# WEATHERING THE STORMS:
## Creating Aging-Friendly Communities Amid Climate Change


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NEW JERSEY FUTURE

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# EXECUTIVE SUMMARY

Climate change is already disrupting where people can live, including in New Jersey. As a coastal state, New Jersey faces rising sea levels, stronger storms, and increased inland flooding, as seen with Superstorm Sandy (2012) and storms Isaias (2020) and Ida (2021).

Nearly 1.7 million residents—about one-fifth of the state's population—live in areas that are flood-prone, either now or within the century. Older adults, age 65+, face heightened risks from extreme weather and greater challenges adapting. This report, Weathering the Storms: Creating Aging-Friendly Communities Amid Climate Change, examines the 285,000 residents aged 65+ in flood-prone areas, assesses the difficulties confronting them whether they choose to remain in place or relocate, and outlines actions for state and local governments to expand climate-resilient, aging-friendly communities.

**Report's key findings reveal challenges for older adults and relatively few climate safe, aging-friendly places to live**

- Older adults are particularly vulnerable to extreme weather events, especially individuals that may have physical and/or cognitive limitations. Power outages and potential isolation during disasters are serious concerns for this population.
- Climate adaptation strategies focused on "adapting in place," including raising buildings, can present both financial and accessibility challenges for older residents.
- Relatively few neighborhoods that are safe from flooding offer aging-friendly characteristics such as walkable streets, nearby amenities, and affordable housing alternatives to single-family homes.
- Existing aging-friendly, climate-safe, and affordable neighborhoods are primarily in older urban centers, while many safer areas are car-dependent suburbs ill-suited for aging residents.

**What state and local leaders can do**

Preparing for the coming effects of climate change will involve efforts by multiple levels of government and by others interested in promoting aging-friendly development. They should:

- Prevent new development in high-risk areas while implementing appropriate protective measures for existing communities
- Update land-use policies to ensure climate-safe areas can accommodate relocating older residents
- Modify zoning to increase affordable housing options in aging-friendly neighborhoods
- Retrofit car-oriented communities to be more aging-friendly through strategic redevelopment and transportation options
- Integrate climate change education and assistance into existing senior services programs

The state must act to protect its vulnerable 65+ population from climate threats while ensuring access to neighborhoods that support aging in place. By preparing now, areas with lower flood risk can welcome older residents seeking safer ground.

# INTRODUCTION: WHY IS CLIMATE CHANGE A LAND-USE ISSUE?

Climate change is already causing disruptions in where people are and are not able to live, globally, nationally, and within New Jersey. As some areas of the globe become increasingly hazardous as a result of rising seas, stronger storms, more frequent and intense flooding, rising temperatures, wildfires, drought, and other natural threats, residents of those places will seek – and indeed in some cases are already seeking – to relocate to safer territory if large-scale fortification measures (like seawalls or levees) are not feasible. New Jersey contains some higher-risk areas and some lower-risk areas, meaning that some places may see an exodus of residents in the future while others experience an influx, whether from other parts of the state or from outside New Jersey.

Given the aging of the population – the Census Bureau projects that by as soon as 2034, there will be more people in the U.S. over the age of 65 than under 18 – it is worth considering how certain climate risks, and the process of adapting to them, may pose a disproportionate threat to older residents, whose financial and physical limitations may make relocating or adapting more difficult. And given the allure of the Jersey Shore for retirees – Cape May and Ocean counties have the two highest percentages of residents aged 65 or older among the state's 21 counties, each exceeding 20% – the issue will only become more pressing.

New Jersey's status as a coastal state means that sea-level rise, in particular, looms over any conversation about the climate threats facing the state. The state's barrier islands and other low-lying coastal areas, many of which currently host large populations of retirees, are becoming increasingly challenging for ongoing human habitation in the face of rising seas and more powerful and destructive coastal storms, as Superstorm Sandy illustrated in 2012.

*Superstorm Sandy floods Mantoloking.*

But developed areas along inland waterways, as well as certain urban areas with poor drainage and high percentages of impervious surfaces, are also experiencing more frequent flooding, thanks to stronger and more frequent heavy rainfall events like tropical storms Isaias and Ida in 2020 and 2021, respectively. As New Jersey warms at a faster rate than most of the rest of the country, these storms are likely to get worse, as warmer air can absorb more moisture, increasing rainfall potential.

The less risky parts of New Jersey are likely to be the first relocation choice for people seeking to move out of the state's climate-hazard areas. At the same time, these same areas may become a destination for some "climate migrants" fleeing threats in other parts of the country, adding to the potential demand for new homes in climate-safe areas. The parts of the state that are likely to experience in-migration will face growth pressures, in the form of needs for new housing, infrastructure, and services, to accommodate newcomers.

Note that this report focuses on flooding and other water-related risks, both coastal flooding related to sea-level rise and inland flooding resulting from stronger storms. While these two factors are far from the only climate-related hazards that older residents (and the rest of the population) face, we will focus on these because 1) they affect large numbers of people, 2) they have a spatial component, meaning not all parts of the state are equally at risk, and 3) in most places, they cannot be easily mitigated while allowing everyone at risk to remain in place and thus may eventually require relocation. Extreme heat, while posing the greatest climate-related danger to older people, including in New Jersey, is not directly considered here because 1) rising temperatures affect the whole state and thus do not create intra-regional disparities in exposure to risk, and 2) localized heat-island effects in urban areas lend themselves to smaller-scale mitigation efforts like increasing tree canopy and urban green spaces, actions that will not necessitate relocating existing residents.

This report seeks to draw attention to the scope of the problem of older people living in areas at increasing risk of both coastal and inland flooding resulting from the effects of climate change, the ways in which adapting to climate change poses greater difficulties for older people, and the steps that state and local governments will need to take to make sure the more climate-safe parts of the state are ready to absorb new residents, and particularly older residents, who are seeking to relocate out of harm's way.

*Hurricane Ida floods Manville*

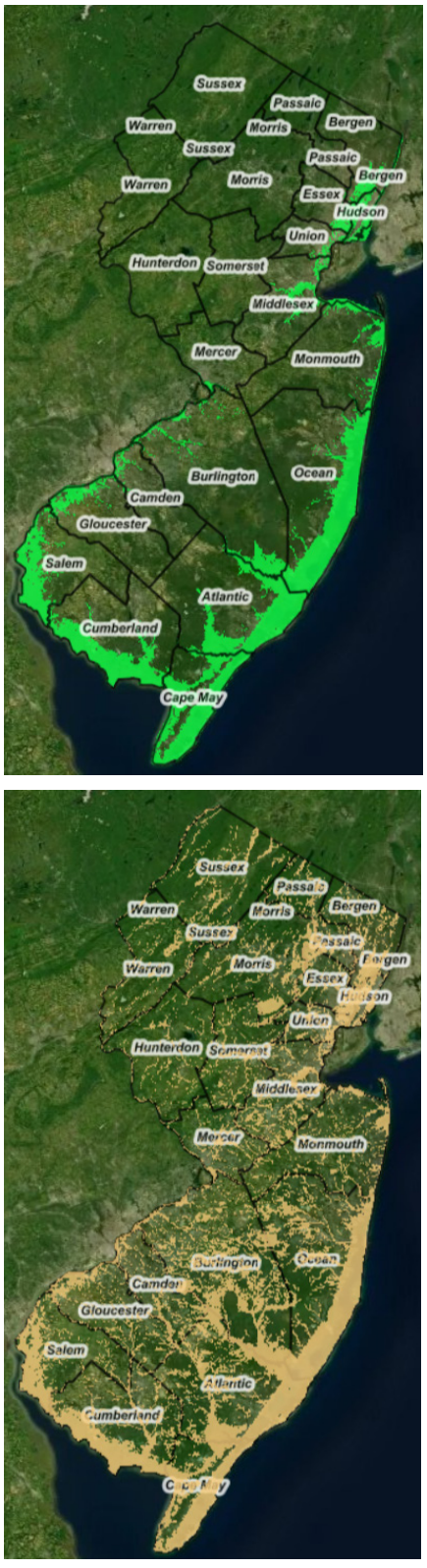
# OLDER PEOPLE IN HARM'S WAY: WHERE AND HOW MANY?

