



Averting Crisis

Zoning to Create Resilient Homes for All

This report offers insights into the necessary scope of zoning reform and supporting policies needed to address the twin housing and climate adaptation needs in New York City and the suburban communities.



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Communities nationwide are facing a severe housing crisis marked by soaring costs, limited housing options, and stagnant construction.⁰⁰ This crisis is largely driven by restrictive zoning regulations that impose onerous procedural requirements, ban multi-family housing, and create numerous technical hurdles. Even in the tri-state metropolitan region, the National Zoning Atlas shows that around 85% of residentially zoned land is zoned only for single-family housing—and half of that land requires a minimum of a half-acre parcel before a home can be built.⁰⁰

Unfortunately, climate hazards, especially flooding, will continue to exacerbate the housing shortage. The growing risk of climate-driven flooding jeopardizes both existing and future housing developed in flood zones. Meanwhile, adaptation measures in coastal regions meant to protect communities are slow, narrow in scope, and unable to deliver fundamental transformations.^{00 00} Nearly 1 million houses and multifamily buildings in the tri-state area of New York, New Jersey, and Connecticut are at high risk of flooding.⁰⁰ Nationwide, the number of affordable housing units at risk from coastal flooding and rising sea levels is projected to triple by 2050.⁰⁰ With global emissions worsening, extreme weather events—aggravated by rising sea levels—will only grow more severe, frequent, and damaging over time.^{00 00}

This report was produced in partnership with:

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Zoning lies at the intersection of these two crises. Zoning laws determine how land can be used and what types of buildings can be constructed in specific areas.⁰⁰ Over time, zoning has been implemented to favor sprawl while limiting compact development. As a result, our current zoning exacerbates both our housing and climate crises. The same zoning regulations that constrain compact housing development are subjecting

residents to increasing and more severe climate hazards.^{00 00} In this report, Regional Plan Association (RPA) offers insights into the necessary scope of zoning reform and supporting policies needed to address these twin housing and climate adaptation needs in New York City and the suburban communities of Nassau, Suffolk, and Westchester Counties (the “study area”).

This pattern of sprawl has an outsized effect in our suburbs and rural areas, which is evident when looking at this report’s study area.⁰⁰ On average, households in Long Island and the suburban areas of Westchester produce twice the greenhouse gas emissions of New York City because sprawling land use patterns require residents to drive.⁰⁰ These counties have also lost around 14,300 acres of forest land since 2001, with 90% of the loss linked to sprawl.⁰⁰ Of the many climate hazards threatening the study area, flood risks may have the most impact, as approximately 77,300 acres of residential-zoned land (10.5%) could face future flooding, and by the year 2040, up to 82,000 housing units could be lost due to permanent, chronic, and coastal flooding.⁰⁰ In many municipalities in Westchester and especially Long Island, locally controlled zoning often restricts residential development in locations with good transportation access, job opportunities, and *limited* flood exposure. Despite being close to New York City, suburbs on Long Island and in Westchester County ban multifamily development on over 95% of their residential land.⁰⁰ More than half of the commuter rail stations in these suburbs, often suitable for transit-oriented development, are situated in predominantly White, usually affluent neighborhoods with restrictive zoning that severely limits or prohibits multifamily buildings.⁰⁰ This dynamic exacerbates the trend of developing in hazardous areas, worsens the housing crisis, and widens socioeconomic and demographic disparities.⁰⁰



Together, these issues suggest the need for a more integrated approach to land use planning and policy initiatives to create safe, resilient, and affordable communities.

There is also a need to foster new thinking about the ways that climate-related factors should be incorporated into housing assessments and local and regional planning, and to improve public understanding of the relationships between zoning, housing production, and flood risk. By comparing housing needs against zoning capacity, this report’s analysis quantifies the extent to which zoning creates a housing deficit (the “net deficit”). Utilizing a first-of-its-kind database of zoning laws created by the National Zoning Atlas, RPA analysis shows that the **current residential zoning development capacity allows less than half (45%) of the total housing needed by 2040, leaving a net deficit of approximately 680,000 units.**

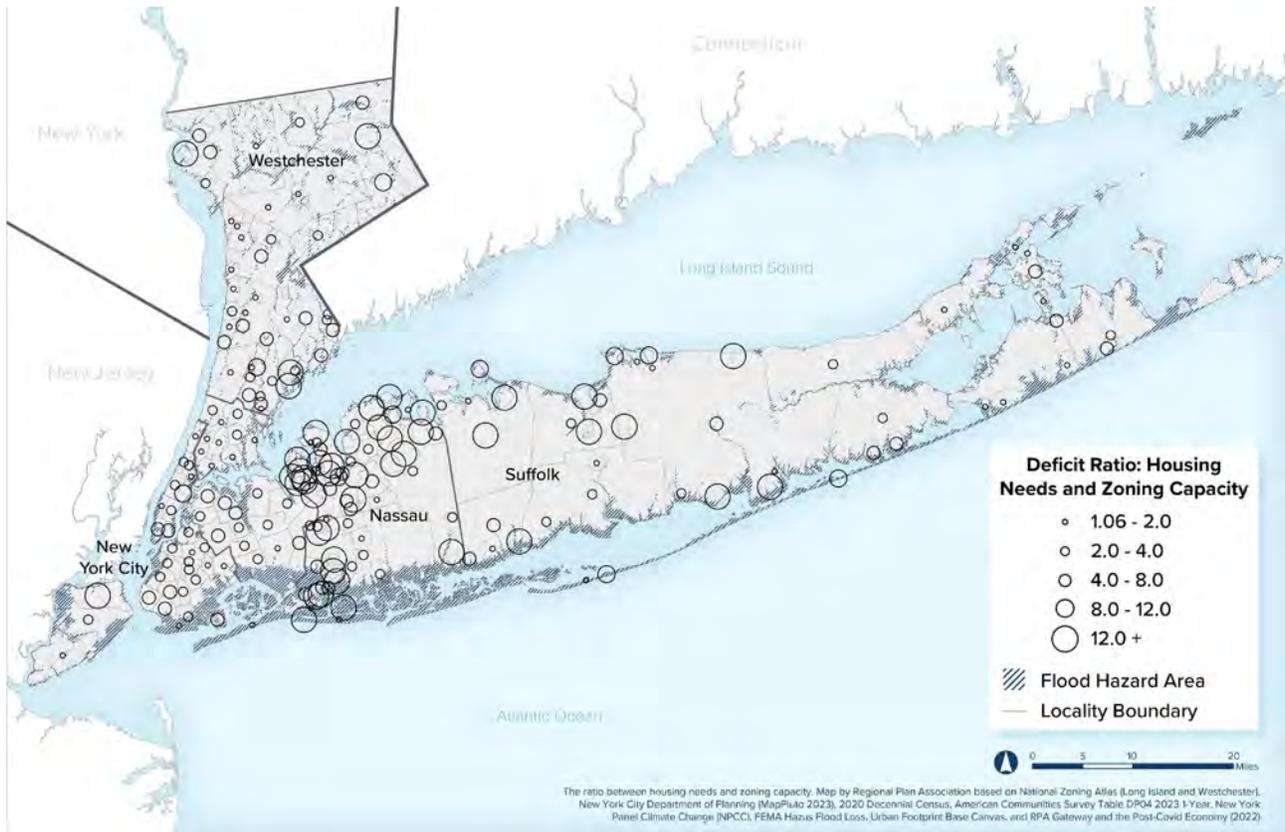
⁰⁰ To meet both current and future needs, including losses related to flooding, zoning development capacity would need to increase by a factor of 2.2 (the “deficit ratio”).⁰⁰ Residential zoning capacity – the number of residential units likely to be built under current regulations – can be increased by broadening the geographic scope of multifamily districts and creating more flexible regulations that govern building treatments, density, parking requirements, and other dimensional criteria.

Incremental Housing Units Needed vs Current Zoning Capacity

Subregion	Needs Through 2040 (DUs)	Zoning Capacity (DUs)	Net Deficit (DUs)	Deficit Ratio
Long Island	256,843	102,252	-154,591	2.5
Westchester County	112,712	94,811	-17,901	1.2
New York City	895,230	386,576	-508,653	2.3
Study Area	1,264,784	583,638	-681,146	2.2

Analysis considers the incremental housing stock unlocked by the adopted reforms from “City of Yes Housing Opportunity.” Regional Plan Association based on National Zoning Atlas (Long Island and Westchester), New York City Department of City Planning (MapPluto 2023), City of Yes Final Environmental Assessment Statement (CEQR # 24DCP033Y), 2020 Decennial Census, American Communities Survey Table DP04 2023 1-Year, New York Panel Climate Change (NPCC), FEMA Hazus Flood Loss, Urban Footprint Base Canvas, and RPA Gateway and the Post-Covid Economy (2022).

The scale of the deficit provides insights into the necessary scope of zoning reform and additional policies needed to address housing and climate adaptation needs in the study area. By contextualizing this gap at the local level, the report also documents relevant policies and planning tools to be leveraged and prioritized based on the built environment, infrastructure, and flood hazard conditions of neighborhoods and localities across the region.



Deficit Ratio by Locality with Flood Exposure by 2040

The ratio between housing needs and zoning capacity. An estimate of how many times zoned capacity has to increase to meet housing needs fully. Residential zoning capacity can be increased by broadening the geographic scope of multifamily districts and creating more flexible regulations that govern building treatments, density, parking requirements, and other dimensional criteria. For more detailed information, visit this link to the web map version.

Key Terminology

- **Study Area:** New York City, Long Island, and Westchester County. Estimates have been disaggregated by community districts in New York City and municipalities in the suburbs.
- **Housing Needs:** Refers to the requirement for housing that meets individuals' and households' current and prospective needs. To quantify needs within the study area, this report utilized estimates of overcrowded households, vacancy rates, and the temporarily sheltered population, along with projections to the year 2040 for household formation, dilapidation rates, and units lost to flooding.
- **Zoning Capacity:** Potential additional residential units allowed under current zoning regulations and as-of-right conditions. This estimated build-out was based on parcel-level analysis and applicable zoning regulations, including recent reforms implemented in New York City under the City of Yes Housing Opportunity proposal.
- **Net Deficit:** The difference between housing needs and zoning capacity (build-out), measured in number of dwelling units (DU).
- **Deficit Ratio:** The ratio between housing needs and zoning capacity. An estimate of how many times zoned capacity has to increase to meet housing needs fully. Residential zoning capacity can be increased by broadening the geographic scope of multifamily districts and creating more flexible regulations that govern building treatments, density, parking requirements, and other dimensional criteria.
- **Smart Growth:** Planning approach to create more livable, sustainable, and equitable communities by focusing on compact, mixed-use development, walkable neighborhoods, and diverse transportation options.
- **Flood Exposure:** Represents the potential for damage based on a property's location and population's vulnerability to flooding. Estimates are based on storm surge and sea-level rise projections for 2040 and 2070.
- **Flood Loss:** Refers to the actual damage and non-replacement of housing stock incurred due to a flood event. For housing flood loss to occur, exposure must be frequent and/or severe enough to result in significant damage.

Findings and Recommendations Summary

All statistics are based on New York City, Long Island, and Westchester County (study area).

Flood Exposure and Loss

- By 2040, as many as 1.6 million people in the study area could live in an area exposed to flooding, with 1 million in the urban core and regional downtown centers (63%). In the coming years, more than 1 million jobs could be located in areas with future flood exposure, with approximately 726,000 in higher-density urban locations.
- Around 77,300 acres of residential-zoned land in New York City and its surrounding suburbs may face flooding by 2040. This at-risk area amounts to 10.5% of the zoned land allowing for some form of residential use on an as-of-right basis.
- The study area could lose as many as 82,000 housing units due to flooding by 2040, and the number could double to 160,000 by 2070. These housing losses could occur in 78% of municipalities in the study area suburbs (124 out of 159) and 60% of community districts in New York City (30 out of 55).

Current and Prospective Housing Needs

- The region's total housing needs (current and prospective) could reach 1.26 million additional units by 2040, representing a needed increase of 24% from the current stock.
- 362,000 housing units are required to address current needs, including overcrowding, the temporarily sheltered population, and low vacancy rates. Another 895,000 units could be required by 2040 to address prospective needs, such as flood loss, dilapidation, and household formation.

Zoning Capacity and Deficit

- The study area's potential zoning capacity (build-out under current zoning regulations) represents approximately 580,000 units, with 390,000 in New York City and 190,000 between Long Island and Westchester.

