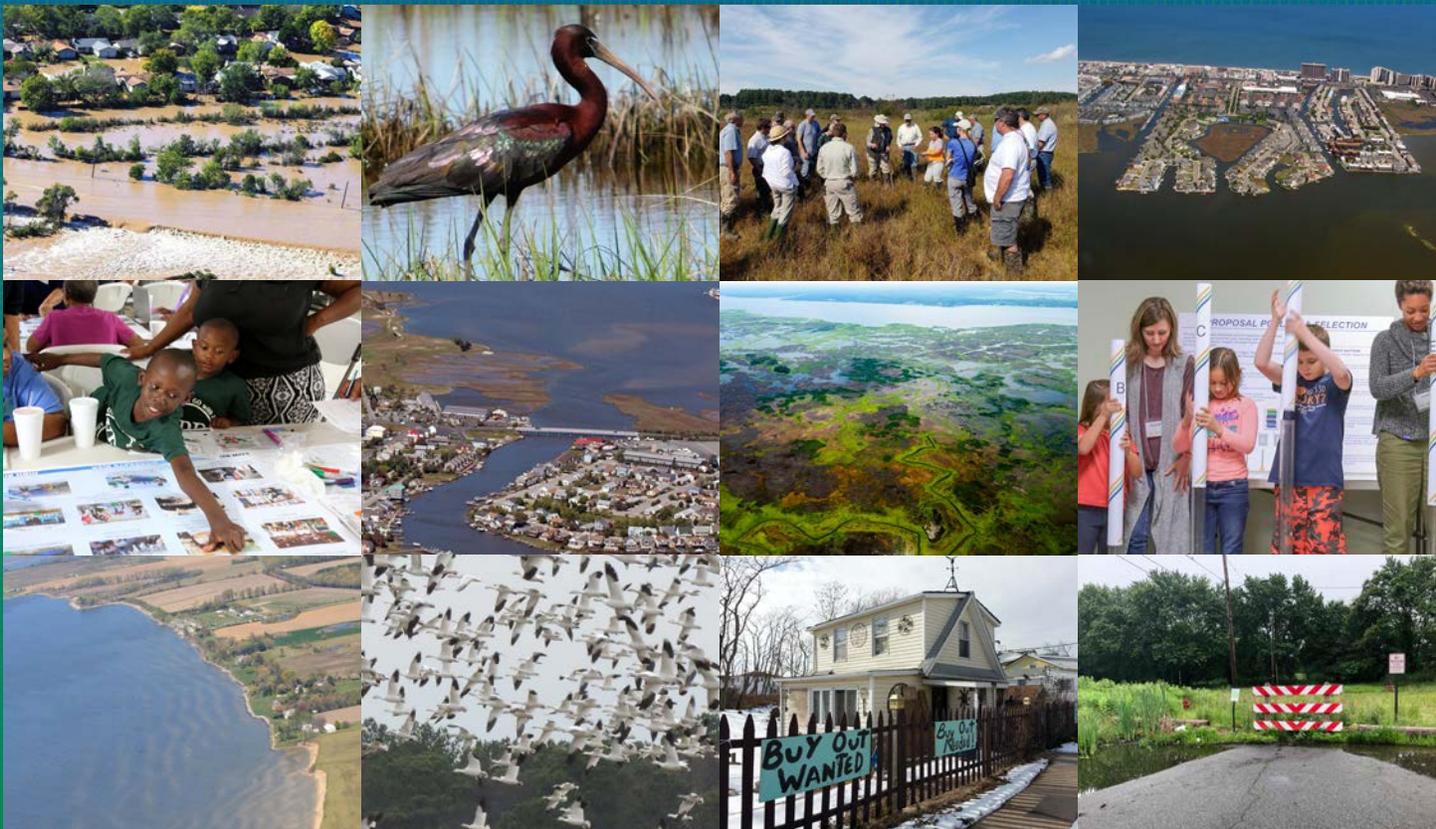


Managing the Retreat from Rising Seas

Woodbridge Township, New Jersey: Post-Hurricane Sandy Buyouts



Authors

This report was written by Katie Spidalieri, Senior Associate, and Isabelle Smith, Research Assistant, Georgetown Climate Center at Georgetown University Law Center; and Jessica Grannis, Coastal Resilience Director at National Audubon Society. The *Louisiana Strategic Adaptations for Future Environments (LA SAFE)* case study was written by Jennifer Li, Staff Attorney, and Alex Love, student, Harrison Institute for Public Law at Georgetown University Law Center. Editorial and writing support were provided by Vicki Arroyo, Executive Director, and Lisa Anne Hamilton, Adaptation Program Director, Georgetown Climate Center.

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Georgetown University Law Center
600 New Jersey Avenue, NW
Washington, D.C. 20001

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Managing the Retreat from Rising Seas: Lessons and Tools from 17 Case Studies

About This Report

As seas continue to rise and disaster events and extreme weather increase in frequency and intensity, climate change is driving state and local policymakers to evaluate strategies to adapt to various risks affecting many communities. In addition to protection (e.g., hard shoreline armoring) and accommodation (e.g., elevating or flood-proofing structures) measures, coastal governments and communities are increasingly evaluating managed retreat, where appropriate, as a potential component of their comprehensive adaptation strategies. Managed retreat is the coordinated process of voluntarily and equitably relocating people, structures, and infrastructure away from vulnerable coastal areas in response to episodic or chronic threats to facilitate the transition of individual people, communities, and ecosystems (both species and habitats) inland.

The aim of managed retreat is to proactively move people, structures, and infrastructure out of harm's way before disasters occur to maximize benefits and minimize costs for communities and ecosystems. For example, policymakers may maximize opportunities for flood and risk reduction by conserving wetlands and protecting habitat migration corridors and minimize the social, psychological, and economic costs of relocation by making investments in safer, affordable housing within existing communities.

This report is composed of 17 individual case studies. Each one tells a different story about how states, local governments, and communities across the country are approaching questions about managed retreat. Together, the case studies highlight how different types of legal and policy tools are being considered and implemented across a range of jurisdictions — from urban, suburban, and rural to riverine and coastal — to help support new and ongoing discussions on the subject. These case studies are intended to provide transferable lessons and potential management practices for coastal state and local policymakers evaluating managed retreat as one part of a strategy to adapt to climate change on the coast.