## MAPPING HIGH-RISK AREAS

As the threats to residents, businesses, and infrastructure become clearer and the need to develop a statewide response to climate change grows more pressing, New Jersey state agencies and academic institutions have recently undertaken important efforts to map the current and future extent of climate-related hazards. In July of 2023, the New Jersey Department of Environmental Protection (NJDEP) adopted the Inland Flood Protection Rule, to identify areas at risk from extreme rainfall events, to require taking steps to better protect existing residents and physical assets from worsening floods, and to ensure that new development in these areas is designed with future threat levels in mind. To support this rule, researchers at Rutgers University's Climate Change Resource Center completed in February 2024 a mapping layer (the NJ Inland Design Flood Elevation layer) that anticipates future flooding risk by adding 3 feet of additional flooding to the existing FEMA 100-year floodplain.

In October 2024, NJDEP released proposed regulations, known as the Resilient Environments and Landscapes (REAL) rules, for adapting to risks from coastal flooding and sea-level rise. The rules rely on DEP mapping known as the Climate Adjusted Flood Elevation layer, which delineates the areas resulting from adding an additional 5 feet of flood water height[1] to the FEMA coastal Special Flood Hazard Area, which itself identifies the present extent of "the area that would be affected by a 1%-annual-chance flood (or base flood)."

Because they are associated with recent regulatory efforts, this report will use the Rutgers NJ Inland Design Flood Elevation map layer to represent risk from inland flooding and the NJDEP Climate Adjusted Flood Elevation layer to represent risk from coastal flooding and sea-level rise. (For shorthand, these layers will henceforth be referred to as the inland flood layer and the sea-level rise [SLR] or coastal flood layer, respectively.) Both of these layers can be viewed on Rowan University's Smart Growth Explorer interactive mapping tool (where the inland flood layer is labeled "FEMA 1% Annual Flood Risk Zone +3ft" and the




*Coastal flood risk area (top) and inland flood risk area (bottom) – screenshots from Rowan University's NJ Smart Growth Explorer*

1 The addition of 5 feet to the existing FEMA coastal flooding layer corresponds to assumptions used in NJDEP's 2020 Scientific Report on Climate Change, at https://dep.nj.gov/wp-content/uploads/climatechange/nj-scientific-report-2020.pdf: "By 2050, there is a 50% chance that sea-level rise will meet or exceed 1.4 feet and a 17% chance it will exceed 2.1 feet. Those levels increase to 3.3 and 5.1 feet by the end of the century (under a moderate emission scenario)." See the findings about sea-level rise on page ix of the Executive Summary.

Climate Adjusted Flood Elevation is labeled as itself), along with a number of other map layers related to land development and environmental resources.

## METHODOLOGY FOR ESTIMATING THE POPULATIONS OF HIGH-RISK AREAS

To estimate the extent to which New Jersey's residents – including older residents – are already living in the places that are at highest risk from the coming effects of climate change, we use Rowan University's map layer of developed land[2] (also available on the Smart Growth Explorer, where it is labeled as "Urban Lands Mask") to represent where people live, work, and shop[3] in a given location. We will use census tracts[4] as our geographic unit of analysis, to take advantage of the availability of Census Bureau demographic and housing data to describe at-risk populations. The proportion of a census tract's developed land that lies within each of the climate hazard areas is then used to approximate the percent of the tract's population and human activity that is in the hazard area.

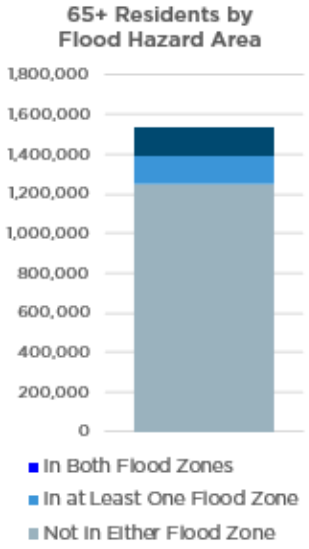
The coastal hazard area, as represented by the SLR map layer, touches parts of 258 of New Jersey's 564 municipalities, located in 15 of New Jersey's 21 counties – Atlantic, Bergen, Burlington, Camden, Cape May, Cumberland, Essex, Gloucester, Hudson, Mercer, Middlesex, Monmouth, Ocean, Salem, and Union. Note that sea-level rise will affect not just the counties that border on the Atlantic Ocean, Delaware Bay, and Raritan Bay but also "inland" counties that contain tidal portions of the state's major rivers and their tributaries. In 246 of the 258 municipalities having land within the SLR hazard zone, the affected acreage includes at least some land that is already developed.

The inland flooding hazard area affects almost all of the same places that are in the coastal hazard zone, since low-lying areas that are susceptible to excess water coming in from the ocean during coastal storms are also susceptible to excess water arriving from upstream in the form of stormwater runoff from heavy rains. But it extends to plenty of places not near the coast or near tidally-affected rivers. Inland flooding is a risk in parts of all 21 of New Jersey's counties. In fact, in all but 10 of the state's 564 municipalities, the inland flood layer touches some nonzero number of acres of land that are already developed.

## HOW MANY OLDER PEOPLE ARE LIVING IN FLOOD HAZARD AREAS?

Nearly one in five New Jersey residents, including roughly the same share of its older residents, live in an area where they are, or soon will be,[5] at risk of flooding. Based on 2022 census tract populations[6] and on the percent of each tract's urbanized acres that lie in the flood hazard areas, an estimated 1.7 million New Jersey residents, or 19% of the population, live in an area at risk of inland or coastal flooding or both, either now or within the century. This includes an estimated 285,000 of the state's 1.5 million residents who are aged 65 or older, about half of whom are at risk from both coastal and inland flooding.

This is a significant number of older people living in areas where the need to adapt to the effects of climate change is already an issue or will be in the near future. What kinds of issues and decisions will they be facing? What risks are they exposed to if they remain in place? How might adapting in place pose particular challenges to older people? What about relocation? Are older people prepared – physically, emotionally, financially – to confront these questions?