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- The zoning capacity represents less than half (45%) of the total housing needed by 2040, leaving a net deficit of approximately 680,000 units. To accommodate current and prospective needs of 1.26 million additional units by 2040 and to account for flood-related losses of up to 82,000 housing units, zoning development capacity would need to increase by a factor of 2.2 (the “deficit ratio”).
 - Nearly all residentially zoned land permits single-family residences on an as-of-right basis: 100% in NYC, and 98%, and 96% on Long Island and in Westchester County, respectively. Despite their proximity to New York City, Suffolk and Nassau Counties (which makeup Long Island) ban multifamily residential development on 96% and 93% of their residential land, respectively.
 - Lot size requirements are a significant impediment to development in the suburbs. Approximately 45% of underdeveloped properties in the study area suburbs cannot be developed because they do not meet the required minimum lot sizes.
 - Zoning reforms adopted in New York City under the “City of Yes” Housing Opportunity could add 82,000 additional housing units to the city’s housing stock, which brought a 758,000 gap in the study area down to 676,000, or an 11% decrease, a modest improvement in addressing the housing deficit within the study area.
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Recommended Policies and Tools

- Housing and resiliency goals must acknowledge needs that are both regional in scale and dynamic in time. Efforts to minimize flood risk and close the housing deficit should also consider local flood exposure conditions and attributes that favor “smart growth” through compact, walkable, and transit-oriented development which takes advantage of both our urban mass transit and our extensive suburban rail network.
 - Neighborhoods and areas with lower anticipated flood exposure and greater potential for smart growth development should facilitate transit-oriented development, mixed-use multifamily buildings, and infill development. Sustained investments will also be required to enhance the capacity and resilience of services and infrastructure.
 - Areas facing significant risks from future flooding and a high potential for smart growth development will require comprehensive planning to promote growth while protecting existing communities and infrastructure through flood-resilient design and other adaptive measures.
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- Neighborhoods and localities that are highly exposed to future flooding and have relatively low potential for smart growth may require different strategic approaches, such as managed retreat and reprogramming existing land use, including restrictions on certain types of residential development.
- Areas with low levels of future flood loss and low potential for smart growth development can benefit from targeted interventions to enhance livability and sustainability while avoiding sprawl through adaptive reuse and middle-density buildings.

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Flood Exposure and Loss

The devastation caused by wildfires in LA and flooding in North Carolina recently underscored how climate change hazards can exacerbate housing scarcity and affordability. Rising sea levels and more frequent and intense storms are creating new challenges to already constrained regional housing markets.

... FLOOD EXPOSURE

Related Report

Oct 2017

Coastal Adaptation

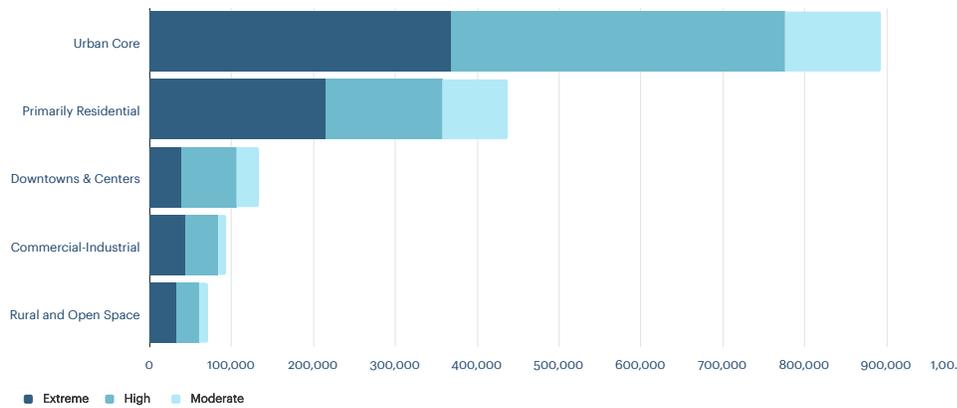
A Framework for Governance and Funding to Address Climate Change

Policymakers and planners usually focus on population growth and affordability when deciding how many homes a community or region needs. But what if the land we plan to build on is prone to flooding? These climate-related factors must be integrated into our housing needs assessments to ensure we’re building safe, resilient, and sustainable communities for the future.

By 2040, around 77,300 acres of residential-zoned land in New York City and the study area suburbs – or 10.5% of such land – may face flooding.⁰⁰ Suffolk County has the largest acreage of residential districts exposed to future flooding, with approximately 37,800 acres or 10% exposed. New York City follows, with approximately 20,900 acres of residential districts exposed to flooding, representing 15% of the city’s total. By 2040, up to 10% of the people in the study area might reside in areas prone to future flooding. With more than 1 million people at risk in the urban core and regional downtowns, 63% of the potentially affected population could be living in higher-density urban areas. An additional 1 million jobs could be situated in zones vulnerable to future flooding, with approximately 726,000 in the urban core and regional downtown

regions areas. Hazards include storm surge, riverine flooding, and sea level rise projections based on New York Panel Climate Change (NPCC) 16" of sea level rise by 2040 (75th percentile).⁰⁰

Population Exposed to Future Flooding by Land Use Typology



Degree of exposure based on the amount of surface area impacted by future flooding: (i) Extreme, more than 70%; (ii) High, between 50% and 70%; and (iii) Moderate, less than 50%. Analysis based on the New York Panel Climate Change (NPCC) and RPA "Gateway and

Jobs Exposed to Future Flooding by Land Use Typology

Residential Zoning Districts Exposed to Future Flooding by County

FLOOD LOSS

Flood exposure represents the *potential for damage* based on a property's location and vulnerability to flooding. In contrast, flood loss refers to the *actual damage* or financial loss incurred due to a flood event. For residential loss to occur, exposure must be frequent and/or severe enough to result in significant damage. Aside from the degree of exposure, socioeconomic conditions, building regulations, and insurance policies can influence whether a housing unit is lost.⁰⁰

According to the RPA estimates, communities in New York City, Long Island, and Westchester (the study area) could lose up to 82,000 housing units due to permanent, chronic, and coastal flooding, doubling to 160,000 by 2070. These estimates are focused only on flooding, but a more complete assessment should have a multihazard perspective (e.g., extreme rainfall or wildfires).⁰⁰

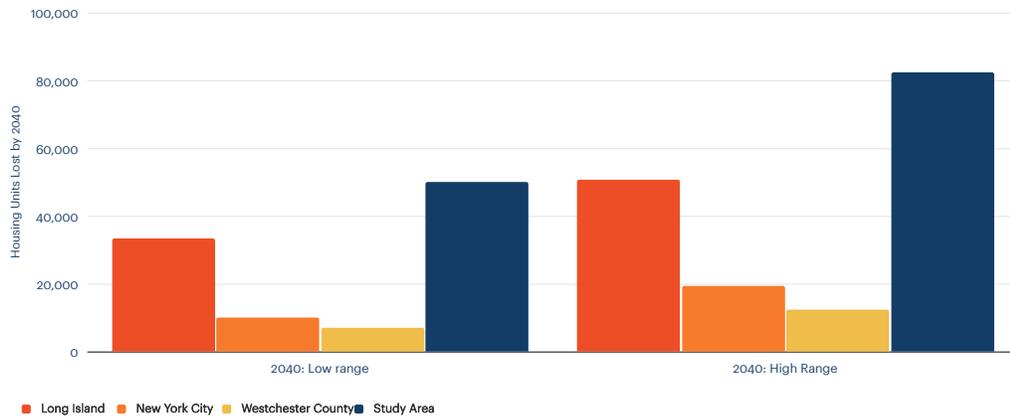
Housing losses by the year 2040 could occur in 78% of municipalities in the suburbs (124 out of 159) and 60% of community districts in New York City (30 out of 55). The most flood-prone areas where the largest losses may occur are the towns of Hempstead, Babylon, Islip, Brookhaven on Long Island and cities in Westchester County along the Long Island Sound. Each could lose over 6,000 units by 2040. Neighborhoods in New York City like Rockaways, South Ozone Park, and Canarsie could also be significantly impacted, with each area losing over 2,000 units.⁰⁰

For this analysis, RPA considered lost housing resulting from two types of hazards: sea-level rise and storm-related flooding.

Sea-level rise refers to gradual, permanent, or chronic inundation. Using the projections developed by the New York Panel on Climate Change (NPCC) and a bathtub model, RPA calculated the number of housing units exposed to monthly high tides and considered them lost. We developed a range of estimates based on the NPCC’s 25th and 75th percentiles and projections for 2040 and 2070.⁰⁰

In addition to sea-level rise, RPA also factored storm-related flooding, which refers to acute, random, and temporary flooding. We used FEMA’s basic Hazus-generated depth grids for damage analysis over multiple return periods (10, 50, 100, and 500-year storm events). When a portion of a building was likely to receive substantial damage (>50%) in the time interval, RPA considered them destroyed. We assumed 50% of substantially damaged homes would be replaced under the low scenario and 0% replacement of substantially damaged homes under the high scenario. As with the sea-level rise estimates, we produced projections for 2040 and 2070.

Housing Flood Loss Estimates by Decade and Subregion

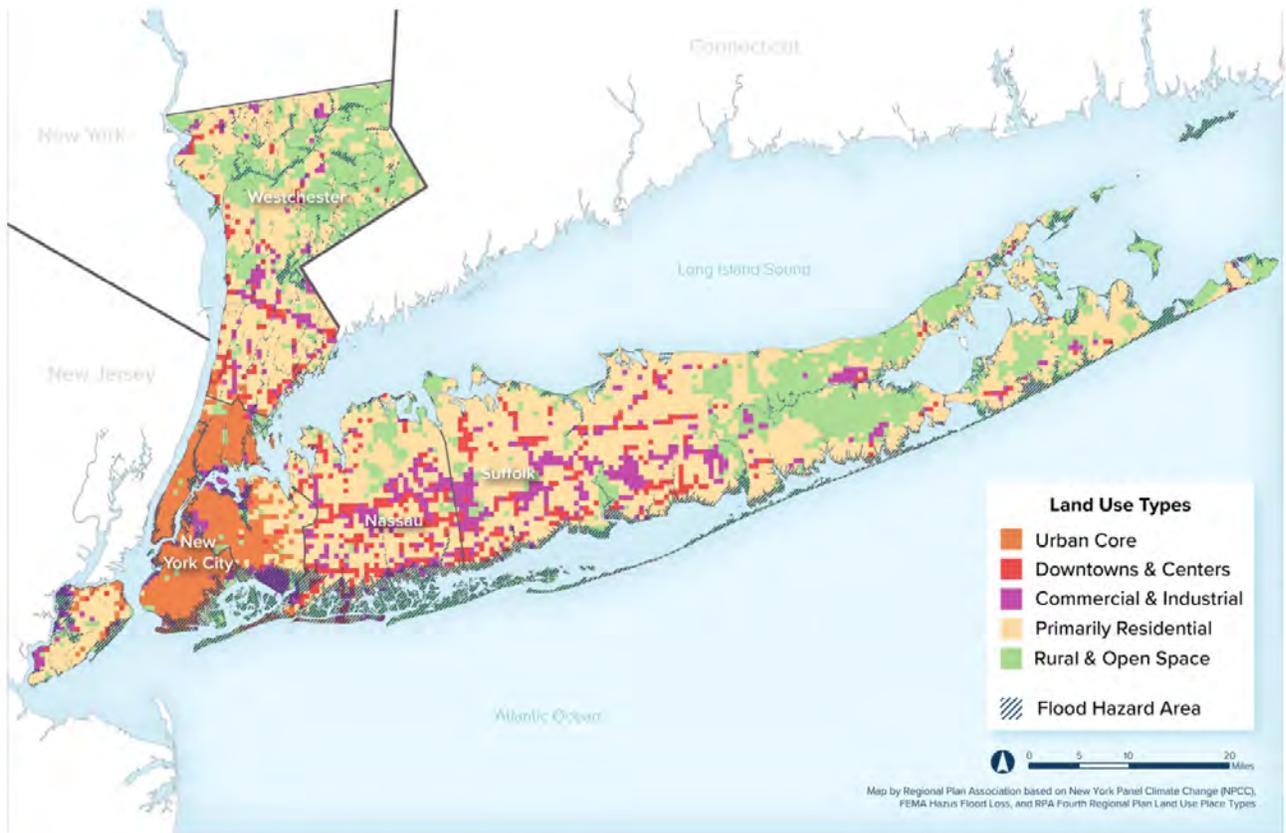


RPA analysis based on New York Panel Climate Change (NPCC), FEMA Hazus Flood Loss, 2020 Decennial Census, and American Communities Survey Table DP04 2023 1-Year evenviz.com