Collectively, these case studies present a suite, although not an exhaustive list, of legal and policy tools that can be used to facilitate managed retreat efforts. Legal and policy tools featured include: planning; hazard mitigation buyouts and open space acquisitions, as well as other acquisition tools like land swaps and reversionary interests; land use and zoning; and Transfer of Development Rights programs. The case studies also highlight various policy tradeoffs and procedural considerations necessitated by retreat decisions. Each jurisdiction is confronting different challenges and opportunities and has different, perhaps even competing, objectives for retreat. In addition, stakeholders in each of these cases are attempting to balance multiple considerations, including:

protecting coastal ecosystems and the environment; fostering community engagement and equity; preparing “receiving communities” or areas where people may voluntarily choose to relocate; and assessing public and private funding options and availability. The case studies included in this report were selected to reflect the interdisciplinary and complex nature of retreat decisions and underscore the need for comprehensive solutions and decisionmaking processes to address these challenging considerations.

Where possible, all of the case studies share a consistent organizational format to allow easier cross-comparison of strategies, processes, and takeaways:

- The **Background** section introduces state or local context for each case study, including the risks and hazards facing each jurisdiction and its road to considering or implementing managed retreat strategies.
- The **Managed Retreat Examples** section focuses on the legal and policy tools that have been designed and implemented to support managed retreat strategies on the ground.
- The **Environment** section highlights how floodplains and coastal ecosystems have been restored, conserved, and protected as a part of comprehensive managed retreat strategies to provide ecosystem and community benefits, like reducing flood risk and creating community assets such as parks and trails.
- The **Community Engagement** section summarizes how affected residents have been contributing to planning and decisionmaking processes for climate adaptation and managed retreat.
- The **Funding** section identifies how the programs, plans, and projects discussed have been funded by federal, state, and local government and private sources.