"An estimated 19% of New Jersey's population aged 65 or older – about 285,000 people – live in an area that is at risk from inland or coastal flooding, either now or within the century. About half of them are at risk from both coastal and inland flooding."

2 Using the "urban" category in NJDEP 2020 land use/land cover data, as described at https://njogis-newjersey.opendata.arcgis.com/datasets/njdep::land-use-land-cover-of-new-jersey-2020/about

3 We use all urbanized land and not just residential land because flooding puts at risk all kinds of buildings and infrastructure that people need for their daily lives, not just their homes. This is an important consideration in New Jersey: Looming Deadlines for Coastal Resilience, a 2024 study by the Union of Concerned Scientists, indicates that New Jersey is second only to Louisiana in the number of coastal "assets" – like schools – at risk.

4 A census tract is a geographic unit with a target average population of 4,000 people that is roughly equivalent to a neighborhood in more urbanized areas, though they can cover many square miles in low-density parts of the state.

5 Recall that the coastal flooding layer is based on a scenario that models sea-level rise using 2100 as the time horizon.

6 2022 5-year American Community Survey

## IMPORTANT LESSONS FROM THE FIELD: ADAPTING TO CLIMATE RISKS IS MORE DIFFICULT FOR OLDER RESIDENTS

As the effects of climate change continue to worsen in the coming decades, the question will become increasingly urgent as to how to keep residents of hazardous areas safe, including the approximately 285,000 older adults living in New Jersey's areas prone to flooding. In some cases, fortifications against severe weather events may be cost-effective and, when combined with greater preparedness, may be sufficient to protect residents. In most places, where fortifications will be cost-prohibitive, relocations will need to be considered, and indeed may be inevitable.

In either case, policy makers and government officials should be mindful of the ways in which retreating from, or adapting in place within, areas at high risk from climate change will be especially difficult for older residents. Factors such as impaired mobility, compromised health conditions, financial insecurity, and general lack of information about climate-related risks can all contribute to an increased level of difficulty for older people in the face of climate-related hazards.

Interviews with local officials with experience responding to extreme weather events revealed numerous ways in which adapting to climate-related threats is harder for older people. Interviewees mentioned difficulties that older residents experience in the aftermath of extreme weather events, both in the near term and with longer-term considerations about how to prepare for the next incident. They also focused on factors that can make the prospect of relocating away from flood-hazard zones particularly daunting for older people, whether physical, financial, or emotional.

### DANGERS IN THE WAKE OF A DISASTER

In a very immediate sense, severe weather events present a heightened threat to older residents. Danielle Arigoni, author of *Climate Resilience for an Aging Nation*, has noted that when a wildfire or storm strikes, the elderly die at twice or three times the rate of other age groups. "Older adults often face mobility, cognitive, and resource challenges, which contribute to a disproportionate number of deaths in the face of major disasters," she says. Rapid evacuation from an impending weather event can be complicated by physical disabilities that inhibit movement. For those who don't drive, lack of access to a car can leave older people almost entirely dependent on others to help them escape imminent danger. Older people's lesser familiarity with information technology can also mean that attempts to warn them in advance about the need to evacuate are less effective. In some cases, having lived through previous events can diminish older people's sense of urgency to react to the present danger.

The heightened risk to older residents was recently highlighted again in the Census Bureau's analysis of Hurricane Helene in western North Carolina, *Hurricane Helene's Impact on the Socially Vulnerable in North Carolina*: "Older adults are at increased risk of death and long-term consequences from hurricanes and other disasters. For instance, when Hurricane Florence struck North Carolina in 2018, two out of every three deaths were among adults age 60 or older, and nearly half of deaths were among those 70 and over."

After the acute threat of an extreme weather event has passed and residents begin to assess the damage, make temporary accommodations if necessary, and consider longer-term plans for avoiding risk in the future, a different set of issues can present unique dangers and challenges to older residents. New Jersey Future spoke to several government officials from areas that have been hit by major storms (both coastal and inland) in recent years about the experiences of older residents in the wake of these events. Several consistent themes emerged.

Damage to infrastructure can delay people's ability to resume normal activities, which may create particular difficulties for older residents. For example, some severe storms cause extended power outages. Lack of electricity can immediately threaten the health and lives of older people who are dependent on electrically powered medical equipment like oxygen machines. Power outages also disable elevators in multi-story buildings, meaning that older residents with mobility limitations who cannot navigate stairs can effectively be trapped in their homes for days or weeks at a time. And lack of power can mean lack of air-conditioning in summer months, heightening the already disproportionate threat posed to older people by extreme heat.

A report from the Environmental Protection Agency, "Climate Change and the Health of Older Adults," notes that extreme events can interrupt older adults'

medical care in other ways, making it hard for them to be transported with their correct medications, medical records, and health equipment, if transportation infrastructure (roads, bridges) is damaged or if paratransit services are disrupted. This can also hinder the ability of home health aides to reach their clients. More generally, a limited ability to leave home in the wake of an extreme weather event – whether because of non-functioning elevators, damaged transportation infrastructure, or lack of friends or family to assist them – can threaten older people's mental health, especially for those who live alone, and especially if lack of power or damage to telecommunication infrastructure also cuts off electronic communication with friends and family members. Loneliness is already increasingly being recognized as an epidemic among seniors, contributing to rising suicide rates within this demographic. The emotional trauma wrought by extreme weather events, coupled with feelings of isolation in the aftermath, can compound this underlying problem, especially for older people with cognitive disabilities like dementia who have a harder time responding to and coping with these events.

## ADAPTING IN PLACE OR RELOCATING

Events that cause widespread and significant damage raise questions about the costs and benefits of remaining and rebuilding in place vs. seeking to relocate to safer ground, often a choice between two undesirable options. For people who choose to stay in their current home or neighborhood, our interviewees mentioned that the financial costs of cleanup, repairs, and rebuilding in the wake of an event – tasks ranging from mold mitigation, mud removal, and replacement of damaged heating/cooling, plumbing, and electrical systems, to the replacement of fences, sheds, decks, and porches, to the rebuilding and elevation of entire structures – can be particularly daunting to older people with limited financial resources, similar to the problems faced by lower-income households more generally. Physical or cognitive limitations can also mean that older residents will need to hire contractors and other service providers to perform tasks that younger households can accomplish themselves, further increasing their costs and also exposing them to the risk of fraud on the part of contractors.

Even for those with home or renter's insurance, higher and rising insurance premiums in high-risk areas present another financial obstacle to older people who would otherwise prefer to remain in their existing home, even when a specific event does not directly affect them or their property.

Aside from the financial costs, elevating the home above a certain flood level can create physical hardship by creating a daily need to climb a full set of stairs, outdoors and in all kinds of weather, the difficulty of which may not be initially obvious. The same goes for businesses in the same areas that older residents seek to patronize. And the need to elevate structures is only going to become more widespread thanks to new rules recently enacted by the Department of Environmental Protection.

*Elevated homes in Belmar*

A decision to relocate out of harm's way comes with its own financial expenses. Aside from the usual moving expenses, there can also be substantial uncertainty about finding housing options away from the hazard area that are affordable to households with limited means. Some financially strapped older people may simply find themselves relocating from one at-risk area to a different one if they are unable to find suitable housing options in safer areas. Even older households with greater financial resources may struggle to find the kind of housing they want (like apartments, or smaller single-story houses) when seeking to move to more climate-safe locations, given the lack of housing variety in many towns where large single-family detached homes dominate the housing supply.

