 1% of the housing units in the study area were used for seasonal purposes. It is expected that in the future the same percentage of all housing units in the study area will continue to be used for seasonal purposes. For each town and incorporated village, the proportion of housing units that are seasonal in nature in 2000 was applied to the total number of housing units at saturation. Appendix Table A2 shows this calculation of seasonal housing units at saturation. Table 2 summarizes the number of seasonal housing units in the North Shore Watershed study area by town in 2000 and at saturation.

Table 2. Seasonal Housing Units in 2000 and at Saturation, North Shore Watershed
Study Area

Town	Seasonal Housing Units, 2000	Seasonal Housing Units At Saturation	% Change - 2000 To Saturation
Brookhaven	261	194*	-25.7%
Huntington	223	295	32.3%
Islip	0	0	0%
Smithtown	89	110	23.6%
Study Area Total	573	599	4.5%

\* Includes demolition of West Meadow Beach cottages.

Source: 2000 U. S. census, Suffolk County Planning Department

The total number of seasonal housing units in the study area at saturation is expected to be 599, an increase of 26 or 4.5% from the 2000 figure.

#### **Saturation Population**

Total year-round population under saturation development conditions in each town in the North Shore Watershed study area was then calculated. Appendix Table A3 shows the calculation of additional year-round population at saturation for each town and village in the study area. Appendix Table A4 shows the calculation of total year-round population at saturation for each town and village in the study area. In the study area, the year-round population is expected to increase to 143,472 persons at saturation. This figure represents an increase of 17,853 persons or 14.2% over the 2000 census figure. Table 3 is a summary of the year-round population in the North Shore Watershed study area by town in 2000 and under saturation development conditions.

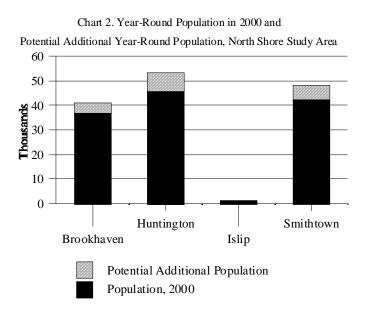
Town	Year-Round Population, 2000	Additional Year-Round Population at Saturation	Year-Round Population At Saturation	% Change To Saturation
Brookhaven	36,575	4,344	40,919	11.9%
Huntington	45,675	7,636	53,311	16.7%
Islip	1,005	48	1,053	4.8%
Smithtown	42,364	5,825	48,189	13.7%
Study Area Total	125,619	17,853	143,472	14.2%

 Table 3. Year-Round Population in 2000 and at Saturation, North Shore Watershed

 Study Area.

Source: Suffolk County Planning Department

The largest increase in potential population in the study area exists in the Town of Huntington, with a potential increase in year-round population of more than 7,600 persons, followed by Smithtown with a potential increase of more than 5,800 and Brookhaven with a potential increase of more than 4,300 persons. In percentage terms, the three main study area towns each show potential population increases of between 11% and 17%. The potential increase in Islip Town is very small, just under 5%. Chart 2 shows the increase in year-round population in each North Shore Watershed study area town between 2000 and saturation.



#### **Seasonal Population Increase at Saturation**

The population of the North Shore Watershed study area increases minimally because of the presence of seasonal homes. At an estimated four persons per household in seasonal housing units, it is estimated that the population in the North Shore Watershed study area may increase by 2,396 persons at saturation because of seasonal homes. This increase is 1.7% over the year-round population figure at saturation. Appendix Table A5 shows the calculation of additional seasonal population at saturation.

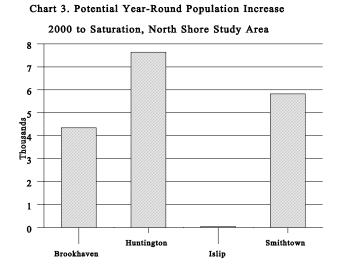
At saturation, the population in the North Shore Watershed portion of the Town of Brookhaven would increase by an estimated 776 or by 1.9% at seasonal times. The study area portion of Huntington Town would increase by 1,180 (2.2%), and the population of study area portion in Smithtown would rise by 440 or 0.9% because of seasonal homes. Islip's seasonal increase would be zero, as it was in 2000.