- The **Next Steps** section captures the anticipated future actions that jurisdictions may take in implementing these managed retreat strategies.
- The **Considerations and Lessons Learned** section concludes with the primary takeaways from each example that other coastal state and local policymakers and communities may consider when developing or implementing their own managed retreat strategies using these legal and policy tools.

The case studies in this report were informed by policymakers, practitioners, and community members leading, engaging in, or participating in the work presented in this report. No statements or opinions, however, should be attributed to any individual or organization included in the *Acknowledgements* section of this report. It is also important to note that the programs and planning processes described in each case study are ongoing and the content included in this report is current as of early 2020. Future updates about these case studies will be captured in Georgetown Climate Center’s online resources on managed retreat.

These case studies were written to support Georgetown Climate Center’s Managed Retreat Toolkit, which also includes additional case study examples and a deeper exploration of specific legal and policy tools for use by state and local decisionmakers, climate adaptation practitioners, and planners. For future updates about these and other case studies and the Managed Retreat Toolkit, please visit the **Managed Retreat Toolkit** and the **Adaptation Clearinghouse**.

Woodbridge Township, New Jersey: Post-Hurricane Sandy Buyouts

Executive Summary

Woodbridge Township, New Jersey is working with the New Jersey Blue Acres Program to implement a neighborhood-wide buyout that can serve as an example for other jurisdictions considering larger-scale retreat from coastal areas. Following significant damage from Hurricane Sandy in 2012, Woodbridge applied to participate in the New Jersey Blue Acres Buyout Program. The Blue Acres Program uses federal and state funding to voluntarily purchase privately owned properties that are routinely threatened and flooded. With the support of the state, local elected officials in Woodbridge, including the mayor, committed to a community-based approach and prioritized flood mitigation and future safety and emergency management benefits over potential tax base losses if residents relocated outside of the township. As a result of this approach and an extensive community engagement process, nearly 200 property owners accepted a buyout offer. Once structures are demolished, the township is restoring bought-out land to create a natural flood buffer. The township established an Open Space Conservation/Resiliency Zone to institutionalize protections for this area by prohibiting new development and discouraging redevelopment. As a result of the buyouts and land restoration, the township is achieving multiple benefits, including reduced flood insurance premiums for its residents by participating in the federal Community Rating System. Woodbridge's example demonstrates how comprehensive, community-based approaches to buyouts can maximize long-term benefits for communities and the environment. Other local governments can consider partnering with their states and residents, among others, to use buyouts as a retreat strategy to make communities more resilient.



Flooding During Hurricane Sandy.

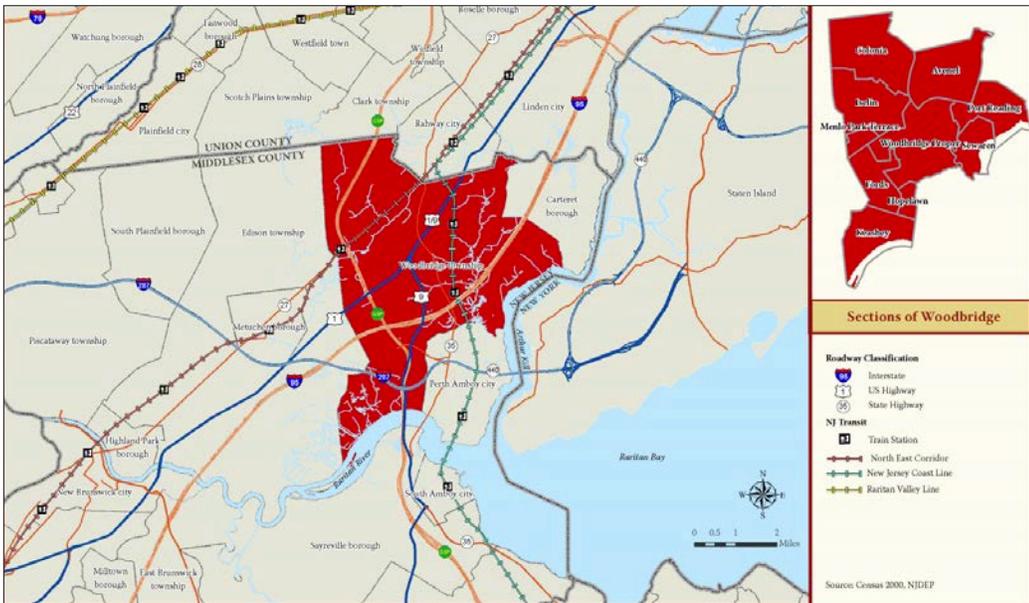
The lighter color of wood on the bottom of the telephone poll (in contrast to the darker color on top) is a visual reminder of the height of the flood waters that overflowed from the tidally influenced Woodbridge River during Hurricane Sandy in 2012.