Social and emotional obstacles to relocation can be at least as important as the financial barriers. Across all of our interviews, there was unanimous agreement on the critical importance to older people of maintaining proximity and access to their existing support networks. Older people voice deep concerns about potentially losing both their social and family networks (including church and volunteer opportunities) and their access to familiar doctors and other healthcare providers if they were forced to relocate away from their current neighborhood. Their reluctance to move stems from uncertainties about needing to start anew and being able to replicate these vital care networks elsewhere.

"Maintaining proximity and access to existing support networks is of critical importance to older people. The prospect of relocating can present social and emotional obstacles that are just as significant as the financial barriers."

New Jersey's "Blue Acres" program provides money to buy out residents of places that experience repetitive losses due to extreme weather events. But a NJ Spotlight story about the program in the wake of Hurricane Ida in 2021 found that residents of high-risk areas express conflicting emotions about leaving homes and neighborhoods into which they've invested significant time and money. For renters and those living in public housing, the decision to leave can be even more challenging due to financial instability and to uncertainty about where they will ultimately end up living.

Finally, residents who are open to relocating may face institutional obstacles, in the form of local elected officials who are resistant to larger-scale relocation efforts for fear of losing tax base or business activity. Local leaders may be reluctant to facilitate efforts to relocate entire neighborhoods and may instead encourage residents to attempt to fortify themselves in place.

## A LACK OF AWARENESS AND URGENCY AMONG OLDER ADULTS

Another, less visible problem in getting older residents out of harm's way is that older people may not be as knowledgeable as younger generations about the risks posed by climate change in the first place, or may not view those risks with the same degree of urgency.

A Monmouth University poll from May of 2024 ("Climate Change Concerns Dip") highlights a concerning trend: while 73% of Americans acknowledge climate change, the urgency to address it has declined. Compared to issues like inflation, immigration, and abortion, climate change is seen as less imperative. Democrats are more likely to be supportive of climate change advocacy than Republicans, potentially complicating efforts to raise awareness in higher-risk but heavily Republican areas along the Jersey Shore in Monmouth and Ocean counties. Belief that climate change is a "very serious problem" is generally lower for people aged 55 and older than it is for younger groups, particularly those aged 18 to 34, although the level of concern has fallen faster since 2021 among younger people than older people, shrinking the previous age gap in concern. Those 55 and older are also less convinced of the need for government action to address the issue of climate change, though support has remained steady among the 55+ group since 2018 while it has declined among younger age groups. (Support for government action on climate change remains above 50% among all age groups, despite the recent declines.)

A Rutgers-Eagleton Poll from February of 2024 – Majority of New Jerseyans Feel Their Home Is Protected From Extreme Weather, but Are Concerned About Repair Costs and Foresee Upgrades – found similar results, in that a large majority of respondents recognize that climate change is happening, but the degree of concern varies by age. In response to the question "How protected do you think your current housing is from extreme weather events like hurricanes, big storms, and flooding?" 84% of respondents aged 65 and older said they were either "very" or "somewhat" protected, compared to 78% of those aged 50 to 64,

71% of those aged 35 to 49, and 67% of those aged 18 to 34. The pattern runs in the reverse direction when asked about concern over "rising housing costs due to climate change conditions," with 63% of those aged 65 and older saying they are either "very" or "somewhat" concerned, compared to 73% of those aged 18 to 34, with the percentages for the other age groups falling in between.

On top of the issue of avoiding future climate-related risks, older people are simply generally less inclined to move. A 2014 report from the AARP, "What is Livable? Community Preferences for Older Adults," found a strong desire among older adults at the time to "age in place." When participants were asked if they wished to age in their current community, 87% of respondents 65 and older said yes. And a more recent (2018) AARP survey, Home and Community Preferences Survey: A National Survey of Adults Age 18-plus, found that nearly 80 percent of adults age 50 and older indicate that they want to remain in their communities and homes as they age.

The lower sense of urgency among older people about the risks posed by climate change, combined with their broader desire to age in place, probably means that they will be more difficult to convince of the need to relocate or to make major alterations to their existing homes to make them more climate resilient.

Addressing these multifaceted issues requires a holistic approach that includes improving physical infrastructure, enhancing social support systems, and bridging the technological divide to better support seniors in navigating climate-related challenges and making informed decisions about their living conditions. It will also involve assessing the readiness of the more climate-safe parts of the state to absorb new residents, particularly older people with more specific housing and mobility needs.

## FOSTERING CLIMATE-SAFE, AGING-FRIENDLY PLACES

For older residents who may opt to relocate away from flood zones but wish to stay near their existing family, social, and care networks, or at the very least wish to stay in New Jersey, where might they go? In particular, what places in New Jersey offer housing options that are appropriate and affordable for older residents, in neighborhoods that facilitate fewer and shorter car trips, and that are away from flood-risk areas? And are there housing and land-use strategies that could be used to create more such places?

The state is already facing a housing affordability crisis, with many households leaving the state in search of cheaper housing elsewhere: New Jersey has the fourth-largest net domestic outflow of residents from 2020 to 2023 (as measured by the Census Bureau's Population Estimates, Population Change, and Components of Change), during which it lost a net of 153,193 residents to other states. This problem would only be exacerbated by a new flow of people seeking to relocate internally, putting additional upward pressure on home values and rents in relatively climate-safe neighborhoods and pricing even more people out.

It is also not clear how many existing neighborhoods in lower-risk areas have built environments that support healthy aging, with walkability, affordability, and a mix of housing types. AARP's 2024 report Aging Well in America: AARP's Vision for a National Plan on Aging includes among its four goals to "Create age-friendly, livable communities that enable people to age in place, and continue as engaged members of their communities." The report specifically mentions land-use considerations like housing affordability, variety of housing options, outdoor public spaces, and mobility for those who do not drive.

## WHAT DOES AN AGING-FRIENDLY NEIGHBORHOOD LOOK LIKE?

Aging-friendly neighborhoods offer a range of housing options that are appropriately sized and affordable for older people and that allow residents to access a variety of destinations without the need to drive onto the regional road network every time they leave home. Thanks to having experienced its first wave of population growth before the widespread adoption of the automobile and the spread-out development pattern it engendered, New Jersey is host to many cities, towns, and older suburbs with well-connected, walkable street grids, mixed-use downtowns, and a variety of housing options. Such places naturally lend themselves to getting around more easily without needing a car for every trip, with residential neighborhoods located within short distances of other destination types, connected by continuous sidewalks. And the narrower local streets and slower vehicle speeds of traditional neighborhoods and older downtowns also help make trips shorter and safer for those trips that are still taken by car. All of these characteristics make these places particularly well-suited for older people with a declining ability or desire to drive.