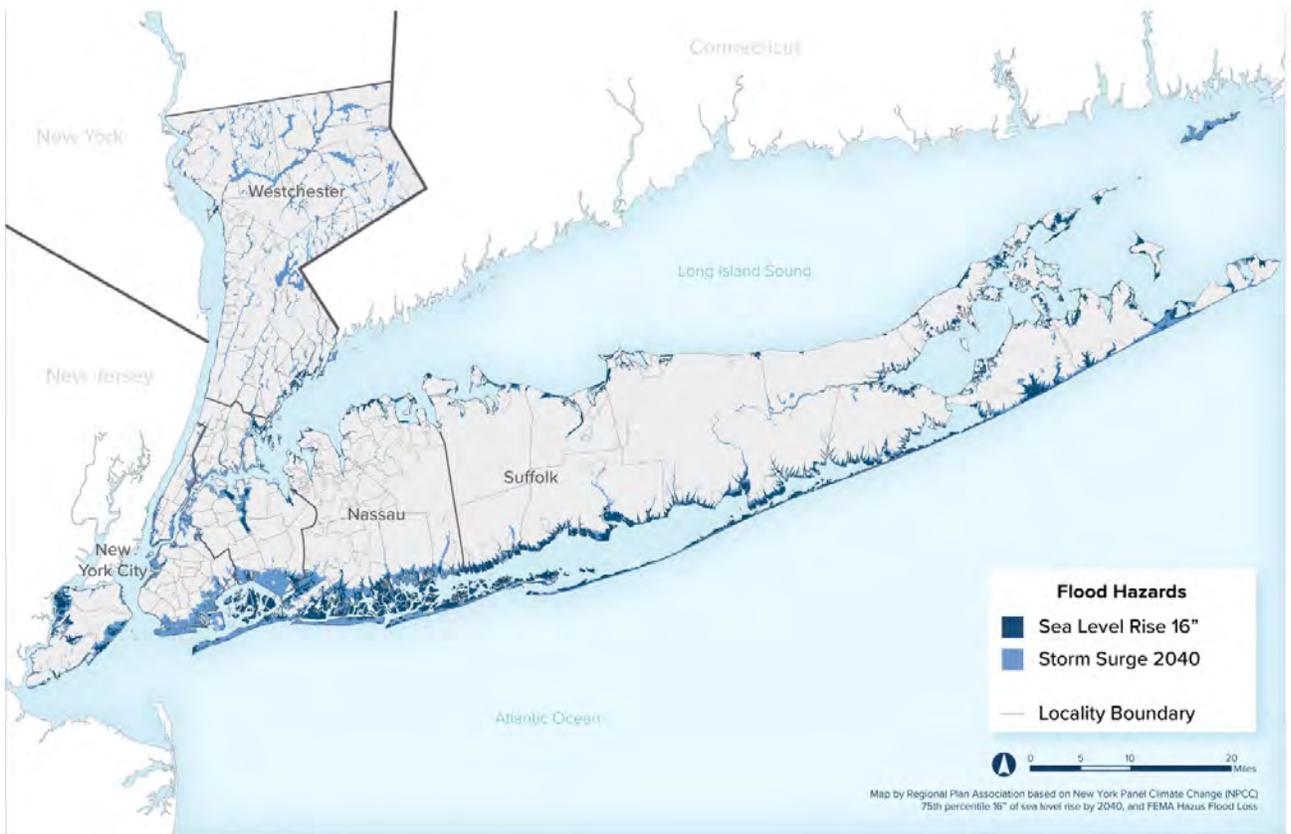
Housing Flood Loss Estimates by Subregion and Decade

By Decade and Scenario Range	2040		2070	
	low	high	low	high
Total Housing Units Lost	49,977	82,224	72,237	160,017
New York City	9,887	19,293	16,702	52,493
Long Island	33,219	50,568	46,838	88,478
Westchester County	6,871	12,363	8,697	19,046

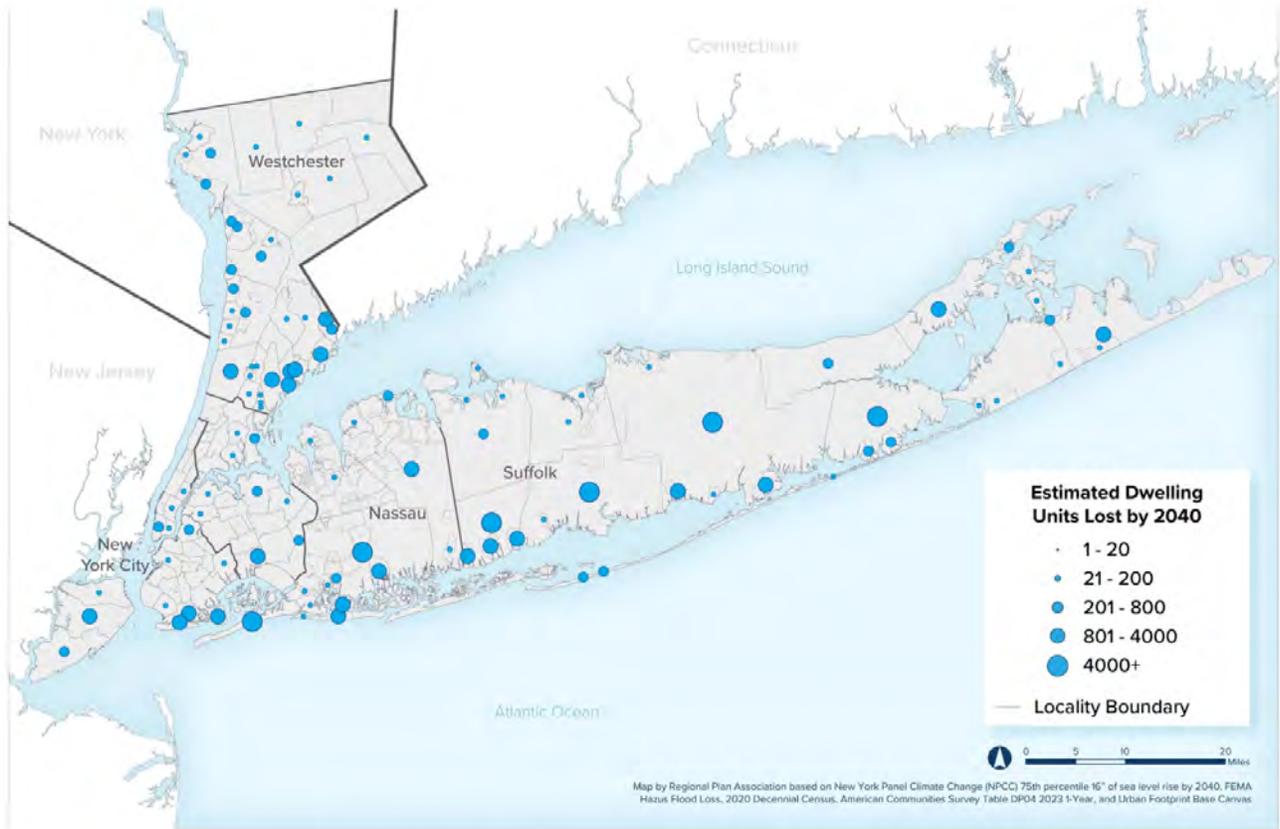
RPA analysis based on New York Panel Climate Change (NPCC), FEMA Hazus Flood Loss, 2020 Decennial Census, and American Communities Survey Table DP04 2023 1-Year



← 1/3 → Flood Hazards and Land Use Types



← 2/3 → Flood Hazards in the Study Area



← 3/3 →

Estimated Housing Loss by Locality

Current and Prospective Housing Needs

Housing development within the region has been insufficient to meet residents' needs. As housing supply has become constrained, available homes for workers, young people, and low and moderate-income households have declined. The region's failure to build enough homes has resulted in overcrowded apartments, increasing homelessness, rising rents, and home prices growing faster than income and inflation.

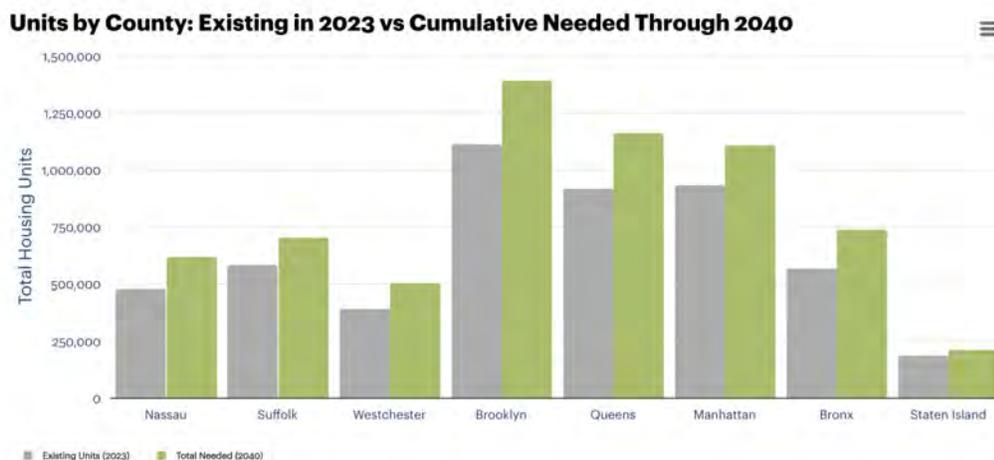
Climate hazards are just starting to aggravate the already severe lack of affordable housing. As global emissions continue to rise, the effects of climate change will intensify and occur more often.⁰⁰ If these issues are not tackled, many communities will face even more significant challenges with affordability and housing insecurity. Those with existing vulnerabilities will be impacted in disproportionate ways.⁰⁰

The demand for housing is immense.

RPA estimates that by 2040, needs in New York City and nearby suburbs could require roughly 1,260,000 additional units.

Fully addressing this need would require a 24% increase in the current housing stock, a scale of construction not seen since the decades that followed WWII.⁰⁰

To meet immediate needs—like overcrowding, the temporarily sheltered population, and low vacancy rates—about 362,000 housing units are necessary. Looking ahead, up to 82,000 housing units will likely be lost to flooding by 2040.⁰⁰ Sustained investments will be required to maintain and renovate another 150,000. An additional 660,000 units could be needed to accommodate expected household formations in the next 15 years.⁰⁰



Regional Plan Association analysis of 2020 Decennial Census, American Communities Survey Table DP04 2023 1-Year, New York Panel Climate Change (NPCC), FEMA Hazus Flood Loss, and RPA "The Affordability Squeeze" (2024).

Housing Units by County: Existing in 2023 vs Cumulative Needed Through 2040

RPA analysis based on ACS Table DP04 2023 1-Year, New York Panel Climate Change (NPCC), FEMA Hazus Flood Loss, Gateway and the Post-Covid Economy (2022), and McKinsey Co. Affordability Squeeze (2024).

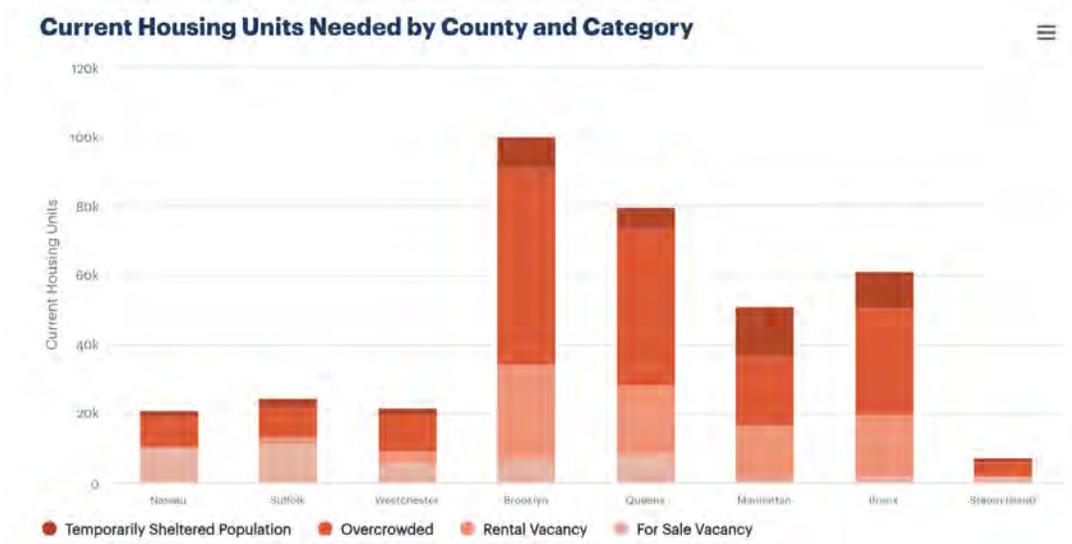
County / Region	Existing Units (2023)	Total Needed (2040)	Incremental Need	Percent Increase
Nassau	476,982	615,141	138,159	29.0%
Suffolk	578,977	697,661	118,684	20.5%
Westchester	389,146	501,858	112,712	29.0%
Brooklyn	1,110,671	1,387,745	277,074	24.9%
Queens	917,300	1,160,624	243,324	26.5%
Manhattan	928,727	1,105,133	176,406	19.0%
Bronx	564,905	737,147	172,242	30.5%
Staten Island	184,959	211,143	26,184	14.2%
NY Suburbs	1,445,105	1,814,660	369,555	25.6%
New York City	3,706,562	4,593,730	887,168	23.9%
Study Area	5,151,667	6,408,390	1,256,723	24.4%

CURRENT HOUSING NEEDS

RPA estimates that about 362,000 additional housing units are necessary to meet immediate needs in New York City, Long Island, and Westchester. To define current housing needs, RPA considered vacancy rates (for rent and sale), overcrowded households, and temporarily sheltered populations.

