

What happens when we run out of land?



November 2004

A Build-Out Analysis for Nassau & Suffolk Counties

Prepared for the Rauch Foundation by

Regional ^{CT}_{NJ NY} Plan Association

What Happens When We Run Out of Land? Development Projections and Their Implications

From the Queens border to the William Floyd Parkway, the landscape of Nassau and western Suffolk has been almost completely transformed by 60 years of suburban development. Except for a dwindling area in eastern Suffolk, most land is covered by residential homes, office parks, shopping districts, industrial uses or highways. Even on the East End, a growing population and evolving economy are changing the character of the Island's remaining agricultural areas.

As a result, the era in which Long Island could grow its economy and population by building on green, undeveloped land is coming to an end. This change raises several questions that the Island's citizens, villages, towns and elected officials will need to address. How important is it for the Island to accommodate new residents, new jobs and new residential choices for existing residents? How much growth can the Island absorb in the years ahead? Which undeveloped land should be protected and which should permit new development? Are there other ways to expand the economy and housing choices and still maintain the Island's suburban character?

To answer these questions, it's important to understand where we are headed. Using a widely used land use forecasting model, Regional Plan Association and the Geography Department of Hunter College have projected how quickly Long Island's remaining land would be developed if current trends continue.¹ The maps and information that follow tell a story of Long Island's likely development over the next generation. It can be read as either the concluding chapter of the Island's emergence as America's first postwar suburb or the opening chapter of a tale describing a new pattern of growth and development.

“Build-Out”: What It Is and What It Isn't

Planners, economists, developers and environmentalists often speak in ominous language about an approaching “build-out” of Nassau and Suffolk. In fact, many would say that the Island is *already* effectively built out. But what exactly does this mean? Sometimes, the term is used to mean that a community has built all of the density that its zoning allows. By that standard, Long Island is far from built out. This analysis uses build out to describe land coverage rather than density. As defined here, build-out means that there is little or no more green space that can be developed for housing, offices or other uses. However, since even this can be easily misunderstood, and it's important to specify the limits of what it implies.

First, a completely built-out Long Island would *not* mean that every inch of available open space would be consumed. Protected parkland and land that is physically unsuitable for development would remain. So would the greenery within already developed communities. However, it would mean that there would be no more large tracts of land that could be used for new subdivisions or development projects.

¹ SLEUTH is a probabilistic land use model developed by Dr. Keith Clarke of the University of California at Santa Barbara for the U.S. Geological Society. For additional information see http://www.ncgia.ucsb.edu/projects/gig/project_gig.htm

It also doesn't mean the Island could not continue to add people and jobs. New buildings could be added within existing communities to accommodate growth in a number of ways—filling in vacant lots, rebuilding on abandoned industrial or commercial sites, or redeveloping older structures with newer and larger buildings.

Finally, it does not mean that the pace of change would slacken. Communities would continue to evolve in response to new economic and demographic trends, and land uses and the physical appearance of the Island would change as well.

Why Should We Care?

A shrinking amount of undeveloped land affects several challenges that the *Long Island Index*, Quality of Life Polls, civic groups and public officials have highlighted in recent years:

- *Open space and the environment:* As the number of areas left to develop become more limited, there is a strong risk that environmentally sensitive areas, such as the Long Island Pine Barrens, will become more endangered. The character of rural communities and coastal areas could also change as these areas become more developed. The success and popularity of open space acquisition and farm protection programs demonstrate that Long Islanders understand and appreciate this risk.
- *Housing availability and cost:* Until recently, Long Island has been able to build enough housing to satisfy the persistent demand for an affordable suburban lifestyle. However, since the late 1990s the escalation in prices and shortage of housing for low and middle-income households has called that assumption into question. A dwindling supply of places to build new housing is partly responsible.
- *Economic vitality and opportunity:* Important parts of Long Island's economy, from agriculture to tourism, depend on Long Island's remaining open spaces. Other sectors depend on a growing population for both workers and customers, so if growth is impeded by land availability, business and job opportunities could suffer.
- *"Brain drain":* All of these factors—economic opportunity, open space, but particularly housing costs—can contribute to the loss of young families and talented workers that was documented in the 2004 Index.

While the approaching "build out" contributes to all of these trends, it does not have to determine the outcome. It does, however, require different approaches to land use and development if Long Islanders want to maintain their way of life for themselves and their children.