To some degree, we can quantify some of the characteristics that make a place more aging-friendly. New Jersey Future has developed several "smart growth" metrics that measure compactness and walkability at the municipal level, and two of these can be adapted to the census tract level to enable greater geographic precision (see sidebar) by identifying census tracts that score well on the metrics. Specifically, we will look at net residential density (for compactness) and median block size (for walkability) to score census tracts on their smart-growth – and hence aging-friendly – characteristics.

### QUANTIFYING SMART GROWTH

For its 2014 report Creating Places to Age in New Jersey, New Jersey Future developed three metrics of compactness and walkability[7] with which to evaluate how well a municipality scores on being a good place to age in place. They have since been modestly revised, but they capture three key characteristics of a municipality's land-development pattern:

- Compactness/density, as measured by net activity density, or population + jobs per developed square mile; we have defined scoring "well" as a net activity density of 7,500 or greater
- Mix of uses, as measured by whether or not the municipality contains at least one mixed-use center, where centers are indicated by:
    - the presence of a Business Improvement District, Special Improvement District, "Main Street" or "Downtown" organization
    - designation as a center by the 2001 State Plan or by the Highlands Council, or as a "Pinelands town" or "Pinelands village" by the Pinelands Comprehensive Management Plan
- Street network connectivity, a measure of walkability, as measured by median block size, with smaller blocks indicating greater connectivity; we have defined scoring "well" as a median block size of 5 acres or less

These metrics were originally defined at the municipality level, but two of them have analogs available at the level of the census tract. For compactness, we can use net residential density, computed as the tract's population divided by the number of square miles in the tract that are in residential use, per the 2020 land use/land cover data. For connectivity of the street network, we can use median block size for the tract,[8] with smaller blocks indicating more granularity and better connectivity. Parallel to the municipal-level analysis, we will consider a net residential density of 7,500 or more and a median block size of less than 5 acres as constituting scoring "well" on the two metrics, respectively.

7 See the section "Identifying good 'places to age'" beginning on p.9, and Appendix B beginning on p.22.

8 Median block size was actually computed at the block-group level by the Department of Community Affairs; tract-level estimates discussed here were computed as the median of these block-group-level medians over all block groups in a given tract.

## HOW AGING-FRIENDLY ARE NJ'S CLIMATE-SAFE NEIGHBORHOODS?

How many places in New Jersey are both aging-friendly and climate safe? Looking again at census tracts, which roughly correspond to the concept of a neighborhood in the non-rural parts of the state, we find the following:

- Just over half of the state's 2,165 residential census tracts[9] can be considered relatively climate safe, with less than 10% of their developed land in the flood hazard areas.
- Among these relatively climate-safe tracts, about one-third (378) qualify as aging-friendly by scoring well on both compactness and walkability.
- These climate-safe, aging friendly neighborhoods can be found across 101 of the state's 564 municipalities.

While these more compact, walkable places may be more conducive to allowing people to age in place out of harm's way as they begin to face mobility issues, many of them have their own set of housing issues in terms of their ability to accommodate an influx of relocating older residents. For instance, do they offer a variety of housing options that are appropriate for older residents, at prices that older people on fixed incomes can afford?

Climate-safe, aging-friendly places: assessing the housing supply. Unfortunately, many of the aging-friendly, climate-safe neighborhoods are lacking in senior-appropriate housing options and are dominated by homes that are larger or more expensive than average. Among the 378 census tracts in relatively climate-safe areas and with good aging-friendly development characteristics:

- About 10% (39 tracts) have housing stocks that are at least 70% single-family detached housing units[10] (the statewide rate is 53%), meaning that other, generally smaller types of housing that better suit the needs of older people are in relatively short supply. These tracts appear in such places as Fair Lawn, Teaneck, Clifton, Maplewood, Metuchen, Woodbridge, Union, and Pennsauken.
- About one-fifth (79 tracts) have housing stocks dominated by larger homes with more rooms than the statewide median of 5.7 rooms. In many of these neighborhoods, which appear in such places as New Milford, Fort Lee, Nutley, Summit, Edison, Lakewood, Haddonfield, and Bellmawr, the existing housing stock makes it more difficult for seniors to downsize.
- More than one-third are relatively unaffordable, with 140 tracts having a median gross rent that is higher than the statewide median of $1,577,[11] and 153 tracts having a median home value that is greater than the statewide median of $401,400.

When put together, only a little more than one-third of the census tracts that are both aging-friendly and relatively climate-safe (140 of the 378) also have housing stocks that are more likely to be attached, smaller in size, and more affordable than the statewide medians.[12] These tracts are spread over only 42 municipalities, many of which are among the state's older urban areas. In fact, more than three-quarters of them are accounted for by just 13 municipalities: Newark (with 33), Paterson (18), Trenton (10), Irvington (8), Passaic (7), Jersey City, Union City, Perth Amboy (5 each), Camden, East Orange, West New York, Clifton (4 each), and Elizabeth (3). The presence of so many neighborhoods that are already relatively aging-friendly, climate-safe, and affordable in this small collection of cities perhaps argues for an urban revitalization agenda aimed specifically at promoting them as destinations for older residents. Improvements could include new aging-friendly housing development along with upgraded neighborhood amenities like sidewalks and urban green spaces, coupled with housing strategies that ensure that new developments do not price out existing residents.

"The concentration in a handful of New Jersey's older urban centers of so many neighborhoods that are already relatively aging-friendly, climate-safe, and affordable suggests the opportunity for an urban revitalization agenda focused on improving streetscapes and urban green spaces in these places and promoting them as destinations for older residents."

9 This count excludes a few tracts that are made up entirely of water or non-residential land uses and also a few tracts that contain only a single institutional land use, often a prison, which gives them a non-zero population but zero households. Both groups should be considered outliers for demographic analysis and are excluded in the analysis here.

10 As of the 2022 five-year American Community Survey

11 From the 2022 American Community Survey five-year estimates, to enable comparisons to tract-level values

12 Specifically, their housing stocks are less than 70% single-family detached, have a median number of rooms that is less than the statewide median of 5.7 rooms, and have median rents and median home values that are lower than the respective statewide medians.

As for climate-safe neighborhoods with good aging-friendly design characteristics but where the housing stock presents limited options for older people, host municipalities should consider ways of diversifying their housing stocks to create more alternatives to the single-family home, focusing on smaller units that will be more affordable and more manageable for older residents.

Climate-safe places that are not aging-friendly: Opportunities for redevelopment. The rise of redevelopment as a force in New Jersey over the last decade and a half means that the promotion of aging-friendly neighborhoods and housing options does not need to be limited to places that are already blessed with compact, walkable development patterns and diverse housing stocks. There are almost 1.2 million acres of already-developed land that are outside both the coastal and inland flood-hazard areas and located in one of the 448 municipalities that do not score well on all three smart-growth metrics at the municipal level. For example, there are 17 municipalities in suburban or rural counties that score well on only one or zero of the metrics and that each have at least 10,000 acres of already-developed land not located in either of the flood hazard zones.