Credit: Katie Spidalieri, Georgetown Climate Center.

Background

Woodbridge is a township in Middlesex County, New Jersey with a population of nearly 100,000 residents. Woodbridge covers an area of approximately 25 square miles and is both the oldest and sixth largest township in New Jersey. It is bordered to the east by the Arthur Kill tidal strait and to the south by the tidal Raritan River. The Woodbridge River extends from the northeastern corner of the township to Arthur Kill.

The township has a history of tidal and fluvial flooding in low-lying areas adjacent to these waterways and is vulnerable to coastal storms. Flooding vulnerabilities are exacerbated by the township's large amount of impervious surface cover and limited availability of open spaces. Woodbridge experienced its most severe flooding impacts during Hurricanes Irene and Sandy in 2011 and 2012, respectively. After Hurricane Sandy, the township worked with the state to apply for grants from the Federal Emergency Management Agency (FEMA) to help residents recover and make its community more resilient to future flood events.



Map of Woodbridge Township.

This map provides a regional context for Woodbridge relative to surrounding municipalities, highways, and water bodies.

Credit: WOODBRIDGE TOWNSHIP, NEW JERSEY MASTER PLAN I-3 (Feb. 2009).

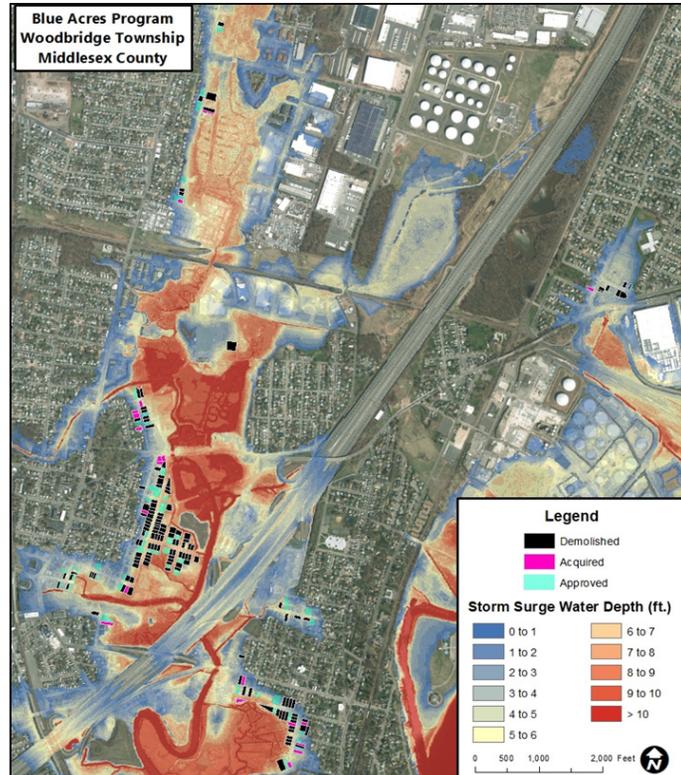
Managed Retreat Examples

State-Local Coordination

In 2013, Woodbridge applied to the New Jersey Blue Acres Buyout Program for funding and assistance to conduct voluntary buyouts. Woodbridge focused on an approximately 120-acre area adjacent to the Woodbridge River that contains the 200 homes most significantly affected or damaged by flooding during Hurricane Sandy. The Blue Acres Program accepted Woodbridge's offer to pursue buyouts for those 200 homes and worked closely with the township throughout the entire process to leverage state expertise and experience with local staff resources and ties to the community.