Where We Are Today

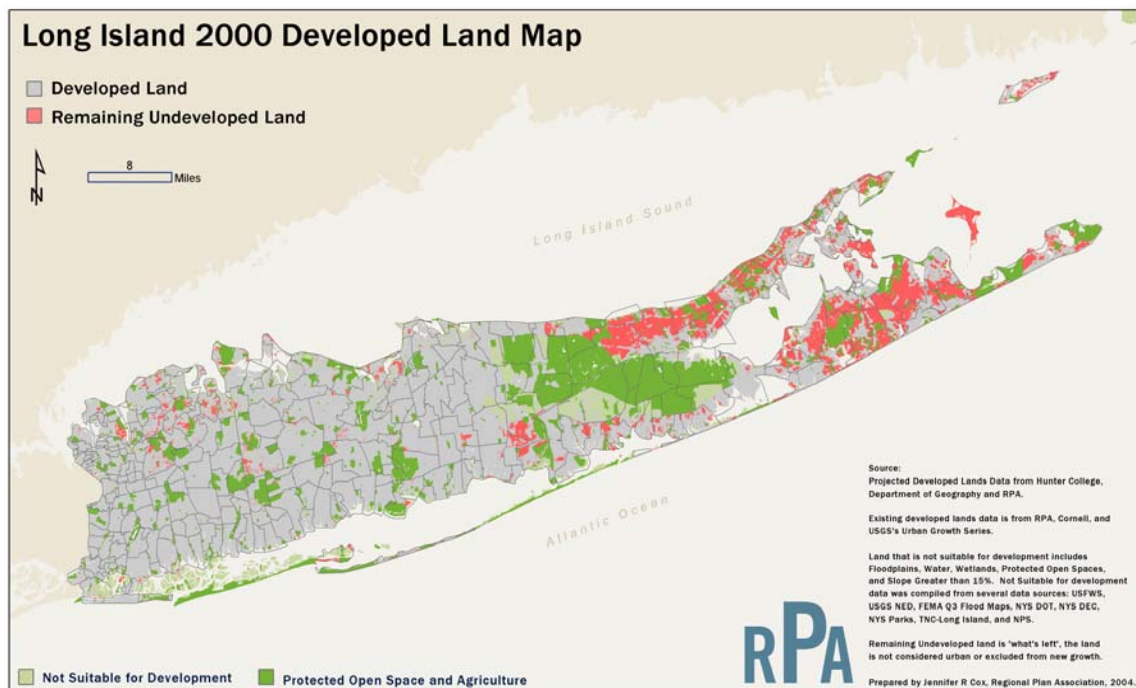
The first map shown below, "Long Island 2000 Developed Land Map," shows the distribution of developed and undeveloped land in Nassau and Suffolk following nearly six decades of suburbanization. Nearly 500,000 acres, almost two-thirds of Long Island's land surface, is covered with buildings, pavement and other man-made structures.² Most of this land was

² This includes yards, plazas and other small green spaces that are part of developed properties, so the figure somewhat underestimates the amount of green space on the Island.

developed during the Island’s growth spurt between World War II and the 1970s. Over 80% of Nassau County’s real estate is developed, but even in Suffolk nearly 60% of the county’s land is suburbanized. In both counties, residential properties represent about three-fourths of this real estate. Institutional uses—schools, hospitals, etc—are the second largest use.³

Another 168,000 acres (22% of all land on Long Island) have been protected from development by federal, state, county and municipal governments. About half of this represents public parks. The remainder consists of protected agricultural districts, cemeteries and other uses that prevent them from being changed to residential, commercial or institutional uses. More than 80% of this protected open space is in Suffolk County, predominantly on the East End.

This leaves approximately 113,000 acres of unprotected farms, wetlands, forests, meadows and beaches. However, more than a third of this land is unlikely to ever be developed because its topography or other characteristics make building on it unfeasible. That only leaves about 67,000 acres in Nassau and Suffolk that could be still be developed, less than 9% of the Island’s total land. Over 90% of this is in Suffolk County. In fact, over two-thirds are in the three towns of Riverhead, Southampton and East Hampton, and much of the remainder is in Southold and Brookhaven.



Where We Are Headed

The maps and tables that follow show where and how much additional land is likely to be developed if past trends continue into the future. The projections take into account the locations and types of land that have been suburbanized since 1960, and how those trends have changed over each succeeding decade. By using conservative assumptions, the maps only indicate

³ See “Land Use in Nassau and Suffolk Counties,” prepared by the Long Island Regional Planning Board, August 2004.

property that the model assumed has a 90% chance of being developed in a particular year. Using less conservative assumptions, land would be consumed more quickly.

All of these projections could be altered by unanticipated changes in the economy or population growth, or by public actions that either encourage or restrict development in particular locations. In fact, the model makes no assumptions about additional open space that would be protected. However, given the likelihood of continued land acquisition and protection, as evidenced by the approval of four land acquisition and open space protection initiatives in the November 2004 elections, it should be expected that the amount of available land for development will shrink even faster than what is shown here.