The total year-round plus seasonal population of the North Shore Watershed study area is expected to be 145,868 under saturation development conditions. This figure represents an increase of 14.0% over the 2000 year-round plus seasonal population of 127,911.

#### SUMMARY

Based on an analysis of land use, zoning, and land available for development, the number of potential additional housing units was determined for each town in the North Shore Watershed study area. From these figures, the number of potential seasonal housing units was calculated, as well as the total year-round population and seasonal population under saturation development conditions.

The year-round saturation population in the North Shore Watershed study area is 143,472 persons, an increase of 17,853 persons over the population in 2000. Of the study area towns, the largest potential year-round population increase is in the Town of Huntington, followed by the Town of Smithtown and then the Town of Brookhaven. (See Chart 3.)



In percentage terms, the year-round population in the study area would increase by **14.2% over the year-round population in 2000 under saturation development conditions.** Of the study area towns, the largest potential percentage increase in year-round population is in the Town of Huntington, followed by the Town of Smithtown and then the Town of Brookhaven. (See Chart 4.)

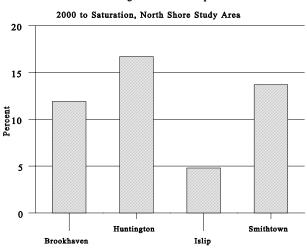


Chart 4. Potential Percentage Year-Round Population Increase

Based on an analysis of saturation year-round population and potential seasonal housing units at saturation, the potential *year-round plus seasonal population* was determined for each town in the North Shore Watershed study area under saturation development conditions. The year-round plus seasonal saturation population of the North Shore Watershed study area is 145,868 persons, an increase of 14.0% over the 2000 figure. Of the study area towns, the largest potential year-round plus seasonal population increase exists in the Town of Huntington, followed by the Town of Smithtown and the Town of Brookhaven. However, the magnitude of increase in each town is similar.

#### REFERENCES

- Suffolk County Dept. of Planning. 2000. 1999 Existing Land Use Inventory Eastern Suffolk County. Hauppauge, NY.
- Suffolk County Dept. of Planning. 2000. 1999 Land Available For Development Eastern Suffolk County. Hauppauge, NY.
- Suffolk County Dept. of Planning. 2001. Saturation Population Analysis, Eastern Suffolk County. Hauppauge, NY.
- Suffolk County Dept. of Planning. 2004. 2001 Existing Land Use Inventory Long Island Sound Study - Suffolk County North Shore Watershed Management Program. Hauppauge, NY.
- Suffolk County Dept. of Planning. 2005. Population Analysis Long Island Sound Study Suffolk County North Shore Watershed Management Program. Hauppauge, NY.
- U. S. Department of Commerce, Bureau of the Census. 2000 Census of Population and Housing.

# APPENDIX

# List of Appendix Tables

Appendix Table A1.	Additional Housing Units at Saturation, North Shore Watershed Study Area.
Appendix Table A2.	Calculation of Seasonal Housing Units at Saturation, North Shore Watershed Study Area.
Appendix Table A3.	Calculation of Additional Year-Round Population at Saturation, North Shore Watershed Study Area.
Appendix Table A4.	Calculation of Year-Round Saturation Population, North Shore Watershed Study Area
Appendix Table A5.	Calculation of Seasonal Population at Saturation, North Shore Watershed Study Area

Table A1.