- Low vacancy rates are strongly associated with higher costs for both renters and prospective homeowners.⁰⁰ To address the region’s low vacancy rates, an estimated 132,000 units are required.⁰⁰ In New York City, apartments available for rent dropped to a minuscule 1.4% in 2023. Vacancy rates in the Metro area range between 1% for sale and 2.9% for rental units. Respectively, these figures are well below the 3.5% and 5% rates that represent a well-functioning buyer and rental housing market.⁰⁰
- Overcrowded units represent roughly half the current needs in the study area.⁰⁰ According to census estimates, 370,800 households in the study area are overcrowded, 314,000 in NYC (85% of the share).⁰⁰ Overcrowding also disproportionately affects workers and low—and moderate-income families, which provides insights into the scale of the current need for affordable housing.
- Homelessness is also strongly connected to market conditions and, as such, serves as another critical indicator to consider when assessing housing needs. There are approximately 150,000 homeless people

within the study area; 130,000 are in the NYC shelter system, and over 20,000 live on Long Island and in Westchester County. In recent years, homeless families have grown as a share of the overall sheltered population, now accounting for more than 2/3 of the temporary sheltered. Permanently housing this population would require between 40,000 and 50,000.⁰⁰



Current Housing Units Needed by County and Category

RPA analysis of 2020 Decennial Census, ACS Table DP04 2023 1-Year, and NYC Housing Vacancy Survey 2023.

PROSPECTIVE HOUSING NEEDS

RPA estimates that another 895,000 additional units could be required by 2040 to address prospective needs. This figure accounts for dilapidation rates and changes in household formation, and includes the number of units estimated to be lost to flooding, as described in the previous section of this report.

- Dilapidation refers to housing stock falling into disrepair or units deemed uninhabitable (for example, if they did not have access to a bathroom or had an active vacate order in effect). A low rate of dilapidated housing reflects sustained investments dedicated to maintaining and preserving properties, and the lack of these investments will result in higher rates of dilapidation.⁰⁰ A yearly dilapidation rate of 2.4% would represent about 150,000 units by 2040 (108k in NYC and 42k in the suburbs).⁰⁰
- Household formation refers to changes in the number of households over time. This process results from population growth and variations in household composition (size), making it a crucial factor in determining housing demand. The study area could see an additional 660,000 households by 2040 (with 460k in NYC and almost 200k in the suburbs). To estimate population change, we used projections that assumed relatively modest increases in working from home (lower dispersion) coinciding with robust job and population growth.⁰⁰ To estimate formation, we examined trends in household size by tenure and county between 2010 and 2023 and projected these trends into 2040.⁰⁰

- As noted in the previous section, communities in the study area could lose as many as 82,000 housing units due to flooding by 2040, and the number could double to 160,000 by 2070.⁰⁰ These housing losses could occur in 78% of municipalities in the study area suburbs (124 out of 159)) and 60% of community districts in New York City (30 out of 55).

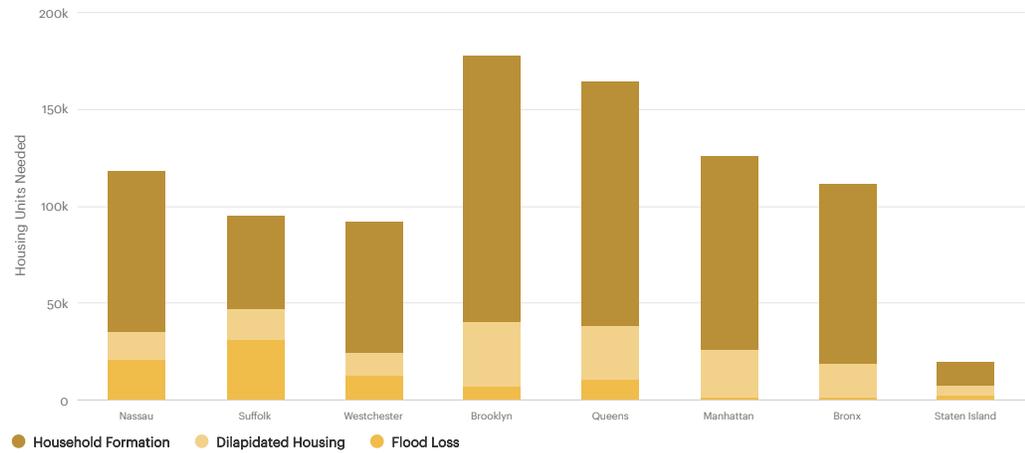
Related Report

Nov 2017

Build affordable housing in all communities across the region

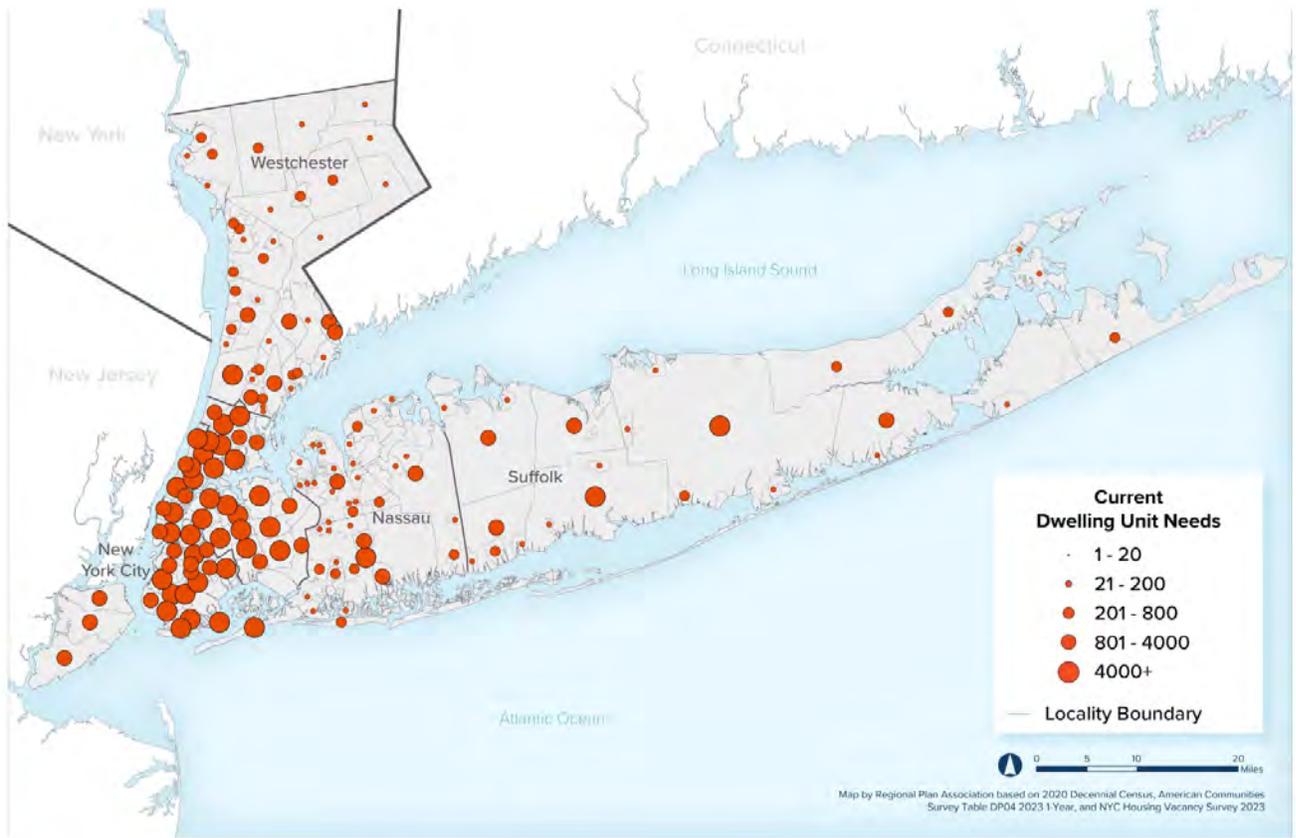
A Fourth Regional Plan Recommendation

Prospective Housing Units Needed by 2040

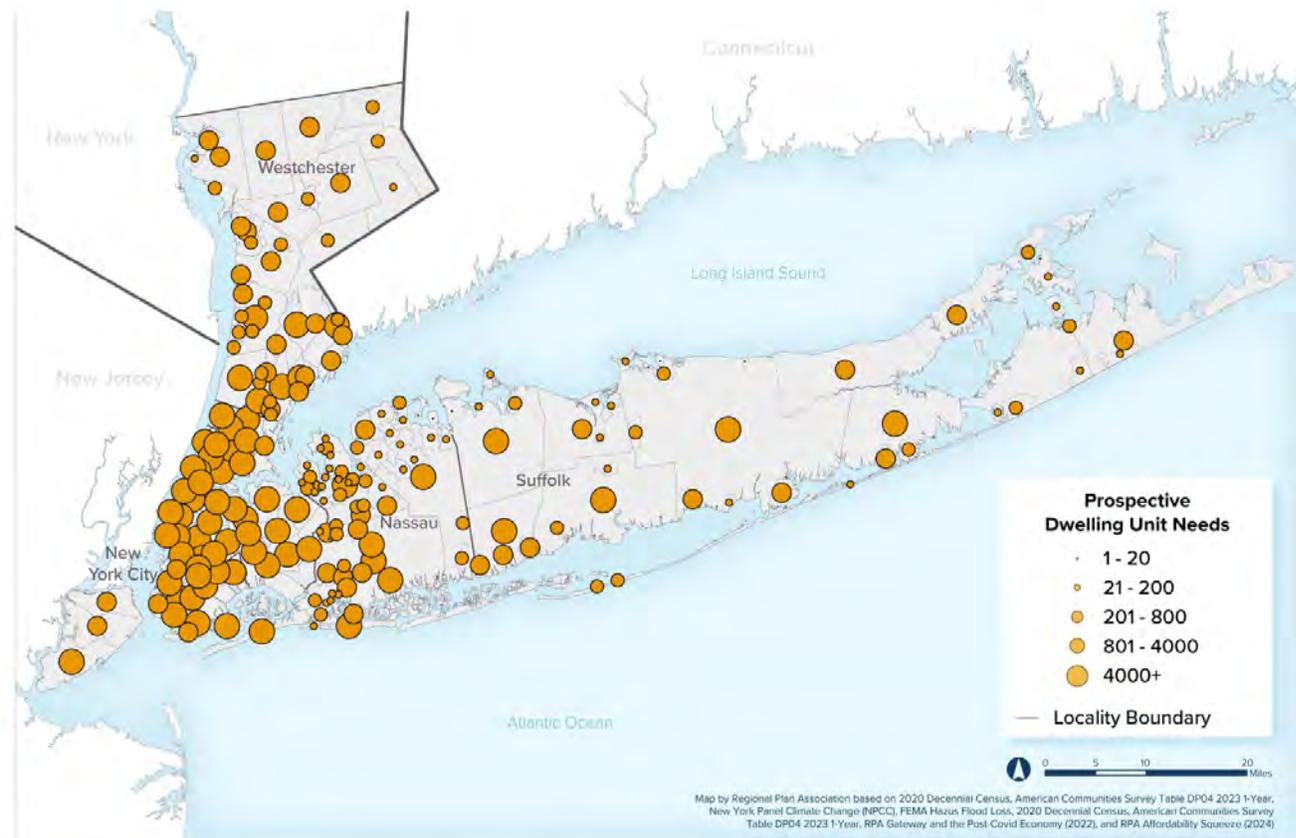


Regional Plan Association analysis of 2020 Decennial Census, American Communities Survey Table DP04 2023 1-Year, New York Panel Climate Change (NPCC), FEMA Hazus Flood Loss, and RPA "The Affordability Squeeze" (2024).