Projections of Land Available for Development, 2000-2050 (in acres)

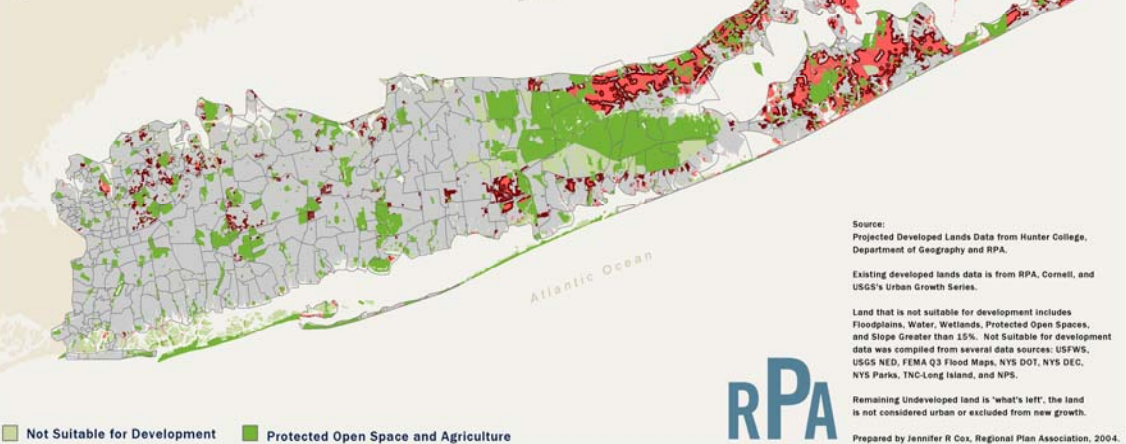
	Total Land	Land Developed by 2000	Protected or Unsuitable for Development	Reaining Undeveloped Land					
				2000	2010	2020	2030	2040	2050
Glen Cove	4,379	86%	12%	75	23	0	0	0	0
Hempstead	78,213	78%	22%	11	3	1	1	0	0
Long Beach	1,449	91%	9%	0	0	0	0	0	0
North Hempstead	34,643	89%	9%	929	496	348	272	231	210
Oyster Bay	66,778	78%	18%	2,240	707	279	113	55	42
Nassau County	185,461	80%	18%	3,254	1,229	628	386	284	251
Babylon	32,860	74%	26%	95	47	40	35	44	43
Brookhaven	168,172	63%	34%	5,336	2,565	1,128	392	134	44
East Hampton	48,179	35%	31%	16,452	12,783	9,849	7,397	5,277	2,587
Huntington	60,420	85%	13%	1,157	393	194	116	95	68
Islip	67,533	79%	20%	309	52	4	-3	-4	-4
Riverhead	43,716	27%	38%	14,932	11,509	8,237	5,322	2,221	737
Shelter Island	7,832	51%	27%	1,767	1,274	985	751	562	347
Smithtown	34,952	83%	15%	842	354	139	54	12	3
Southampton	93,069	38%	46%	14,487	10,590	7,604	5,433	3,574	1,731
Southold	35,566	45%	33%	7,888	5,016	3,103	1,831	1,058	603
Suffolk County	592,299	59%	31%	63,264	44,585	31,283	21,330	12,973	6,160
Long Island	777,760	64%	28%	66,518	45,813	31,911	21,715	13,257	6,411

Source: Projections by Regional Plan Association and Hunter College of the City University of New York

Long Island 2020 Developed Land Map

- Developed Land
- Land Developed Between 2000 and 2020
- Remaining Undeveloped Land

8 Miles



Source:
Projected Developed Lands Data from Hunter College,
Department of Geography and RPA.

Existing developed lands data is from RPA, Cornell, and
USGS's Urban Growth Series.

Land that is not suitable for development includes
Floodplains, Water, Wetlands, Protected Open Spaces,
and Slope Greater than 15%. Not Suitable for development
data was compiled from several data sources: USFWS,
USGS NED, FEMA Q3 Flood Maps, NYS DOT, NYS DEC,
NYS Parks, TNC-Long Island, and NPS.

Remaining Undeveloped land is "what's left", the land
is not considered urban or excluded from new growth.

Prepared by Jennifer R Cox, Regional Plan Association, 2004.