These and other similar municipalities can incrementally make themselves better places to age and make room for older in-migrants by adding density and connectivity through redevelopment and infill projects. If carefully located and designed, such projects can increase the variety of housing types and add housing to non-residential areas while creating street and path connections to surrounding existing developments in such a way as to make the community more walkable.

| County | Municipality Name | Already-Developed Acres not in Coastal or Inland Flood Zones |
|---|---|---|
| Ocean | Jackson Township | 16,283 |
| Cumberland | Vineland City | 15,654 |
| Mercer | Hamilton Township | 13,721 |
| Monmouth | Middletown Township | 13,295 |
| Atlantic | Egg Harbor Township | 13,217 |
| Monmouth | Howell Township | 13,038 |
| Somerset | Franklin Township | 12,788 |
| Somerset | Hillsborough Township | 12,544 |
| Somerset | Bridgewater Township | 11,795 |
| Camden | Cherry Hill Township | 11,589 |
| Middlesex | South Brunswick Township | 10,800 |
| Hunterdon | Raritan Township | 10,628 |
| Hunterdon | Readington Township | 10,465 |
| Middlesex | Monroe Township | 10,374 |
| Monmouth | Freehold Township | 10,116 |
| Atlantic | Galloway Township | 10,054 |
| Monmouth | Marlboro Township | 10,002 |

*Already-developed lands in spread-out, car-oriented suburbs offer opportunities to use redevelopment and infill to create new aging-friendly centers away from flood-hazard zones.*

Summary of findings and ways to address future demand. To accommodate demand – both present and future – among older residents for places to live that are both aging-friendly and relatively safe from climate-related hazards, we need:

- More new homes in the aging-friendly, relatively climate-safe communities that already exist, along with supportive neighborhood amenities, primarily in the state's older urban areas
- More redevelopment in the other relatively climate-safe places that are not aging friendly, specifically through the design and construction of predominantly compact, walkable, projects with a variety of housing types, and through improving connectivity to the existing surrounding street and trail networks when redevelopment opportunities arise

"Places in the climate-safe parts of the state need to make themselves more aging-friendly, both for future newcomers relocating out of harm's way and for the growing number of existing 65+ residents who seek to downsize to a more affordable home in a neighborhood that is easier to get around."

This need for more aging-friendly and climate-safe neighborhoods should be understood as coming on top of an expected surge in demand for aging-friendly places as the population of people 65 and older continues to grow. The larger question thus amounts to what places in the climate-safe parts of the state can do to make themselves more aging-friendly, both for future newcomers relocating out of harm's way and for the growing number of existing 65+ residents who seek to downsize to a more affordable home in a neighborhood that is easier to get around.

# RECOMMENDATIONS

New Jersey already faces challenges in making itself a great place in which to age, with spread-out development patterns and lack of housing options limiting older residents' ability to "age in place" in the state's many car-dependent suburbs. The risks posed by climate change, chief among them the greater risk of flooding in both coastal and inland areas as a result of sea-level rise and increasingly severe rainfall events, add another layer of difficulty in planning an aging-friendly future for the state. Preparing for the effects of climate change, and helping older residents adapt to them, will require efforts by multiple levels of government and by others interested in promoting aging-friendly development.

## STATE GOVERNMENT

**Steer new development away from known climate-risk areas**. At the state level, the state planning process – which has recently been reinvigorated by the adoption by the State Planning Commission of a draft update to the State Development and Redevelopment Plan, the first such update since 2001 – offers an opportunity for state government leaders to provide clarity on which parts of the state are at the greatest risk from the present and future effects of climate change, particularly flooding. The State Plan calls for state agencies and local governments to: "Implement land use and transportation planning that encourages carbon-neutral mobility, promotes climate-safe development areas, and integrates science-based data on climate impacts. Support climate adaptation by limiting development in vulnerable areas and investing in resilient infrastructure in locations that protect people, assets, and ecosystems from climate risks."

As a companion resource to the Plan itself, mapping specialists at Rowan University have developed the NJ Smart Growth Explorer mapping tool, which allows users to view various map layers representing factors that influence where future development and preservation happen. This tool should be used by both local governments and state agencies to make better, more informed decisions about where to grow and where not to grow in the future, so as to keep current and future residents out of harm's way. In particular, the tool can help state and local governments to begin planning their responses to NJDEP's Inland Flood Protection Rule and its draft Resilient Environments and Landscapes (REAL) rules.

**Formulate plans for protecting people already living in high-risk areas**. The need to avoid encouraging new development in known risk areas is certainly a necessary step in adapting to climate change. But it is not sufficient; the state also needs to develop strategies for lands within the coastal and inland flood zones that are already inhabited by residents and businesses. The state planning process should provide a framework for determining which areas are most appropriate for which of the following broad approaches:

- **Better stormwater management**: In some built-up inland areas, flood risk can be mitigated simply via improvements to drainage system capacity, in places where that is the limiting factor. Actions such as installation or widening of culverts; green infrastructure measures; detention basins; restoration of wetlands; removing impervious cover; and other flood control projects can reduce the likelihood and severity of flooding, thereby alleviating the need for additional protective measures. As a bonus, green infrastructure techniques like bioswales and street trees can help improve air quality and reduce heat-island effects, both of which pose health threats to seniors both within and outside the flood zones. More than half of Americans recognize flooding from inadequate drainage systems as a threat to their communities.
- **Fortification and hardening measures** like floodwalls, levees, and dunes – things that are designed to keep water out – can be effective in protecting residents and businesses from flooding if enough development is concentrated in the risk areas to keep the per-capita costs of constructing the barriers low enough.
- **Adaptive building standards**: In places where large-scale protective measures are not cost-effective, adaptive building standards like raised building heights and breakaway walls on the ground floor can offer some mitigation against risks to life and property, provided that the infrastructure serving these areas is also resilient.
- **Managed retreat**: Finally, in places where fortification is not cost-effective and where adaptive measures are too burdensome, whether financially or from a lifestyle standpoint (as with older residents having to climb stairs into elevated buildings, for example), relocation of residents and businesses will need to be considered. In the

short term, the state and federal government can expand buyout programs like New Jersey's Blue Acres, but additional longer-term solutions will also be necessary.

The update to the State Plan should be strengthened by calling on state agencies to create a framework for identifying which areas are appropriate for which strategies.

**Explore zoning reform**. There will also be a role for state government in ensuring the provision of more housing and a wider variety of housing types in climate-safe areas. Municipalities control land-use decisions through their planning and zoning processes, but the state can, whether via legislative changes such as zoning reform or state incentives, articulate with greater specificity what types of housing municipalities are expected to account for in their master plans and zoning, and in what kinds of contexts (in existing mixed-use centers, near transit stations, etc.).