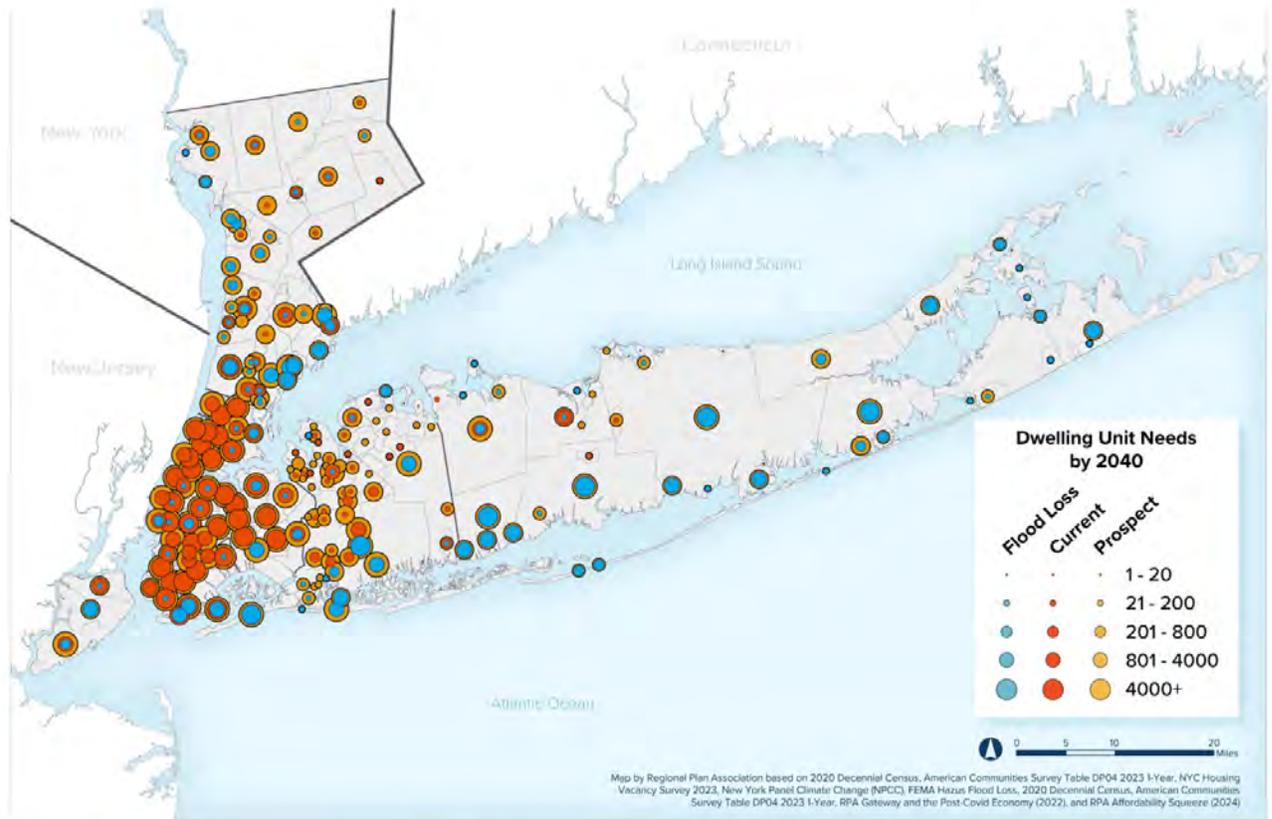
The following maps show the distribution of housing needs by NYC neighborhoods and for suburbs in the study area. By contrasting needs by category, the maps also show how each locality has a unique housing profile, with the mix between current, prospective, and flood loss-related needs varying depending on location. Generally, suburban localities have a profile where prospective housing needs represent a more significant proportion of their total. Municipalities in Long Island show a higher share of flood loss-related needs when compared to New York City and Westchester counties. In contrast, areas in the urban core show a profile where the proportion between current and prospective housing needs is more even.



← 1/3 → Current Housing Needs



← 2/3 → Prospective Housing Needs



Zoning Capacity and Deficit Analysis

As communities in America confront the pressing issues of high housing costs, underutilized land, and deteriorating neighborhood conditions, an increasing number of local officials are acknowledging that zoning regulations contribute to these problems – and that zoning reforms can help solve them. Even though villages, towns, and locally elected officials across the region may seem to have little control over global emission trends and their related hazards, they greatly influence zoning regulations. These local stakeholders hold a key policy lever in maintaining zoning rules that control where we can build or retreat from, with significant implications for climate mitigation and adaptation efforts. In aggregate, the existing land use rules remain overly prescriptive, disjointed, and insufficient to address the challenges of a regional housing market facing a severe deficit and increasing flooding exacerbated by climate change.⁰⁰

HOUSING DEFICIT

Using a first-of-its-kind database of zoning laws produced by the National Zoning Atlas, RPA estimated the zoning development capacity within Long Island and Westchester. We also estimated the development capacity of New York City, including the recent reforms implemented under the City of Yes Housing Opportunity initiative and using the city’s Primary Land Use Tax Lot Output (MapPluto) dataset. We then produced a gap analysis by comparing this build-out against housing needs, including prospective and flood loss-related.

The analysis reveals that the current residential zoning development capacity allows less than half (45%) of the total housing needed by 2040, leaving a net deficit of approximately 680,000 units. To meet both current and future needs, including losses related to flooding, zoning development capacity would need to increase by a factor of 2.2 (the “deficit ratio”).

The following table and maps illustrate the distribution of the housing deficit across community districts in New York City and suburban localities within the study area. Although neighborhoods in the urban core typically have greater zoned capacity, the housing needs in these areas are also significantly larger. Consequently, the net deficit is concentrated in the urban core. However, the spatial distribution of the deficit ratio (number of times zoned capacity has to increase to meet housing needs) highlights a critical need to significantly increase capacity in the inner suburbs, particularly in Nassau County, and in some instances by a factor much higher than current zoning regulations.

Deficit: Incremental Housing Units Needed vs Current Zoning Capacity

Analysis factors the incremental housing stock unlocked by the adopted reforms from “City of Yes Housing Opportunity.” RPA based on National Zoning Atlas, New York City Department of City Planning (MapPluto 2023), City of Yes Final Environmental Assessment Statement (CEQR # 24DCPO33Y), 2020 Decennial Census, American Communities Survey Table DPO4 2023 1-Year, New York Panel Climate Change (NPCC), FEMA Hazus Flood Loss, Urban Footprint Base Canvas, and RPA Gateway and the Post-Covid Economy (2022).

Subregion	County	Needs Through 2040 (DUs)	Zoning Capacity (DUs)	Net Deficit (DUs)	Deficit Ratio
Long Island	Nassau	138,159	57,969	-80,190	2.4
	Suffolk	118,684	44,283	-74,401	2.7
Hudson Valley	Westchester	112,712	94,811	-17,901	1.2
New York City	Kings	277,074	100,687	-176,386	2.8
	Queens	243,324	82,447	-160,877	3.0
	New York	176,406	89,900	-86,506	2.0
	Bronx	172,242	97,269	-74,973	1.8

This gap is based on the potential build-out under current zoning, which could allow as many as 580,000 housing units on an as-of-right basis. This includes 390,000 units in New York City and 190,000 across Long Island and Westchester. The estimates also assume that all underdeveloped properties are built to the maximum allowed density. The buildout capacity was based on parcel-level analysis and applicable zoning regulations, including recent reforms implemented in New York City under the City of Yes Housing Opportunity initiative.

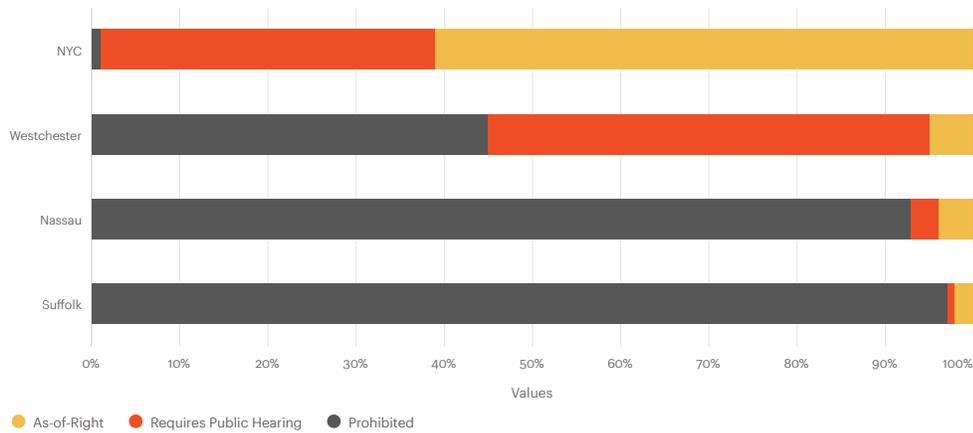
ZONING AND RESIDENTIAL LAND

As a whole, zoning in the region is permissive for sprawl but very restrictive for multifamily development. Suburbs (particularly those in Long Island) prohibit multifamily development within most zoning districts. Single-family residences are permitted on an as-of-right basis on nearly all residentially zoned land: 100% in NYC, 98%, and 96% in Long Island and Westchester, respectively. While multifamily buildings with four units or more are allowed on 61% of New York City’s residentially zoned land, they are allowed on less than 5% of the land in the suburbs. Despite their proximity to New York City, Suffolk and Nassau Counties ban multifamily residential development on 96% and 93% of their residential land, respectively. Restrictive zoning that does not allow for multifamily housing—even moderately sized—makes it much more challenging to address the housing crisis experienced in the region and beyond.



Zoning Treatment and Residential Land: 4+ Family

Share of residential districts area allowing multifamily development (4 units or more)



Data Source: National Zoning Atlas New York Statistics

Zoning Treatment and Residential Land: 1-Family

Share of residential districts area allowing single-family development



NEW YORK SUBURBS: ZONING CAPACITY ANALYSIS

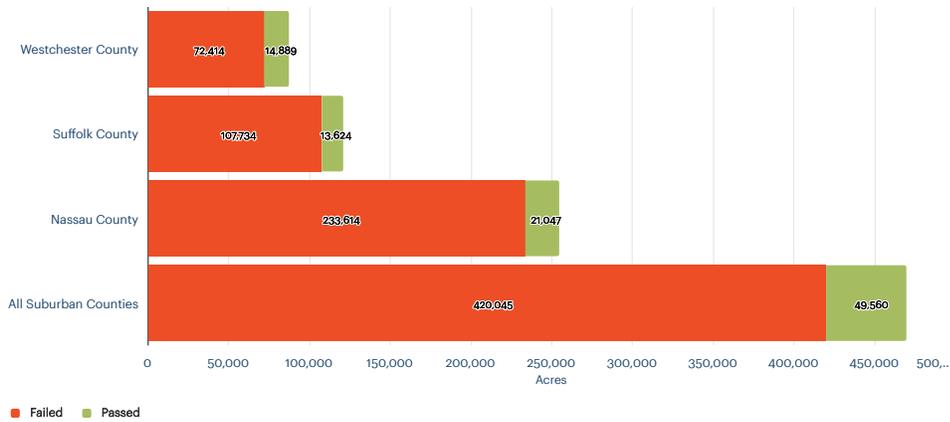
RPA estimates that as-of-right residential zoning in Long Island and Westchester allows a potential build-out of approximately 190,000 units. This assumes that all viable underdeveloped properties (i.e., soft sites) are built to their maximum allowed density.

To arrive at this estimate, RPA first linked the NZA zoning attributes to parcel-level data, starting with 470,000 parcels in the suburbs. These parcels were based on non-residential and residential underdeveloped lots, then subjected to a multi-step screening process to identify likely development sites (i.e., soft sites). The screening involved several tests based on zoning regulations and parcel attributes (e.g., does the parcel meet the minimum lot size requirement? Is the allowable density much larger when compared to the existing?). Of the initial 470,000 parcels evaluated, approximately 49,500 passed the tests and were considered part of the build-out calculation.

For the parcels that remained after the screening process (49,500 lots), we calculated the maximum number of dwelling units (DUs) allowed on an as-of-right basis, as determined by the corresponding building treatments. For multifamily districts (allowing four or more units), we used lot size information, allowed DUs per Acre, and maximum Floor Area Ratio (FAR) to estimate the maximum number of units allowed per site. In addition, we conducted a series of building envelope studies based on the bulk control regulations applicable to multifamily districts (four or more units). Wherever necessary, we adjusted residential density to reflect instances where the maximum of DUs per Acre was not achievable due to other constraints and dimensional criteria (i.e., lot coverage or height limitations). The residential build-out estimates were produced on a parcel level and then aggregated to their corresponding locality.



Screening Results from Soft Sites in Suburban Areas



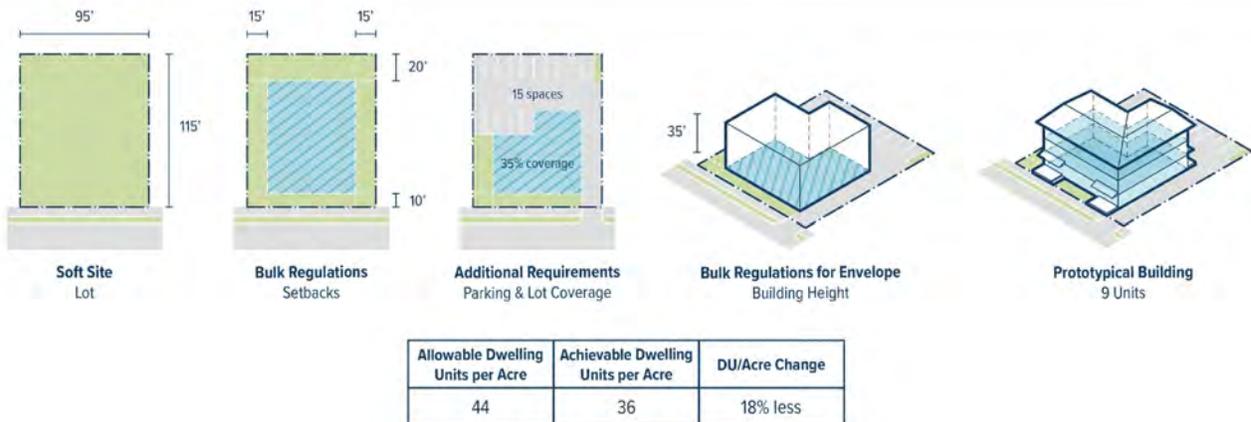
Notes: RPA Analysis based on National Zoning Atlas, ACS 1 Year Estimates, and CoreLogic.