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Augulonal Housing	Units at Saturation	, inorun Shore	Watershed Study Area	

Town/Village	2000 Housing Units	Potential Additional Housing Units at Saturation	Total Housing Units at Saturation	% Increase 2000 to Saturation
Town of Brookhaven (unincorporated)	7,209	1,032	8,241	14.3%
Village of Belle Terre	297	72	369	24.2%
Village of Old Field	346	93	439	26.9%
Village of Poquott	378	38	416	10.1%
Village of Port Jefferson	3,013	308	3,321	10.2%
Town of Brookhaven Total	11,243	1,543	12,786	13.7%
Town of Huntington (unincorporated)	12,947	1,796	14,743	13.9%
Village of Asharoken	320	334	654	104.4%
Village of Huntington Bay	560	75	635	13.4%
Village of Lloyd Harbor	1,179	346	1,525	29.3%
Village of Northport	2,375	187	2,562	7.9%
Town of Huntington Total	17,381	2,738	20,119	15.8%
Town of Islip Total	287	15	302	5.2%
Town of Smithtown (unincorporated)	12,831	1,536	14,367	12.0%
Village of Head of the Harbor	445	160	605	36.0%
Village of Nissequogue	570	275	845	48.2%
Village of the Branch	468	27	495	5.8%
Town of Smithtown Total	14,314	1,998	16,312	14.0%
Study Area Total	43,225	6,294	49,519	14.6%

Source: Suffolk County Planning Department: 2001 Land Available For Development - North Shore Watershed Study Area and Population Analysis - Long Island Sound Study - Suffolk County North Shore Watershed Management Program

Table A2.

Town/Village	Total Housing Units at Saturation	Percentage of Housing Units That Are Seasonal	Seasonal Housing Units at Saturation
Town of Brookhaven			
(unincorporated)	8,241	$1.5\%^{3}$	124
Village of Belle Terre	369	2.0%	7
Village of Old Field	439	6.9%	30
Village of Poquott	416	3.2%	13
Village of Port Jefferson	3,321	0.6%	20
Town of Brookhaven Total	12,786	-	194
Town of Huntington (unincorporated)	14,743	1.0%	147
Village of Asharoken	654	14.1%	92
Village of Huntington Bay	635	2.1%	13
Village of Lloyd Harbor	1,525	1.3%	20
Village of Northport	2,562	0.9%	23
Town of Huntington Total	20,119	-	295
Town of Islip Total	302	0%	0
Town of Smithtown			
(unincorporated)	14,367	0.5%	72
Village of Head of the Harbor	605	1.3%	8
	<u> </u>		

#### Calculation of Seasonal Housing Units at Saturation, North Shore Watershed Study Area.

<sup>&</sup>lt;sup>3</sup>The seasonal houses at West Meadow Beach in the Town of Brookhaven were demolished in early 2005. This figure represents the percentage of housing units that were seasonal after these houses were removed. This is the figure that will be used for calculations under saturation development conditions. If the West Meadow houses had been included, the percentage of housing units that were seasonal would have been 2.3%.

Village of Nissequogue	845	3.5%	30
Village of the Branch	495	0%	0
Town of Smithtown Total	16,312	-	110
Study Area Total	49,519	-	599

Source: Suffolk County Planning Department, 2000 U. S. Census

Table A3.

# Calculation of Additional Year-Round Population at Saturation, North Shore Watershed Study Area.

Town/Village	Additional Total Housing Units at Saturation	Percentage of Housing Units That Are Seasonal	Additional Seasonal Housing Units at Saturation	Additional Year-Round Housing Units at Saturation	Persons Per Household	Additional Year-Round Population at Saturation
Town of Brookhaven (unincorporated)	1,032	1.5%	15	1,017	2.97	3,020
Village of Belle Terre	72	2.0%	1	71	2.91	207
Village of Old Field	93	6.9%	6	87	3.03	264
Village of Poquott	38	3.2%	1	37	2.79	103
Village of Port Jefferson	308	0.6%	2	306	2.45	750
Town of Brookhaven Total	1,543	-	25	1,518	-	4,344
Town of Huntington (unincorporated)	1,796	1.0%	18	1,778	2.91	5,174
Village of Asharoken	334	14.1%	47	287	2.45	703
Village of Huntington Bay	75	2.1%	2	73	2.78	203
Village of Lloyd Harbor	346	1.3%	4	342	3.17	1,084
Village of Northport	187	0.9%	2	185	2.55	472
Town of Huntington Total	2,738	-	73	2,665	-	7,636
Town of Islip Total	15	0%	0	15	3.22	48
Town of Smithtown (unincorporated)	1,536	0.5%	8	1,528	2.95	4,508
Village of Head of the Harbor	160	1.3%	2	158	2.99	472
Village of Nissequogue	275	3.5%	10	265	2.89	766