At the start of this process, Woodbridge, through its mayor, made a public commitment that any buyouts would be voluntary and that neither the state nor the township would use its power of eminent domain to acquire homes. This commitment enabled the township to have a more trusted, open, and productive dialogue with interested residents. In addition, the township aimed to provide people with an option to recover post-Hurricane Sandy and mitigate future flood risk despite potential losses to Woodbridge's tax base if bought-out residents relocate outside of the township. Given that Woodbridge is an urban-suburban township and the sixth largest in New Jersey, future growth projections in Woodbridge may help offset or minimize any potential losses.

By the summer of 2014 — less than two years after Hurricane Sandy — 142 homeowners in Woodbridge accepted buyouts through the Blue Acres Program. To make the buyout process more manageable and efficient, homes were divided into three phases for close out and demolition. Woodbridge has a staff member trained in Geographic Information Systems (GIS) who is tracking the number, location, and status of



buyouts to aid the township in working with and being responsive to requests for information from the state and residents.

Among other factors, the state-local partnership between Woodbridge and the Blue Acres Program was integral to attaining such a large number of buyout participants. One example of cooperative action illustrates the positive impact of this partnership. Within the buyout area, there were a number of abandoned properties foreclosed by private banks. Since the state is not able to purchase properties that have been foreclosed, these bank-owned properties could be resold and redeveloped within the floodplain. In turn, new development would produce a “checkerboard” effect throughout the larger buyout area that would decrease the economic and environmental returns on investment for the rest of the neighborhood. In response, the township worked with banks and used local funds to acquire approximately three homes at a cost of

GIS Map of Buyouts in Woodbridge.

The township and the state have been working together to map and track buyouts throughout all three phases of this process. The storm surge overlay corresponds with the 200 homes most significantly affected or damaged by flooding during Hurricane Sandy.

Credit: Woodbridge Township and New Jersey Blue Acres Program.

Top:

Homes Elevated in the Open Space Conservation/Resiliency District.

Although this home was elevated prior to when the Open Space Conservation/Resiliency District was established, it shows how high some homes in the district will have to be elevated if there is any application for new development or redevelopment or a change in occupancy or tenancy.

Credit: Katie Spidalieri, Georgetown Climate Center.



Bottom:

Restoring Bought-out Properties.

Bought-out properties like this one are being restored to natural conditions to enhance floodplain and community benefits.

Credit: Katie Spidalieri, Georgetown Climate Center.



approximately \$25,000 each; these properties were then transferred to the township for structural demolition and open space conversion. The township’s willingness to purchase foreclosed properties supplemented buyouts funded by the state to maximize the scale of these buyouts.

Zoning

As a part of the buyout process, Woodbridge amended its zoning ordinance to facilitate a community-scale buyout and minimize the number of “holdouts” to maximize ecosystem restoration and flood risk reduction benefits. In 2016, Woodbridge’s mayor and City Council

rezoned the 120-acre buyout area from Residential to Open Space Conservation/Resiliency to prohibit new development and only allow for passive recreational amenities like trails and open space uses to preserve the floodplain.¹ In addition, existing homes in the Open Space Conservation/Resiliency Zone have to be elevated at least one foot above federal requirements set by FEMA when “building design standards” are triggered including any proposed: “demolition, addition, reconstruction, renovation, sale or conveyance of the property, or change in tenancy.”² Specifically, homes in this zone must be elevated if any redevelopment or structural changes above ordinary maintenance are planned, in addition to any property transfers or changes in occupancy or tenancy. By establishing the Open Space Conservation/Resiliency Zone, the township’s aim is to protect its bought-out area as natural flood buffers by encouraging people to sell their homes to the state in lieu of investing in expensive home elevations. Moreover, this zoning ordinance can also discourage private developers from quickly purchasing properties at a low cost after a disaster and then rebuilding in vulnerable floodplains.