## LAND-USE AND HOUSING ACTIONS AT THE LOCAL LEVEL

Municipal and county officials responsible for development decisions in the majority of the state's territory that is outside the climate-hazard areas should begin planning now about how best to accommodate older residents who may seek to relocate out of harm's way. (In the process, these same steps can help towns make themselves more aging-friendly for existing residents who want to downsize but remain in town as they get older.) Generally, the best housing and land-use practices for a given municipality to follow will proceed from which elements of aging-friendliness the municipality already possesses:

- For places that already score well[13] on aging-friendly design metrics, already have a diverse housing stock, and are already affordable, the solution is largely to simply continue looking for opportunities to absorb new growth that preserves the existing aging-friendly character, through adaptive reuse, infill, and redevelopment. Such places should endeavor to add enough new housing to keep up with demand, including by adopting inclusionary zoning ordinances in places that are already attracting interest from private development interests, so as not to price out existing residents. Since many of these neighborhoods are in older urban centers, perhaps state agency support for infrastructure improvements and neighborhood revitalization plans should be targeted toward these areas.
- Similarly, for places that score well on aging-friendly design metrics and already have a diverse housing stock but that have high housing prices, the solution comes down to seeking out opportunities to add more housing supply while maintaining their existing balance of housing types. The need to add new housing options is slightly more imperative for this group of municipalities than for the preceding group because they need to play catch-up in terms of affordability, but the strategies will largely be the same.
- In places that score well on aging-friendly design metrics but that have a housing stock dominated by single-family detached homes, local officials and developers should focus on adding to the supply of more aging-friendly housing types that are currently underrepresented, including accessory dwelling units, multifamily apartment buildings, and other "missing middle" housing options that might help existing residents age in place as they seek to downsize.
- Places that score poorly on one or more of the smart-growth metrics should explore ways to evolve their land-use practices to make themselves more aging-friendly. In particular, municipalities that do not already have a walkable downtown or other mixed-use center should endeavor to create one.
- In places with plenty of developable land remaining, a new mixed-use center can be built from scratch on a large parcel of undeveloped land, as has been done with the new town centers in Robbinsville and Plainsboro.
- In places that are mostly built-out, a new mixed-use node can sometimes be created when a large existing parcel becomes eligible for redevelopment, as with defunct office campuses in Parsippany-Troy Hills or Montvale, or with ailing shopping centers like Monmouth Mall. Because suburban street networks tend to be more branching and less grid-like, however, it can often be difficult to connect such new mixed-use

13 New Jersey Future's 2014 report Creating Places To Age in New Jersey includes a table of all municipalities and their rankings on the smart growth metrics. The original report included a fourth metric, designed to measure access to public transit, that is not as reliable an indicator of land development patterns and has not been used in other subsequent contexts, and also utilized a slightly different measure of street network connectivity than the one described in this report. While a few individual municipalities' scores may have changed modestly since then, the table provides a sense of what types of places embody the concepts of center-based development and walkability at the municipal level.

nodes to the existing surrounding development.

- In built-out places where redevelopable land appears only sporadically and on small parcels, making the town more "center"-like will likely consist mainly of gradual infill and adaptive reuse, putting new buildings on individual lots as they become vacant and converting non-residential buildings to residential use (and sometimes vice versa) as the previous use becomes obsolete. Such places also often have something of a de-facto land bank in the form of surface parking lots that can serve as sites for carefully planned infill projects that are designed to add new housing types, new land uses, and new pedestrian connectivity. Larger surface lots, like those that typically surround malls and big-box retail centers, can actually be treated similarly to large redevelopment parcels, as described above. These strategies are particularly important in municipalities with large amounts of already-urbanized land that is away from the coastal and inland flood zones.

Solutions related to housing, transportation, and land-use patterns will differ, depending on what kind of development is already in place. The Creating Great Places To Age section of New Jersey Future's website contains links to these and other resources for further background and assistance:

- Creating Places to Age: A Municipal Guide to Best Land-Use Practices (2014) can help municipal leaders identify which elements of aging-friendliness their town already possesses and which elements are missing.
- The Age-Friendly Land Use Toolkit helps local government officials, planners, and aging-friendliness advocates understand the actions they can take to make their communities more aging-friendly.
- A Community Guide to Implementing Aging-Friendly Land Use Decisions (2020) "provides both community residents and local representatives, such as members of municipal councils or land use boards, with an action plan, guidance, and considerations for implementing aging-friendly land use practices at the municipal level." It is designed to step a community through the entire process of identifying needs and developing a strategy to implement aging-friendly land-use actions.
- Municipal Strategies to Diversify Housing Stock For An Aging Population: A Case Study Report (2020) "outlines some of the strategies that municipalities can adopt to accommodate a wider range of housing" and add more of the kinds of housing that older residents will need, which will also add to the options available to households of all ages, configurations, and incomes.

**Ensure that state, county and municipal hazard mitigation and emergency response plans specifically address the needs of older adults in areas with high flood risk, including**:

- Create systems for warning older residents about extreme weather events in advance, so that they have more time to evacuate, either on their own or with the help of friends and neighbors.
- Formulate plans for how to evacuate older people who can't drive.
- Plan ahead for the caring of residents who depend on electrically powered medical devices when weather events result in power outages.
- Designate locations to serve as cooling or power centers to temporarily house older people during extended power outages, especially if they occur during periods of extreme heat. Create plans for making seniors aware of these centers and for transporting them there.
- Make special arrangements to connect older people to medical care in the event of longer-term disruptions to electrical or transportation systems.
- Provide older households with financial and/or physical assistance with cleanup after flood events.

## USE EDUCATION AND ENGAGEMENT TO FOSTER BETTER AWARENESS OF CLIMATE RISKS AMONG SENIORS

Engaging with older people directly about the risks posed by climate change can be an effective strategy regardless of where people live. Social and educational services can be used to address fears and concerns among older people about relocating out of their existing neighborhood, as well as to address the general lack of knowledge among older people about the risks posed by climate change.

Existing social services for older adults can incorporate climate change adaptation into their programs by providing, for example, information and assistance to older people who need help finding new doctors and other medical providers in their new town, or social networking and mental-health services for people who relocate and have to give up their old social networks.

More broadly, education campaigns can be targeted to make older people more aware of the dangers of climate change and extreme weather events, and help them figure out ways of adapting. Such efforts could enlist seniors themselves as active participants, both to encourage greater engagement and to increase the level of trust between the messenger and the audience. A report from HelpAge International, Older People and Action on Climate Change: A Powerful But Underutilized Resource, observes that:

> "Merely viewing older individuals as passive victims of environmental threats is an overly narrow and limiting perspective. Equally critical to efforts to address climate change is expanding and promoting opportunities for older people to act on their own behalf and that of others. There is consensus that public involvement and political engagement are essential to curb fossil fuel consumption and limit the rise in global temperature. Older adults around the world can be active participants rather than passive actors around climate change, by mobilizing in large numbers to address local environmental problems through civic environmentalism."

The National Library of Medicine ("Aging, Climate Change, and Legacy Thinking") provides another perspective on motivating older people to participate in climate change initiatives: the desire to leave a meaningful legacy. As people age, their focus often shifts towards the impact they will leave behind for future generations. The article suggests that the prospect of creating a world where their children and grandchildren can thrive, free from the threats of climate change, can serve as a powerful motivator. Many older adults have not yet taken active steps to engage in community initiatives, but they could be motivated to do so if they are provided with volunteer opportunities that are age-friendly and that offer spaces for intergenerational conversations.

"Smart Kids and Cool Seniors," a collaborative effort between Rutgers University and several government and civic groups in the city of Elizabeth, could serve as a model for fostering intergenerational knowledge exchange. While focused on extreme heat and air quality, its effort to "bring youth and seniors together around the common goals of reducing seniors' environmental vulnerabilities and increasing children's' exposure to STEM knowledge" could be applied to a wider range of risks associated with climate change.


