# BUY-IN FOR BUYOUTS

## Three Flood-Prone Communities Opt for Managed Retreat

*By Robert Freudenberg, Ellis Calvin, Laura Tolkoff, and Dare Brawley*

*This article is adapted from* Buy-in for Buyouts: The Case for Managed Retreat from Flood Zones, *a Policy Focus Report to be published in August 2016 by the Lincoln Institute of Land Policy in conjunction with Regional Plan Association.*

**HURRICANE IRENE AND SUPERSTORM SANDY COST THE NEW YORK METROPOLITAN AREA** an unprecedented number of lives and properties. In the span of 14 months, between August 2011 and October 2012, the storms killed 83 residents and caused $80 billion of damage in New York, New Jersey, and Connecticut. More than $60 billion in recovery funding was allocated to local governments, home owners, and facilitators to repair roads and seawalls; elevate, secure, or acquire buildings; restore dunes and wetlands; and reconstruct communities.

The hurricanes generated a regional dialogue about how to prepare for and respond to extreme weather events. These conversations led to state-of-the-art, government-sponsored design competitions such as Rebuild by Design. And at the federal level, the U.S. Army Corps of Engineers (USACE) conducted the two-year, $19.5 million North Atlantic Coast Comprehensive Study, which focused on how to protect Northeast residents from hurricanes.

Yet nearly five years later—after recovery efforts have been completed and appropriate programs implemented—many communities in the region still could not withstand the surge levels of another Sandy or the riverine flooding of another Irene. And by 2050, the number of residents vulnerable to flooding in the region will likely double to 2 million people, due to rising sea levels, the increasing frequency and magnitude of storms, and steady population growth. One third of the victims will be socially vulnerable.

Left: After Hurricane Irene hit New Jersey in September 2011, these residents of Wayne accessed their home via boat in order to begin cleaning up the property. Credit: Tom Pioppo/FEMA (2011).

## The Case for Buyouts

Rebuilding and restoring are the most common and popular adaptation tools for strengthening community resilience in the face of climate change, but the strategy that most effectively eliminates risk is managed retreat through the use of buyout programs. Yet, because of the social and political complexity of managed retreat, governments and communities across the United States have largely dismissed it as an adaptation strategy.

Typically funded by federal or state dollars and managed at the state or county levels, buyout programs are designed to provide a mechanism for residents to sell their homes and move to safer locations if they no longer want to live in high-risk flood zones. New York, New Jersey, and Connecticut all employed buyout programs on a limited scale following Hurricane Irene and Superstorm Sandy, but too often this approach was considered controversial even for the hardest hit areas.

Indeed, managed retreat poses considerable challenges. For home owners, the decision to leave a community can be traumatic, especially if adequate and affordable housing is hard to find nearby. For municipalities, the loss of tax revenue from bought-out properties can have a serious impact on the local budget. On a higher level, urban planning's dubious history of relocating low-income communities, ostensibly for the greater good, stands as a reminder of how well-intentioned, even necessary measures such as managed retreat can have disproportionate negative impacts if they are not carefully considered in close consultation with residents.

But if these problems are carefully considered during the design and implementation process, the benefits of buyouts can outweigh the risks. Unlike other adaptation measures, retreat is a one-time investment that requires no further action beyond providing relocation assistance to participants and protecting the natural landscape left behind. Managed retreat also has the potential to create synergies with other resilience and adaptation strategies.

After suffering severe damage by Hurricane Sandy, nearly 99 percent of the residents of Oakwood Beach, Staten Island, requested a buyout program, which led to the acquisition of 326 properties. Credit: Regional Plan Association (October 2014).

Since development is not permitted on acquired land, buyouts can be used to implement projects such as sea wall construction, wetlands restoration, and many other engineered and nature-based resilience measures. Residents can forge new beginnings on safer ground and help create public amenities by allowing for the acquisition of homes in flood-prone areas and restoration of the land to natural floodplain functions.