Environment

Woodbridge is working to restore bought-out properties to mitigate flood risk and provide natural resource and passive recreation benefits for surrounding residents. Initially, the town hired an ecologist to study the need for a floodplain restoration plan that would safeguard against flooding for community residents living further inland.³ The township has also partnered with a nonprofit, The Land Conservancy of New Jersey⁴ and Rutgers University on land restoration and conservation. As a part of this plan, the land will be restored to serve as a flood buffer for the Woodbridge River. Residents adjacent to the bought-out properties initially expressed concerns that they did not want to have unmanaged or unkempt wetlands and forests growing near their properties for purposes of preserving curb

appeal and neighborhood character. In response, the township developed a strategy for a gradual restoration buffer, where shorter varieties of vegetation will be planted closer to residents and taller forms of vegetation will be planted closer to the river, so there will be a height gradation. The new vegetation is natural to the area and consists of water absorbing plants and trees. This strategy will have a positive impact on the quality of the floodplain and also help to increase community support for maintaining this important area because it will be viewed as a natural asset in lieu of a nuisance.

In 2018 alone, the township and its partners planted hundreds of trees and examined soil quality, all to increase the area's flood storage capacity and facilitate faster growth of a biodiverse salt marsh ecosystem.⁵ Once entire areas are bought out, Woodbridge is also removing roads for purposes of reducing government liability and maintenance costs. The aim is that the restored parcels will convert back to a natural state through active management and monitoring and also provide a place for the public to interact with nature through installations, such as trails or a kayak launch.

As a result of these buyouts and restoration efforts, Woodbridge is already realizing economic benefits. In 2018, Woodbridge began participating in the Community Rating System (CRS). CRS is a voluntary program administered by FEMA under the National Flood Insurance Program that allows participating municipalities to earn discounts on their residents' flood insurance premiums.⁶ On a CRS Class Scale from one to ten — with Class One providing the highest insurance premium discount and Class Ten the lowest — Woodbridge entered CRS as a Class Six community. Woodbridge is continuing to evaluate additional opportunities to improve its rating and increase premium discounts including for buyouts that have been approved by the state but have not yet been completed.



Community Engagement

The buyout process in Woodbridge greatly benefited from significant public engagement. Overall, the community-based effort in Woodbridge looked comprehensively at using a public-private partnership to work with residents in response to their individual and evolving needs throughout this process. This approach allowed the township to simultaneously achieve the community, environmental, and economic benefits of a large-scale buyout while minimizing the potential costs associated with a person's decision to participate in a buyout program.

After Woodbridge identified buyouts as a potential disaster redevelopment strategy through the Blue Acres Program, one resident living in the area affected by Hurricane Sandy spearheaded an education and outreach campaign with the support of the state, the township, and The Land Conservancy of New Jersey. Collectively, the team conducted both door-to-door outreach and held public meetings to educate residents about the New Jersey Blue Acres Program and the

Removing Infrastructure.

This image from June 2019 shows where the city removed part of a road in the Phase One bought-out area after homes were demolished. A city's ability to remove or abandon roads can eliminate the need for continued maintenance and enhance ecosystem restoration as the land naturally regenerates. Note, however, that utility lines are still present.

Credit: Katie Spidalieri, Georgetown Climate Center.



Community Engagement in Woodbridge.

Here, the head of the New Jersey Blue Acres Program and one buyout participant embrace one another. The two worked together throughout this process.

Credit: Courtesy of Woodbridge Township, New Jersey.

community and environmental benefits that could result from a neighborhood-scale buyout. Public officials, like the mayor and the head of the New Jersey Blue Acres Program, were also present at public meetings to answer questions, correct any misinformation, and underscore the voluntary nature of these buyouts. Over time, most of the residents in the projected buyout area — all but 13 out of 200 — chose to participate in the New Jersey Blue Acres Program. New participants even broadcasted their decision by putting signs on their lawns that read, “Blue Acres For Sale: We have submitted our Blue Acres application. Have you?” to encourage others to apply as well.