Potential Soft Sites in Suburban Areas



Envelope Study Example

An illustrative example of an envelope study for a soft site where, according to the zoning ordinance, the maximum allowable density is 44 DU/acre, but the resulting achievable density is 36 DU/acre once all other zoning requirements are met. The site has an 18% reduction in achievable residential density compared to what is indicated in the zoning ordinance.



NEW YORK CITY: ZONING CAPACITY AFTER CITY OF YES HOUSING OPPORTUNITY

The as-of-right residential zoning in New York City allows for approximately 386,000 housing units (as of January 2025). This estimate is based on the City of Yes Environmental Assessment Statement and the final version of the adopted text amendment (modified by the council). Using a similar methodology to the one described above, we determined the spatial distribution of the estimated zoning capacity among community districts using parcel-level analysis based on NYC Department of City Planning data sources.

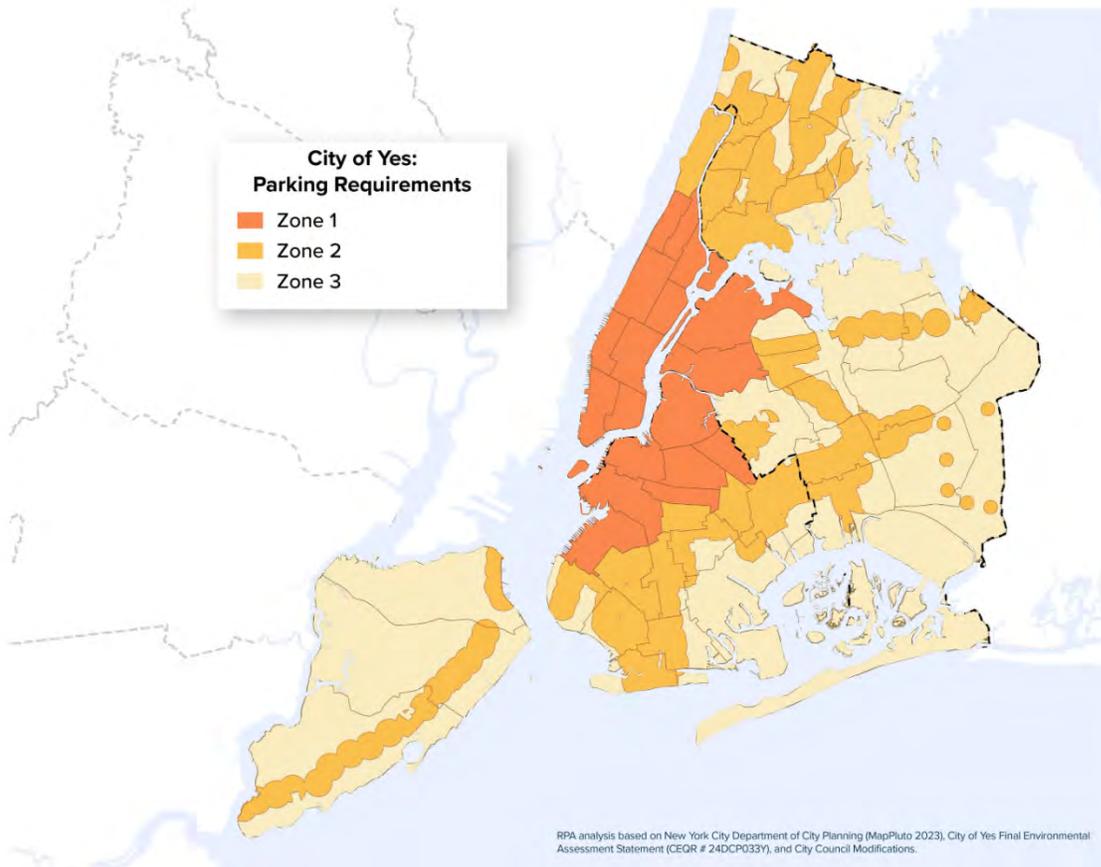
As with the suburbs, the starting set of underdeveloped sites was based on non-residential and residential lots (28,000 non-residential and 72,000 residential). We then screened parcels to identify potential development sites by comparing existing building types against their zoning allowances (i.e., soft sites). RPA calculated the maximum achievable number of units with those that passed the multi-step screening tests.

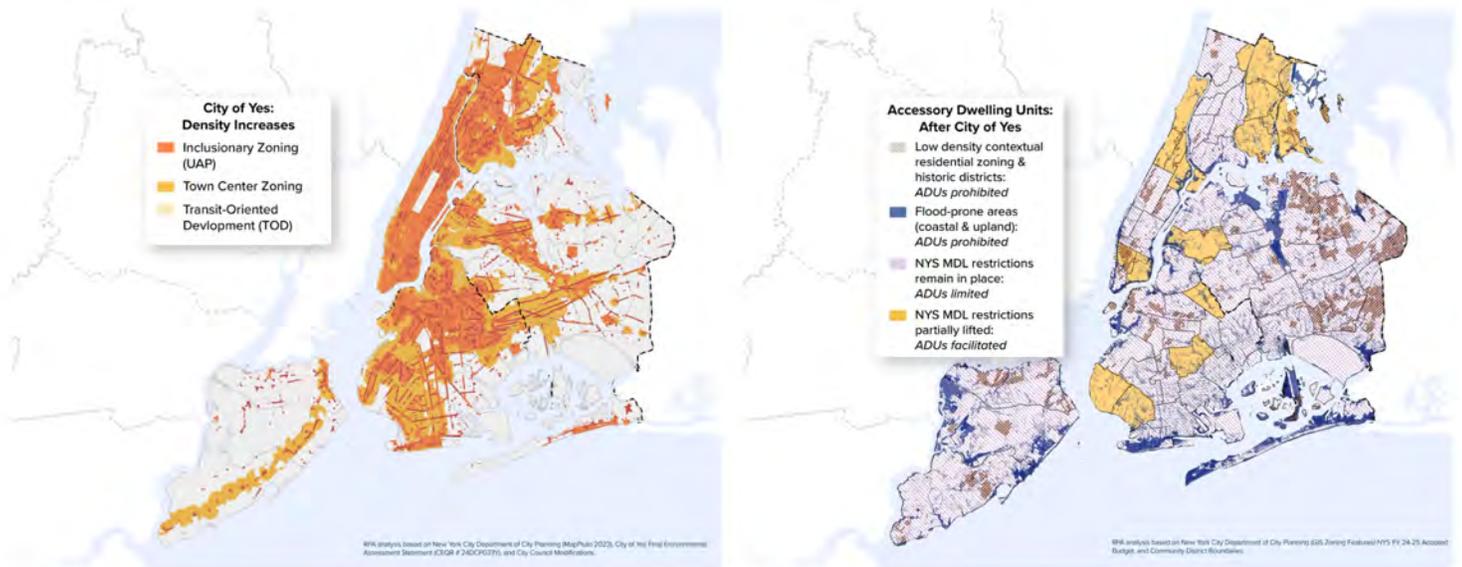
We also factored in the adopted provisions of New York City’s City of Yes Housing Opportunity expected to result in new housing. These include the expansion of zoning incentivizes to include a certain percentage of affordable housing units in new developments (Universal Affordability Preference program), Transit Oriented Development (greater density and reduced parking requirements for certain lots in proximity to transit), and Town Center provisions (allowing residential uses along commercial corridors). In addition, we factored in the reduced parking requirements and the corresponding geographic tiers. Finally, we included the provisions that enabled Accessory Dwelling Units (ADUs) in specific locations.

Zoning Capacity and Housing Needs in New York City Before and After City of Yes

Area	Units Needed		No-Action (Prior to City of Yes)		With-Action (City of Yes)			
	Through 2040		Zoning Capacity (DUs)	Net Deficit (DUs)	Deficit Ratio	Zoning Capacity (DUs)	Net Deficit (DUs)	Deficit Ratio
New York City	304,000	304,000	304,000	-583,000	2.9	386,000	-501,000	2.3
Westchester, Nassau,	195,000	195,000	195,000	-175,000	1.9	195,000	-175,000	1.9

The analysis considers the incremental housing stock unlocked by the adopted reforms from “City of Yes Housing Opportunity.” RPA based on National Zoning Atlas (Long Island and Westchester), New York City Department of City Planning (MapPluto 2023), City of Yes Final Environmental Assessment Statement (CEQR # 24DCP033Y), ACS Table DP04 2023 1-Year, New York Panel Climate Change (NPCC), FEMA Hazus Flood Loss, and Gateway and the Post-Covid Economy (2022).





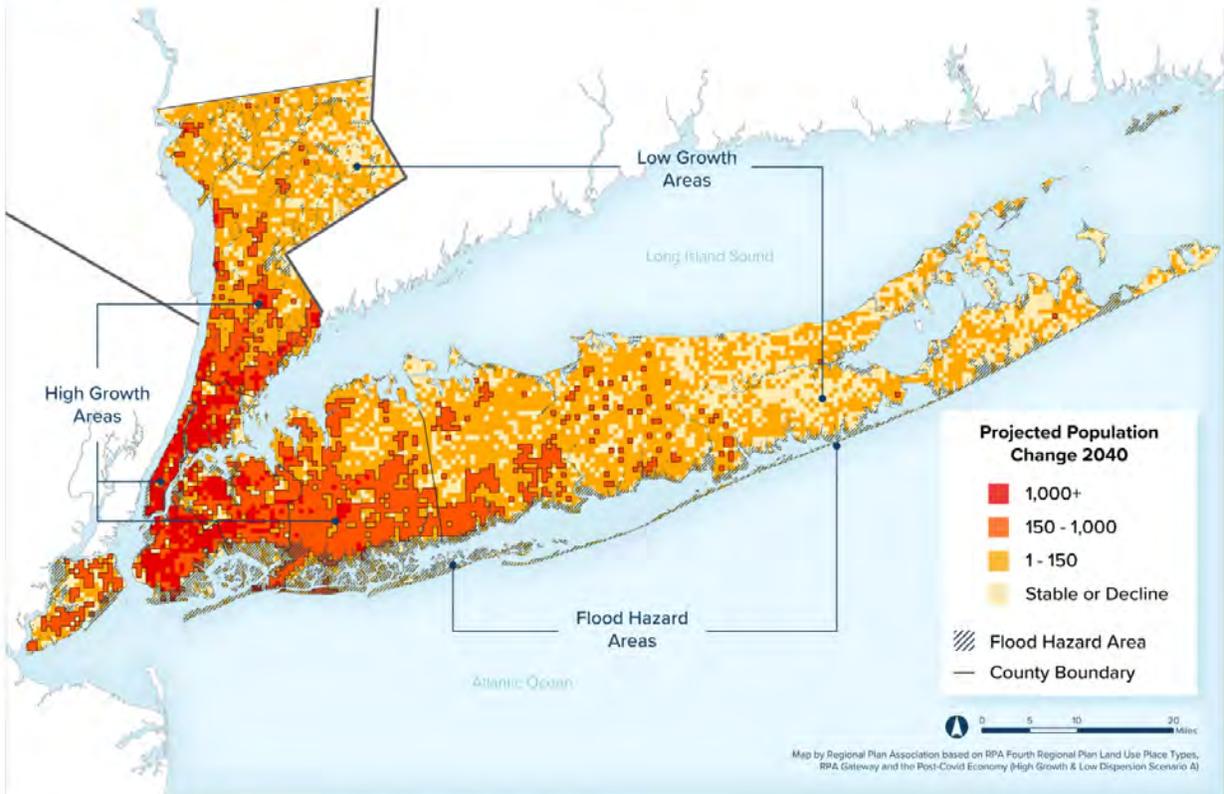
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Recommended Goals and Policies

Achieving meaningful housing and resilience goals will require regional thinking. However, the policies and tools needed to advance these objectives will be implemented in specific neighborhoods and localities. Therefore, understanding localized characteristics related to potential growth and flood risk while maintaining a regional perspective will be crucial for both minimizing exposure to flood risk and reducing the housing deficit. This chapter identifies four types of communities – Smart Growth Haven, Resilient Refuge, Adaptive Retreat, and Stable Support – and offers recommendations for goals and strategies for each.