While the promise of buyouts is great—yielding 100 percent risk reduction, a greater return on public investment, and other benefits to communities and habitats—they have attracted only $750 million of the billions in federal aid allocated for resilience and recovery in the New York metropolitan region. The vast majority of recovery efforts have focused on more popular adaptation measures.

## Buyouts in the New York Metropolitan Region

This article highlights the experience of three cities in Connecticut, New York, and New Jersey that adopted buyout programs after suffering major property loss from Hurricane Irene or Superstorm Sandy. The case studies demonstrate that buyout programs are a useful tool for moving residents in flood zones out of harm's way, but they also illustrate the limitations of current programs.

### BUYOUT PROGRAMS IN THE NEW YORK REGION

#### NY RISING

New York State established the New York Rising Buyout and Acquisition Programs (NY Rising) in order to address the damage caused by hurricanes Irene and Sandy as well as Tropical Storm Lee between 2011 and 2013. In a handful of designated "enhanced buyout areas," including Oakwood Beach on Staten Island, home owners were offered the pre-storm value of their homes, plus incentives for group participation to prevent the so-called "checkerboarding" of bought-out properties.

#### BLUE ACRES

The Blue Acres program, run by the New Jersey Department of Environmental Protection, predates hurricanes Irene and Sandy, but it has benefited from the funding made available after those storms. In recent years, the program has mainly targeted neighborhoods in Sayreville and Woodbridge, and identified individual properties or clusters of properties that experienced repetitive or severe repetitive losses.

#### OTHER FEDERALLY FUNDED PROGRAMS

In many cases, buyout programs are administered on the local level and funded largely through federal grant programs such as FEMA's Hazard Mitigation Grant Program (HMGP) and the USDA's Emergency Watershed Protection Floodplain Easement Program (EWP-FPE). Typically, federal grants for buyouts require a local funding match of 25 percent.

#### OAKWOOD BEACH, NEW YORK

Oakwood Beach is located on the central part of Staten Island's South Shore. The lowest-lying portion of the neighborhood is situated next to the marshes of Great Kills Park. The most serious flood risks come from storm surge off the Raritan Bay and Lower New York Harbor. Additionally, sections of the neighborhood experience nuisance flooding following even modest rainfall. Along with the neighboring upland community of Oakwood, Oakwood Beach has a population of 22,000, and nearly 3,000 residents live in current FEMA Special Flood Hazard Zones. The number of people within high-risk flood zones is expected to increase nearly 150 percent, to 7,300 by 2050.

Oakwood Beach is a middle-class community with a median annual household income of $89,000. The neighborhood is 31 percent low-to-moderate income, 16 percent nonwhite, and 69 percent owner-occupied. The neighborhood was largely developed in the 1960s and 1970s; nearly half its residents have lived in the community for more than 25 years. In general, the homes built closer to the water are smaller and cheaper than those located farther upland. Single-family homes dominate the neighborhood, but there are a handful of apartment buildings inland.

Hurricane Sandy severely impacted Oakwood Beach. The storm surge overtopped the boulevard that runs along the coast and damaged the berm between the neighborhood and the Atlantic Ocean. The surge inundation was exacerbated by the floodwaters trapped within the "bowl" topography of the South Shore (SIRR 2013). In Oakwood Beach, some homes were swept off their foundations; others were flattened. Staten Island as a whole was among the hardest hit areas, with 23 storm-related deaths in the borough (SIRR 2013; Koslov 2014). Prior to Sandy, Oakwood Beach withstood several other historic floods, including intense inundation from a nor'easter in 1992 and flooding from Hurricane Irene in 2011 (Oakwood Beach Buyout Committee 2015; Koslov 2014). After the 1992 storm, residents organized a Flood Victims' Committee to petition for better flood protection from the state and federal government. Although the USACE somewhat addressed their concerns by constructing a berm, it was not completed until ten years after the nor'easter (Koslov 2014).