After residents applied to the New Jersey Blue Acres Program, both state and local staff helped walk them through the complex process and worked to get to know participants on a personal level in an attempt to mitigate the potential economic and social tradeoffs of a buyout. For example, neither the state nor Woodbridge provided financial or other types of relocation assistance for bought-out homeowners.⁷ In an attempt to fill that funding gap, the township aimed to connect people with different

organizations like Catholic charities that could gift small sums of money to offset expenses like moving or closing costs not included in the price of a buyout. In addition, the township worked with local apartment complexes to try to get bought-out residents off of waiting lists for new rental units so they could relocate within Woodbridge.

Funding

After Hurricane Sandy, the state received Hazard Mitigation Assistance grants from FEMA for buyouts throughout the state, including in Woodbridge.⁸ Woodbridge also leveraged other smaller pots of funding for discrete purposes. For example, the township drew on its local appropriations to purchase homes that were foreclosed by banks and to mow or maintain properties post-demolition but prior to restoration. In addition, the township benefited from monetary and in-kind support from partners like The Land Conservancy of New Jersey and Rutgers University to facilitate large-scale community engagement and restoration plans and efforts.

Next Steps

As of 2019, the New Jersey Blue Acres Program has finalized offers on and demolished several properties in Woodbridge, although the buyout process is ongoing. Although the state will own the bought-out land in perpetuity, Woodbridge will continue to work with its partners to restore the area through plantings and monitoring activities, remove unnecessary roads as homes are demolished, and protect the land’s floodplain and conservation benefits through enforcement of the Open Space Conservation/Resiliency Zone.

Considerations and Lessons Learned

Woodbridge, New Jersey's large-scale buyout demonstrates how leveraging partnerships, local political support, and comprehensive approaches to hazard mitigation acquisitions can result in long-term benefits for communities and the environment.

First, a variety of partners aided the township in this process. Most notably, Woodbridge's partnership with the New Jersey Blue Acres Program was integral. When Hurricane Sandy hit, the New Jersey Blue Acres Program was already in place to provide staff support for local buyouts and was eligible to receive FEMA Hazard Mitigation Assistance grants. After Hurricane Sandy, Woodbridge was able to draw on the Blue Acres Program's existing expertise to "hit the ground running," fund buyouts for interested property owners, and build local capacity for potential future buyouts and federal grants. In addition, Woodbridge's partnership with The Land Conservancy of New Jersey and local residents helped spearhead and then grow a community-based effort to maximize the risk reduction and environmental benefits of neighborhood-wide buyouts. Community leaders who experienced property damage after Hurricane Sandy were able to have a dialogue with similarly situated residents, which likely increased buyout participation compared to if the township had conducted outreach on its own. Also, The Land Conservancy of New Jersey and Rutgers University are playing an important role in designing, restoring, and maintaining bought-out properties in ways that are responsive to community concerns and will simultaneously enhance long-term flood retention in Woodbridge. Other coastal states, municipalities, nonprofits, and universities could similarly seek to contribute their respective expertise and resources to local, neighborhood-scale buyouts as a hazard mitigation and retreat strategy.



Second, the buyouts in Woodbridge were successful in part due to support from local elected officials and staff, especially the mayor. Here, the mayor publicly expressed his support for a large-scale buyout in the township, but only if residents themselves chose to participate in the New Jersey Blue Acres Program. The mayor's position that buyouts would be strictly voluntary and that eminent domain would not be used enabled residents to have a more open dialogue with one another and the township without fear that the government would force them to leave their homes. Moreover, the mayor was willing to supplement the state's efforts where local action was needed to fill in gaps, for example, by purchasing foreclosed properties with local funds. Notably, the mayor did not allow a potential loss in Woodbridge's tax base to act as a barrier to the township's participation in the Blue Acres Program; the mayor found that ongoing development in other parts of Woodbridge would likely offset any property tax losses for the township overall. In contrast, other municipalities, particularly those in rural areas, may not similarly have positive future growth projections and might weigh potential property tax losses differently. Regardless, the

Blue Acres For Sale.