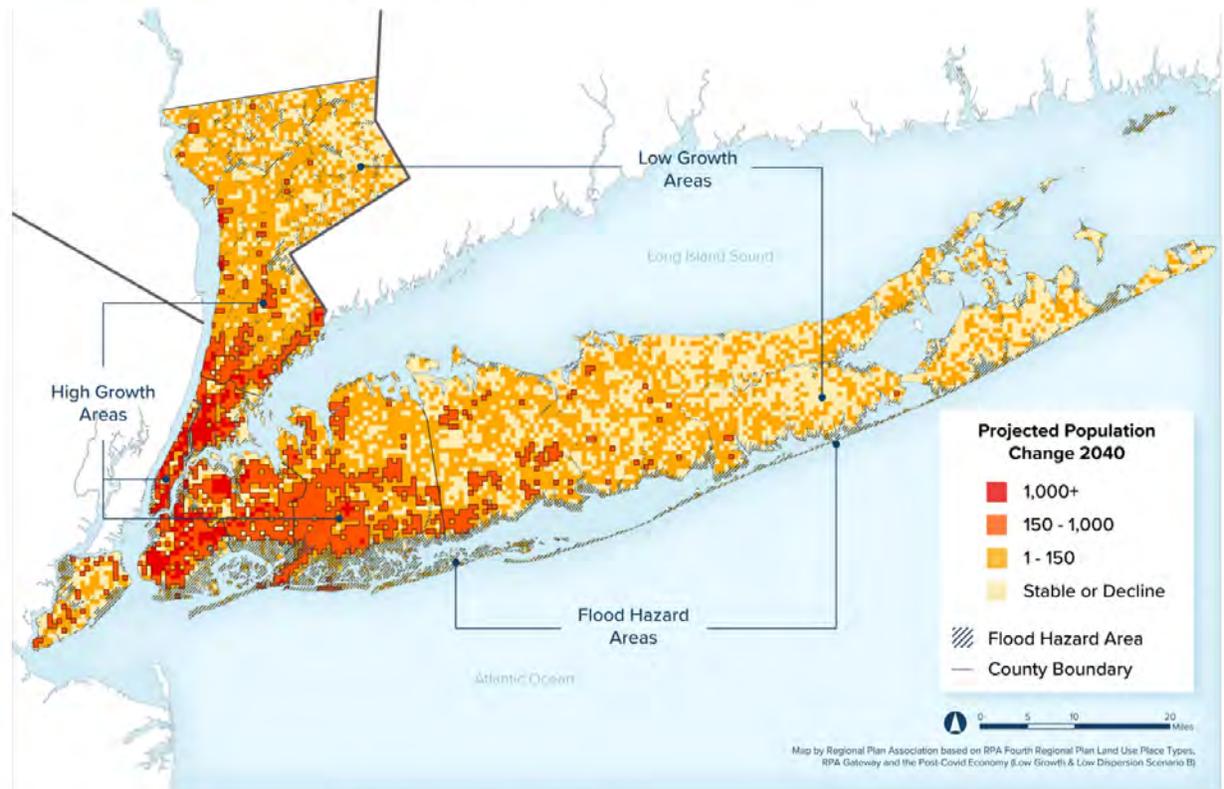
Growth and Flood Exposure by 2040 in Study Area

RPA used land use place types at a 0.25 square mile grid scale to estimate the future regional distribution of population and jobs



← 1/2 →

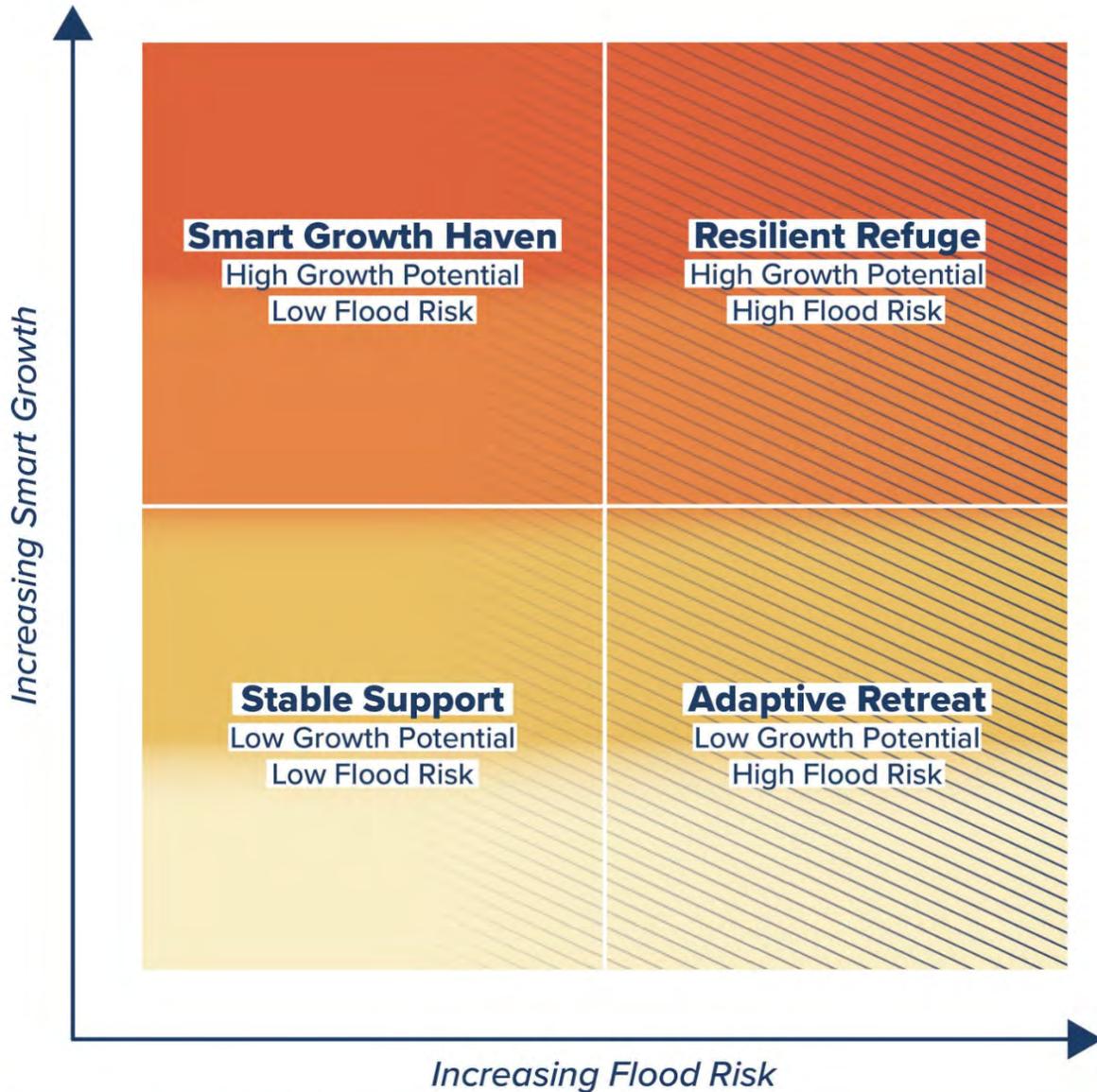
High Growth & Low Dispersion, Scenario A



← 2/2 →

Low Growth & Low Dispersion, Scenario B

Some places already have infrastructure and built-form conditions that encourage growth in compact, walkable, and transit-oriented development, while others do not display these characteristics.⁰⁰ Certain locations have relatively low exposure to future flooding, whereas others are highly vulnerable. By comparing local attributes associated with flood risk and smart growth potential,⁰⁰ RPA defined four “area types,” each with a distinct combination of the two variables. These four area types can be used to categorize the various neighborhoods and localities throughout New York City and its suburbs, identifying respective policy priorities to address regional needs.



Smart Growth and Flood Risk Matrix

Smart Growth and Flood Risk Matrix

The following area types do not represent forecasts or prescribe policy. Whether a neighborhood or locality falls into any of these categories will depend on the choices made in the coming years and decades, the extent of collaboration between public and private entities, evaluation of needs and acceptable degree of risk, and the level of coordination at the local, state, and federal levels.⁰⁰ These types are based on the challenges and opportunities presented by a location's built and natural environment and provide an overview of potential planning interventions and policies aimed at minimizing risk and addressing the housing deficit. Depending on conditions, these policies and programs could be deployed across the full range of growth and risk profiles depicted in the diagrams. However, the following policies should not be considered exclusive to a given type. Depending on conditions, these policies and programs could be deployed across the full range of growth and risk profiles depicted in the diagrams.

-- SMART GROWTH HAVEN (LOW RISK - HIGH GROWTH)

This category includes neighborhoods and areas with lower anticipated flood exposure and greater potential for smart growth development. These communities are generally well-suited for implementing transit-oriented development, mixed-use multifamily buildings, and infill development. Sustained investments to enhance the capacity and reliability of services and infrastructure will be required to ensure that communities are healthy, welcoming, and enjoyable places to live, as well as affordable. Housing production in Smart Growth Havens addresses both local and regional housing needs.

Related Report

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Smart Growth Area Type Current & Future Conditions

Goals and Policy Priorities:

- Housing need assessments: Evaluate and determine current and future housing requirements at the local and regional levels. Consider immediate needs such as overcrowding, temporary sheltered population, and vacancy rates. In addition, evaluate future demand resulting from household formation, dilapidation rates, and flood loss.

- Housing action plan: Establish goals and prioritize actions based on comprehensive need assessments. Identify land use actions, policy changes, and site-specific interventions to facilitate growth in proportion to regional housing needs.

- Zoning capacity: Expand residential zoned capacity proportionately to regional housing needs and future demand.

- Housing types and uses: Broaden the geographic scope of zoning districts that allow for multifamily development and residential middle-density typologies.

- Transit-Oriented Development: Promote TOD and other forms of infill by utilizing special districts, overlays, and building treatment regulations in relation to transit proximity.

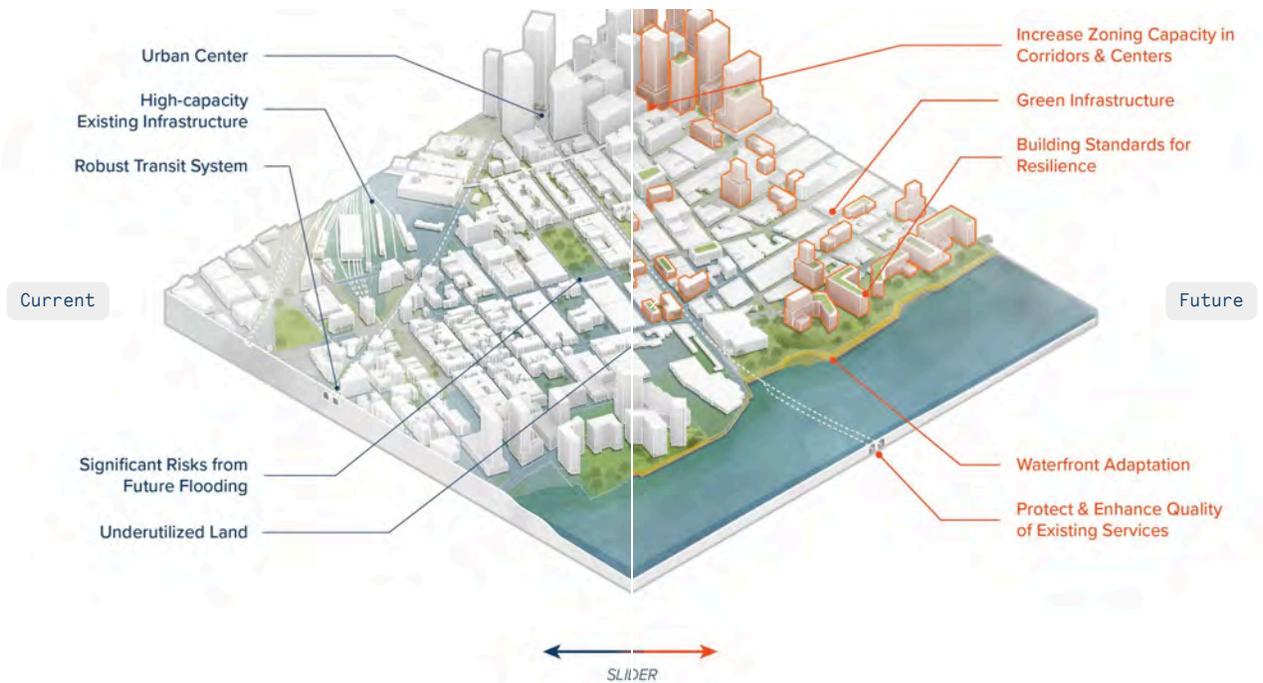
-
- Approval processes: Expedite public and environmental review procedures for multifamily and infill development.
-
- Bulk and use regulations: Implement flexible zoning and land use regulations that govern building treatments, density, parking requirements, and other dimensional criteria (lot coverage, setbacks, height, etc.).
-
- Financing and funding: Prioritize and leverage financing and discretionary funding programs (e.g., the New York Pro-Housing Community, Downtown Revitalization, and NY Forward programs) to promote sustained growth,
-
- Affordable housing: Encourage affordable housing by implementing inclusionary zoning and other strategies.
-
- Infrastructure: Make sustained investments to enhance and expand the capacity of infrastructure, services, and utilities.