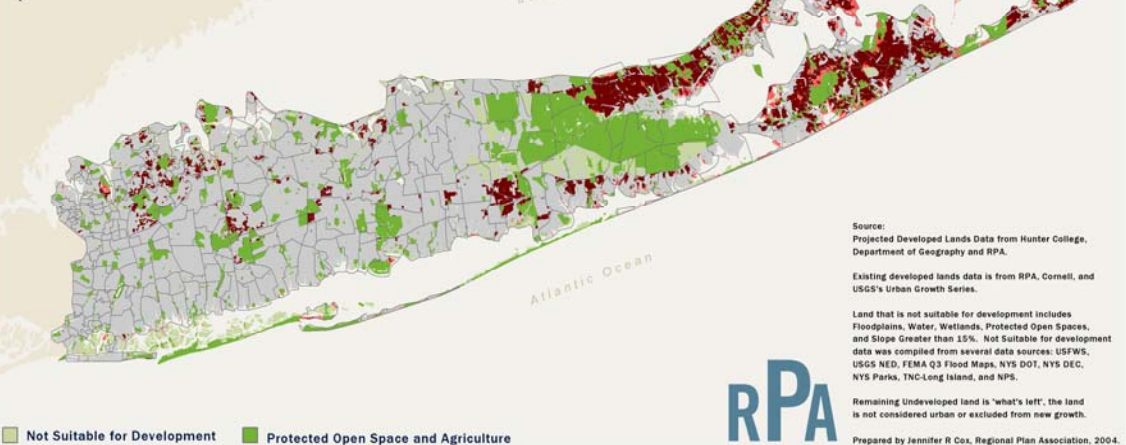


■ Not Suitable for Development ■ Protected Open Space and Agriculture

Long Island 2050 Developed Land Map

- Developed Land
- Land Developed Between 2000 and 2050
- Remaining Undeveloped Land

8 Miles



Source:
Projected Developed Lands Data from Hunter College,
Department of Geography and RPA.

Existing developed lands data is from RPA, Cornell, and
USGS's Urban Growth Series.

Land that is not suitable for development includes
Floodplains, Water, Wetlands, Protected Open Spaces,
and Slope Greater than 15%. Not Suitable for development
data was compiled from several data sources: USFWS,
USGS NED, FEMA Q3 Flood Maps, NYS DOT, NYS DEC,
NYS Parks, TNC-Long Island, and NPS.

Remaining Undeveloped land is "what's left", the land
is not considered urban or excluded from new growth.

Prepared by Jennifer R Cox, Regional Plan Association, 2004.



■ Not Suitable for Development ■ Protected Open Space and Agriculture

Even understanding that the outcome could vary from the prediction for a number of reasons, the numbers describe a pattern that is highly probable. Among the most important findings are the following:

- By and large, new development occurs in a relatively incremental fashion, spreading outward from recently suburbanized area until it abuts water, protected land or land that is difficult to build on.
- By 2020, over half of the developable land that existed in 2000 is likely to be built out, leaving only 32,000 acres left. From there, the model predicts a gradual decline until only 6,000 acres are left in 2050.
- With the exception of Long Beach, all of Long Island's 11 town and 2 cities have some available acreage, and the model predicts that all of these communities would have some additional land developed.
- In percentage terms, Riverhead is the fastest growing town. Developed land grows by 55% by 2020 and more than doubles by 2050. East Hampton and Southold follow closely, with growth of 40% and 30%, respectively, by 2020. Southampton and Shelter Island grow by nearly 20%.
- In Nassau, 3,000 new acres are developed by 2020, and 75% of that occurs in Oyster Bay.
- Towns in Suffolk with relatively slow growth include Babylon, Islip, Huntington and Smithtown.

One of the implications for Long Island's future growth is relatively straightforward. Unless housing and commercial space are added in currently developed areas, it will be increasingly difficult for the Island's population and economy to grow. Some evidence of change is already available. Long Island's population began to level off after 1970, but the pace of population growth picked up in the 1990s. Until 1990, land developed at a faster pace than growth in the number of residents on the Island. In the 1990s, however, population grew by 5.5% while developed land grew by an estimated 3.5%. With the supply of developable land already constricted, population was added in both previously and newly developed areas.

How much growth Long Island can accommodate in the future will be a matter of choice—choices of zoning, open space protection and infrastructure investments. As important as the issue of the amount of growth are the questions of where, how and what type of growth will occur. These will also be a function of both private demand and public decisions that can shape, as well as respond to, this demand.

Analysis and mapping by Jennifer Cox, Geographic Information Systems Manager, Regional Plan Association, Dr. William D. Solecki and Charles Oliveri, Hunter College of the City University of New York. Report prepared by Jennifer Cox and Christopher Jones, Vice President for Research, Regional Plan Association.