Many residents that chose to participate in the Blue Acres program placed this sign on their lawns with the aim of encouraging their neighbors to consider a buyout as well.

Credit: Sandy Urgo, The Land Conservancy of New Jersey.

example set by Woodbridge's mayor demonstrates the important role elected officials can play in setting expectations about retreat strategies for staff and residents and also how those expectations may shape or influence project scale and outcomes.

Third, Woodbridge's comprehensive approach to buyouts will enable the township to achieve more enduring benefits. From robust community engagement to long-term plans for ecosystem restoration and protection through zoning amendments and road removals, Woodbridge viewed the buyout process as beginning with conversations with individual residents and continuing after homes are demolished. Specifically, Woodbridge is using buyouts to realize a more resilient future for part of its community by offering residents the opportunity to relocate and prioritizing flood risk mitigation through environmental restoration and conservation. The township's Open Space Conservation/Resiliency Zone will help to protect the bought-out neighborhood along the Woodbridge River by prohibiting new development and discouraging redevelopment. Even though the state will own the bought-out land, the township is seeking ways to improve its community through continued restoration and protection efforts and simultaneously earning other financial benefits by participating in the Community Rating System. Woodbridge is showing how other municipalities can work across sectors and agencies — like for community development and outreach, floodplain regulation, natural resources and emergency management, and land use and zoning — to utilize buyouts as an opportunity for community redevelopment in response to sea-level rise, flooding, and land loss. Local retreat strategies necessitate coordinated interdisciplinary approaches to maximize long-term benefits and minimize costs for people and the environment.

Endnotes

- 1 WOODBRIDGE LAND USE AND DEVELOPMENT ORDINANCE, OSC/R Open Space Conservation/Resiliency Zone § 150-41.1.A-B. (2019), <https://clerkshq.com/Woodbridge-nj>.
- 2 WOODBRIDGE LAND USE AND DEVELOPMENT ORDINANCE, OSC/R Open Space Conservation/Resiliency Zone § 150-41.1.C. (2019), <https://clerkshq.com/Woodbridge-nj> (“Building design standards are triggered at any proposed demolition, addition, reconstruction, renovation, sale or conveyance of the property, or change in tenancy. Reconstruction and/or renovation work that is limited to ‘ordinary maintenance’ as set forth in Section 150-4 shall not trigger building design standards. Where building design standards are triggered due to a sale or conveyance of the property, or due to a change in tenancy, the buyer or the new tenant of the property will not be permitted to occupy the property until it is brought into compliance with all provisions of this section.”).
- 3 Jen Schwartz, *Surrendering to Rising Seas*, SCIENTIFIC AMERICAN (Aug. 2018), <https://www.scientificamerican.com/article/surrendering-to-rising-seas/?amp>.
- 4 “The Land Conservancy of New Jersey preserves land and water resources, conserves open space, and inspires and empowers individuals and communities to protect our natural land and environment.” *About Us*, THE LAND CONSERVANCY OF N.J., <https://tlc-nj.org/About-Us-3/> (last visited Nov. 18, 2019).
- 5 *Id.*
- 6 *See National Flood Insurance Program Community Rating System*, FED. EMERGENCY MGMT. AGENCY, <https://www.fema.gov/national-flood-insurance-program-community-rating-system> (last updated Nov. 5, 2019).
- 7 Note, the New Jersey Blue Acres Program currently provides relocation assistance for renters but not private homeowners.
- 8 Georgetown Climate Ctr., *FEMA Hazard Mitigation Grant Program*, ADAPTATION CLEARINGHOUSE, <https://www.adaptationclearinghouse.org/resources/fema-hazard-mitigation-grant-program.html> (last visited Nov. 11, 2019).

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