Policies that affect Smart Growth Havens should focus on removing obstacles to housing development and building necessary programs and infrastructure to support that growth. Local authorities must actively boost capacity through upzoning and adaptable regulations. State and federal governments can also establish goals and benchmarks by performing regional housing assessments, simplifying public and environmental review processes for specific projects, and assisting in aligning land use changes with incentives and funding priorities. Development should follow established good urban design principles, contributing to a healthy and beautiful built environment.⁰⁰

Decision-makers in Smart Growth Havens must also prioritize maintaining and enhancing supporting infrastructure while making it more resilient. This involves securing sufficient funding for operations and maintenance, investing in robust public transit, expanding public utilities' capacity, and upgrading sewer systems, among other initiatives. These improvements should occur alongside or in anticipation of residential development.

... RESILIENT REFUGE (HIGH RISK - HIGH GROWTH)

This category identifies areas with compounding adaptation needs: significant risks from future flooding and a high potential for smart growth development. These locations will require comprehensive planning to promote growth while protecting existing infrastructure and communities through flood-resilient design and other adaptive measures.



Resilient Refuge Area Type Current & Future Conditions

Goals and Policy Priorities:

- Housing need and climate risk assessments: Assess and quantify potential housing needs and climate risks. Establish goals and actions based on forward-looking needs assessments within a regional context.

- Zoning capacity: Expand residential zoned capacity proportionately to regional housing needs and demands.

- Capital budgeting: Align budget scope and priorities with growth and adaptation needs. Prioritize and secure community investments and funding where growth can be encouraged and accommodated. Improve and expand infrastructure and services, such as transit, sewers, and resiliency projects, to address current and future needs.

- Special districts: Develop districts with incentive-based zoning (e.g., Waterfront Access Zoning), assessment fees, or tax increment financing mechanisms to help pay for adaptation projects and infrastructure maintenance.

- Building standards for resilience: Update codes to ensure that buildings can withstand and recover from adverse events and extreme weather while reducing exposure in surrounding areas.

- Shore-based measures: Protect the coast from erosion, flooding, sea level rise, and damage to coastal communities and infrastructure. Depending on the location and specific needs, these measures can include hard engineering solutions like sea walls, revetments, land elevation, and levees, or soft

engineering techniques and natural processes, such as beach nourishment and the restoration or creation of dunes and wetlands.

-
- Sewer systems: Expand or retrofit the capacity of the sewer network, pumping stations, and other structures that collect, move, and treat wastewater and stormwater.
-
- Green infrastructure: Expand natural systems and engineered solutions into the built environment to manage stormwater, mitigate coastal flooding, and enhance climate resilience.

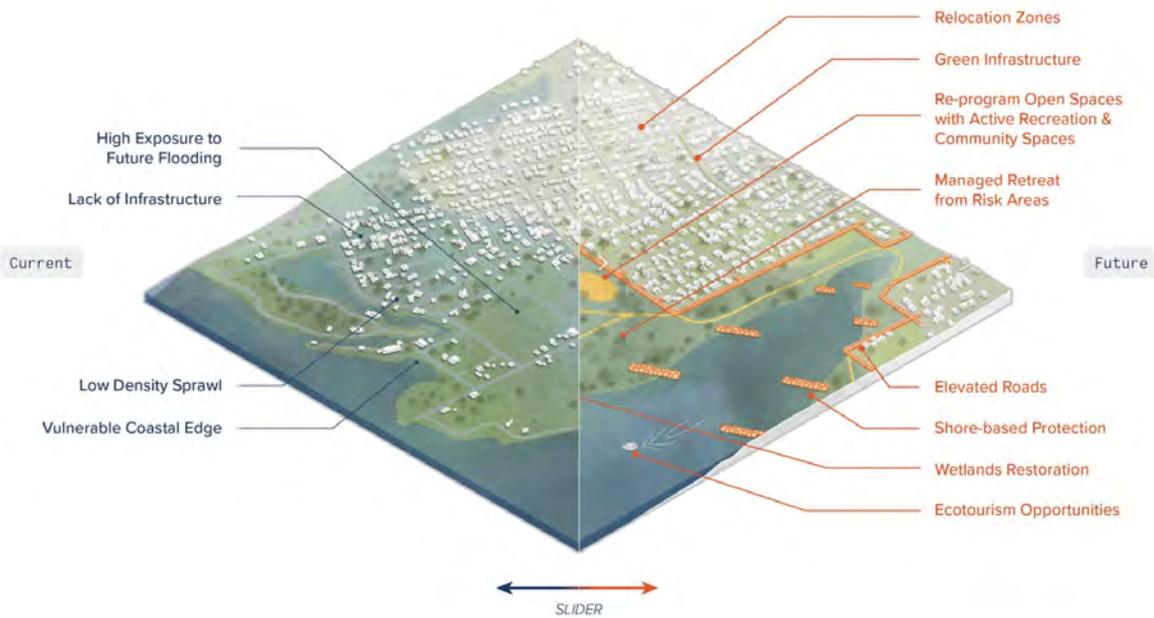
Resilient Refuge locations face the dual challenge of managing significant climate risks while accommodating substantial housing growth. To effectively tackle this complexity, these areas must prioritize policies that integrate climate resilience with housing development. Comprehensive risk and needs assessments should be conducted to inform strategic investments in resilient infrastructure and development. Capital budgets and reliable sources of resilience funding should align with both growth and adaptation needs, providing targeted support for vulnerable communities. These areas can lead efforts at the intersection of climate change and the housing crisis, serving as examples of sustainability.

Key policy levers to encourage housing growth include upzoning, creating special districts or overlays, and offering development incentives. Integrating affordable housing into new developments will benefit current residents and vulnerable populations. Environmental design standards should be developed to incorporate sustainable systems into buildings.

Investing in public transit and existing infrastructure is vital for maintaining essential network services. Shore-based measures, along with storm surge barriers in some cases, will be critical for reducing flood risks. Strategically designing green infrastructure and open spaces can effectively manage flooding while enhancing urban landscapes.⁰⁰ These improvements should be implemented alongside or in anticipation of residential development.

... ADAPTIVE RETREAT (HIGH RISK - LOW GROWTH)

This typology represents neighborhoods and localities that are highly exposed to future flooding and have relatively low potential for smart growth.



Goals and Policy Priorities:

- Managed retreat: Implement strategies that support the purposeful, coordinated, and voluntary movement of people and residential buildings away from risks over time. This may involve the movement of individuals, infrastructure (e.g., building or road), or community. Include incentives that keep residents within the same town or county. Areas highly exposed to flooding can be reprogrammed to facilitate low-risk uses, such as community centers and open spaces with active and passive recreation options.

- Buyout programs: Implement programs for voluntary acquisitions that require permanently removing properties from high-risk areas. After a structure is removed, strict land use management measures are typically imposed. Develop programs to support low-income homeowners and renters, including bonuses to keep residents within the town or county. Create buyout programs for both single- and multi-family properties that are effective, equitable and address the needs of both owners and renters.

- Special districts/flood risk zones and overlays: Create districts where flood risk zoning/building codes and development standards apply. Facilitate transfer of development rights (TDRs) using special districts or credits.

- Shore-based measures: Safeguard the coastline against erosion, flooding, rising sea levels, and damage to coastal communities and infrastructure. Leverage opportunities to restore the coastal edge, delivering natural protective benefits and economic advantages of ecotourism. Facilitate wetland migration where suitable.

- Green infrastructure: Expand natural systems and engineered solutions into the built environment to manage stormwater, mitigate coastal flooding, and enhance climate resilience. Pair widespread green infrastructure with hard infrastructure to aid in long-term resiliency as well as add a sense of “place” and nature.

Adaptive Retreat communities in this category must prioritize addressing risk and safety concerns related to flood hazards. Instead of focusing solely on disaster recovery, they should reframe timelines and design for long-term adaptation. Localities should utilize land use authority to discourage residential development and assist homeowners and renters in relocating away from flood hazards. Areas highly exposed to flooding can be reprogrammed to facilitate low-risk uses, such as community centers and open spaces with active and passive recreation options. Transparent and consistent communication between authorities and residents is essential for equitable planning within adaptive retreat areas.

Proactive movement away from hazards can be achieved through acquisition programs, managed retreat plans, special districts and overlay zones, and, in cases of very serious risk, using eminent domain. Managed retreat plans should comprehensively understand which specific areas of a locality are at risk and which areas could be targeted for growth, ideally including incentives to retain residents within the locality. Special districts/flood zones and overlays can facilitate the transfer of development rights and establish zones where strict building codes, development standards, and zoning restrictions apply. Applicable ranges of risk should be accurately conveyed to homeowners and developers through the stringency of building codes and the cost of property insurance to deter development in higher-risk areas.

In addition to relocating from hazards, these areas must also focus on mitigating future risks. Shore-based strategies and green infrastructure can create opportunities to restore a coastal or riverine edge that offers both ecological benefits and flood protection. Residents who choose to remain should not experience a decline in their quality of life. The transformation of these areas into regional open spaces or park networks centered around ecotourism should be considered.

STABLE SUPPORT (LOW RISK - LOW GROWTH)

The Stable Support category encompasses areas with low levels of future flood loss and low potential for smart growth development. These areas can benefit from targeted interventions to enhance livability and sustainability while avoiding sprawl through adaptive reuse and middle-density buildings.



Stable Support Area Type Current & Future Conditions

Goals and Policy Priorities:

Adaptive reuse: Facilitate mixed-use development and adaptive reuse of underutilized/vacant properties, whether commercial, vacant, or parking lots. Facilitating this can also help compatible uses to be near each other and for housing to be added, especially along existing commercial or transit hubs.

Middle density: Gradually increase housing density in existing neighborhoods, adding more homes (e.g., Accessory Dwelling Units (ADUs), duplexes, and triplexes) without disrupting the neighborhood's character.

Housing fund contributions: Create funds to incentivize affordable housing that can be credited elsewhere. Create funding obligations to subsidize non-profit and for-profit developers to build or substantially rehabilitate multi-family apartments within a certain jurisdiction.

First- and last-mile connections: Improve the final segment of a person's journey between the main transit system (e.g., the bus or train network) and the rider's final destination.

Fair share: Adopt legal requirements for municipalities to provide a fair share of affordable housing for their region. Calculations are usually based on population size, jobs, income, and underdeveloped land. Allocate and build affordable housing units for vulnerable populations and various income levels.

Stable Support communities should prioritize land-use changes along existing transit and commercial corridors to encourage mixed-use development, increase density, and enhance connectivity within their built environment. The most appropriate approach for these areas is incremental development at a moderate density paired with gradual transit improvements.

Specific policy tools, such as adaptive reuse⁰⁰, middle density⁰⁰, parking reductions, fair share housing allocations, and contributions to housing funds, are recommended to support this incremental housing development approach. Additionally, localities should concentrate on expanding and enhancing the connectivity of public transit and active transportation networks to improve accessibility and mobility.



Illustrative Future Area Types within Matrix

Conclusion

Housing and resilience goals must acknowledge needs that are both regional in scope and change over time. Flooding does not adhere to political boundaries or agency jurisdictions. Similarly, housing shortages and increasing costs reflect regional housing conditions rather than local jurisdictional boundaries.

Climate adaptation involves anticipating and preparing for future environmental changes. Proactive climate adaptation projects are among the most expensive efforts we will need to pursue in the coming generation. However, we primarily currently fund them by depending on federal resources allocated after natural disasters cause damage. This reactive approach is already unsustainable and needs to be replaced with initiatives that reduce risk before a disaster occurs.

Efforts to tackle housing scarcity and affordability are equally lacking. New housing options arising from zoning changes and land use reforms will take years to develop, as they depend on real estate development cycles that typically span a decade or more. However, the housing assessments intended to guide land use reform — if they are conducted at all — mainly concentrate on current and past conditions. By failing to consider future circumstances, such as shifts in population, household size, deteriorating housing, and flood losses, many of these assessments rely on outdated benchmarks, underestimating the goals they seek to achieve.

Climate-related factors must be integrated into proactive regional housing assessments and paired with supportive land use planning and policies to cultivate more environmentally sustainable, economically vibrant, and affordable communities. Efforts to close the gap between zoned capacity and overall housing needs should consider localized and regional flood risk conditions, along with elements that encourage compact, walkable, and transit-oriented neighborhoods.

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This work was made possible by a grant from the Cornell Atkinson Center for Sustainability, a hub of collaborative sustainability research at Cornell University, forging vital connections among researchers, students, staff, and external partners. We express our sincere gratitude to Linda Shi, Scott Markley, and to the members of the Technical Advisory Committee for their insightful reviews and valuable recommendations. We'd also like to thank RPA staffers, current and former, who helped in the production of the report. They include Rob Lane, Rachel Weinberger, Bansri Makadiya, and Dhruv Parekh.

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