*Hurricane Ida floods Manville*

# CONCLUSIONS

As New Jersey's population ages, and as the threats to life and property posed by a changing climate come into clearer focus, state and local leaders will need to address the ways in which adapting to climate-related threats will present disproportionate difficulty for older people. With an estimated 285,000 people aged 65 or older already living in areas that are now or are projected to be at risk from coastal flooding or inland flooding or both, decisions must be made about how best to protect older residents from these threats while allowing them to live in neighborhoods that are conducive to aging in place.

Preparing for the coming effects of climate change will involve efforts by multiple levels of government and by others interested in promoting aging-friendly development. State government leaders need to provide clarity on which parts of the state are at the greatest risk from the present and future effects of climate change, particularly flooding, and take steps to prevent further development from happening there unless protective measures are to be taken.

State agencies also need to start making decisions about how to best protect people already living in flood zones, by identifying which mitigation measures are appropriate for which contexts.

State and local governments will both need to change their policies and regulations that affect land-use decisions, to ensure that the more climate-safe parts of the state are ready to absorb new residents, and particularly older residents, who are seeking to relocate to safer ground – or who simply find that getting around is becoming more difficult as they either cannot or do not want to drive everywhere. Existing neighborhoods that already have aging-friendly development characteristics will need to make sure their zoning allows for a greater supply and variety of housing that older people can afford. In more car-oriented places, state and local policies and incentives should focus on retrofitting existing development to be more aging-friendly, by adding density and connectivity through redevelopment and infill projects.

# ACKNOWLEDGMENTS

**The author would like to thank:**

**Idaliza Perez Jimenez**, New Jersey Future intern, for conducting interviews and for substantial contributions to the section "Important lessons from the field: Adapting to climate risks is more difficult for older residents" and to the recommendations focused on education and engagement.

**Lucas Marxen**, Co-Director of the New Jersey Climate Change Resource Center in the Center for Urban Policy Research at Rutgers University's Edward J. Bloustein School of Planning and Public Policy, and **Lindsey Massih**, Program Manager for Mainstreaming Green Infrastructure at New Jersey Future, for their help in understanding the coastal and inland flood regulations and their associated map layers.

**John Hasse**, **Katrina McCarthy**, and **Makenzie Franco** at the Geospatial Research Lab at Rowan University for providing GIS analysis of the coastal and inland flood map layers and for help in interpreting the data.

**We would also like to thank our interviewees:**

**Walter C. Lane**, PP, AICP
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Department of Engineering and Planning
Somerset County

**Maria LaFace**
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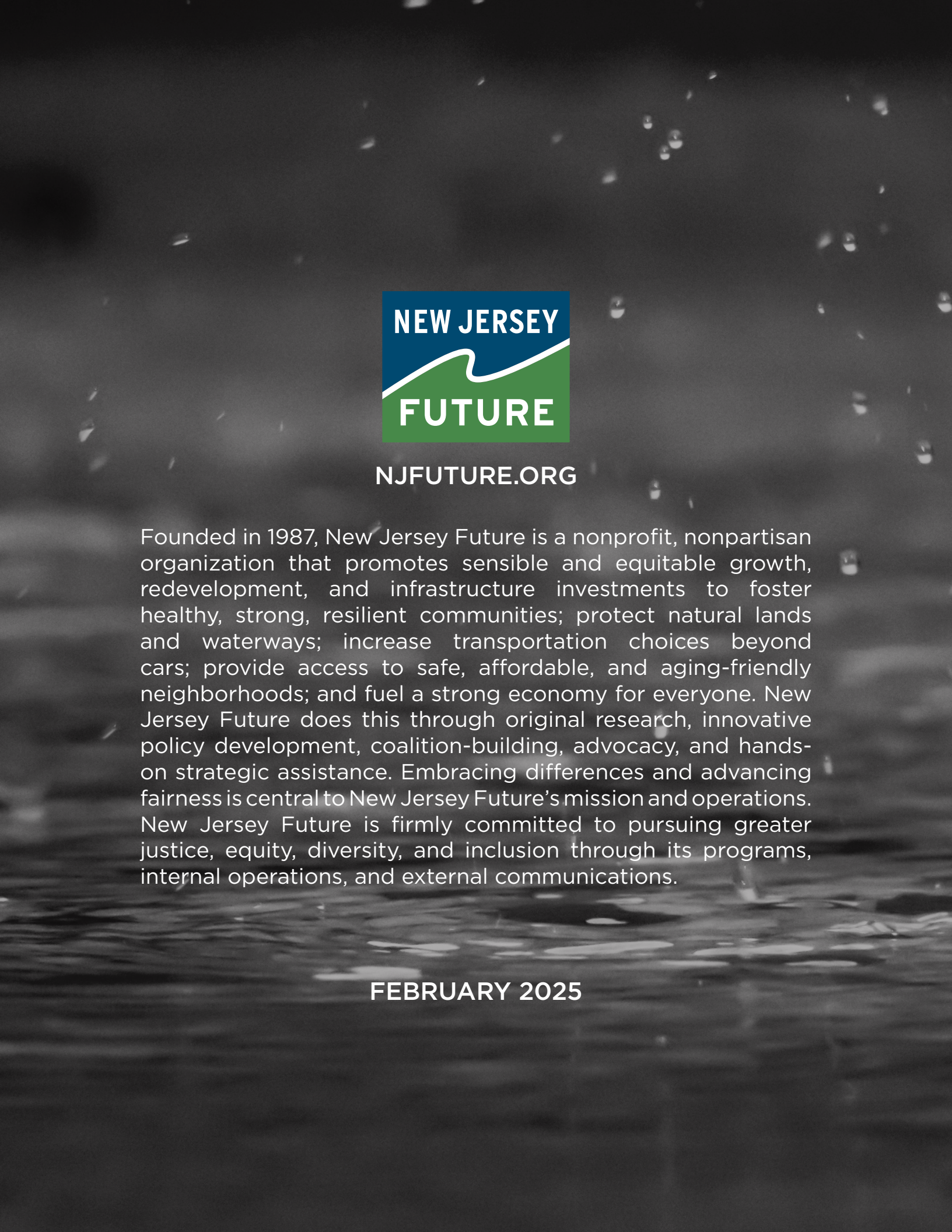
**New Jersey Future thanks the Henry & Marilyn Taub Foundation for funding for this project, and Julia Stoumbos, the foundation's "Aging in Place" Program Director, for occasional guidance on the report.**



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Founded in 1987, New Jersey Future is a nonprofit, nonpartisan organization that promotes sensible and equitable growth, redevelopment, and infrastructure investments to foster healthy, strong, resilient communities; protect natural lands and waterways; increase transportation choices beyond cars; provide access to safe, affordable, and aging-friendly neighborhoods; and fuel a strong economy for everyone. New Jersey Future does this through original research, innovative policy development, coalition-building, advocacy, and hands-on strategic assistance. Embracing differences and advancing fairness is central to New Jersey Future's mission and operations. New Jersey Future is firmly committed to pursuing greater justice, equity, diversity, and inclusion through its programs, internal operations, and external communications.

FEBRUARY 2025