Village of the Branch	27	0%	0	27	2.92	79
Town of Smithtown Total	1,998	-	20	1,978	-	5,825
Study Area Total	6,294	-	118	6,176	-	17,853

Source: Suffolk County Planning Department

Table A4.

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Calculation of Teat-Nound Saturation Fo	pulation, North Shore Watershed Study Area.

Town/Village	2000 Population	Additional Year- Round Population at Saturation	Year-Round Saturation Population	% Change to Saturation
Town of Brookhaven (unincorporated)	26,168	3,020	29,188	11.5%
Village of Belle Terre	832	207	1,039	24.9%
Village of Old Field	947	264	1,211	27.9%
Village of Poquott	975	103	1,078	10.6%
Village of Port Jefferson	7,653	750	8,403	9.8%
Town of Brookhaven Total	36,575	4,344	40,919	11.9%
Town of Huntington (unincorporated)	34,017	5,174	39,191	15.2%
Village of Asharoken	673	703	1,376	104.5%
Village of Huntington Bay	1,496	203	1,699	13.6%
Village of Lloyd Harbor	3,651	1,084	4,735	29.7%
Village of Northport	5,838	472	6,310	8.1%
Town of Huntington Total	45,675	7,636	53,311	16.7%
Town of Islip Total	1,005	48	1,053	4.8%
Town of Smithtown (unincorporated)	38,103	4,508	42,611	11.8%
Village of Head of the Harbor	1,274	472	1,746	37.0%
Village of Nissequogue	1,543	766	2,309	49.6%
Village of the Branch	1,444	79	1,523	5.5%

Town of Smithtown Total	42,364	5,825	48,189	13.7%
Study Area Total	125,619	17,853	143,472	14.2%

Source: Suffolk County Planning Department

Table A5.

Town/Village	Seasonal Housing Units at Saturation	Persons Per Seasonal Household	Seasonal Population at Saturation	Seasonal Population Increase at Saturation
Town of Brookhaven (unincorporated)	124	4.0	496	1.7%
Village of Belle Terre	7	4.0	28	2.7%
Village of Old Field	30	4.0	120	1.0%
Village of Poquott	13	4.0	52	4.8%
Village of Port Jefferson	20	4.0	80	1.0%
Town of Brookhaven Total	194	4.0	776	1.9%
Town of Huntington (unincorporated)	147	4.0	588	1.5%
Village of Asharoken	92	4.0	368	26.7%
Village of Huntington Bay	13	4.0	52	3.1%
Village of Lloyd Harbor	20	4.0	80	1.7%
Village of Northport	23	4.0	92	1.5%
Town of Huntington Total	295	4.0	1,180	2.2%
Town of Islip Total	0	4.0	0	0%
Town of Smithtown (unincorporated)	72	4.0	288	0.7%
Village of Head of the Harbor	8	4.0	32	1.8%
Village of Nissequogue	30	4.0	120	5.2%
Village of the Branch	0	4.0	0	0%
Town of Smithtown Total	110	4.0	440	0.9%
Study Area Total	599	4.0	2,396	1.7%

# Calculation of Seasonal Population at Saturation, North Shore Watershed Study Area.

Source: Suffolk County Planning Department