Building on their experience organizing for flood protection in the 1990s, Oakwood Beach residents moved quickly to plan their recovery after Hurricane Sandy. At an early community

In Oakwood Beach, a single 100-year flood event could cause $216 million of damage across 1,837 properties, and 830 would have to be demolished. A buyout of only those 830 properties would save community residents $817,000 per year in flood insurance premiums and an annualized average of $5.7 million in damages and dislocation costs. Credit: Regional Plan Association (October 2014).

meeting devoted to immediate disaster response and aid, one organizer asked if residents would support a buyout program. Nearly all community members in attendance said yes. Residents then formed the Oakwood Beach Buyout Committee, which began to draft an application for a state buyout. The committee conducted outreach to gauge interest and provided information to residents about what a buyout program might entail. The committee collected signatures from nearly all the neighborhood's residents to indicate their interest (Lavey 2014). Additionally, committee members surveyed residents about where they felt safe living within the neighborhood, in order to generate maps of priority acquisition areas.

This mapping effort is a powerful tool for communities organizing to receive buyouts. However, some populations that are considering buyouts are settling in marginal flood-prone areas because they have suffered government-imposed relocations and disinvestments in the past. If buyout program plans are not community-driven, they risk continuing this pattern of marginalization. As we observed in post-Katrina New Orleans, residents understandably opposed buyout programs proposed by outside planners who hadn't consulted with the local population. By contrast, Oakwood Beach residents collaboratively created their own "green dot" maps to convey their goals for a buyout program and to confirm that they did not want redevelopment in their flood-prone area.

The NY Rising Program heeded residents' requests and launched a buyout program for Oakwood Beach. As of June 2015, nearly 99 percent of the neighborhood's residents have participated. The state plans to purchase 326 properties, an acquisition process that will be completed in 2016. As of February 2015, the state owned 296 properties and had demolished 60 (Rush 2015; Governor's Office of Storm Recovery 2015).

The relative success of Oakwood Beach's buyout program is not surprising considering the fiscal context. Factoring in the projected sea level rise by 2050, a single 100-year flood event could cause $216 million of damage across 1,837 properties, and 830 would have to be demolished. As summarized in table 1 (p. 32), a buyout of only those 830 properties would save community residents $817,000 per year in flood insurance premiums and an annualized average of $5.7 million in damages and dislocation costs. In terms of the potential costs to communities, Oakwood Beach benefits from being only one neighborhood in a very large city. The loss in tax revenue is quite negligible in the context of New York City's $75 billion budget.

### WAYNE, NEW JERSEY

Wayne is a township of 55,000 people in the outer ring of northern New Jersey suburbs. Twenty percent of households are low-to-moderate income, 20 percent of residents are nonwhite, and 80 percent are home owners. The town is landlocked but lies within the Passaic River Basin. Approximately 12 miles of Wayne's western border is formed by the Pompton River, which has a history of flooding. Additionally, the township has several lakes and streams with development encroaching on flood zones. Approximately 5,400 people (nearly 10 percent of the total population) currently live in Special Flood Hazard Areas. Wayne is the wealthiest of the case studies, but the town has experienced the slowest property value growth since 2000. FEMA has provided $6.9 million in individual assistance to Wayne home owners since 2007, and 15 percent of registrants occupy repetitive-loss properties.

Wayne has experienced severe flooding since colonial times. The most severe flood to impact the entire Passaic River Basin occurred in 1903. Since then, several major floods have occurred each decade. Although the USACE began plans to reduce flooding in the Passaic River Basin in 1936, a comprehensive plan for the area has yet to be implemented.

The first buyouts in the Passaic River Basin began in 1995, after the New Jersey Department of Environmental Protection (NJDEP) formed its Blue Acres Program. They have continued through various funding sources, including NJDEP, FEMA, and open space taxes, in the case of municipalities in Morris County. However, Wayne was not included in the first round of buyouts through the Blue Acres Program in the late 1990s. As a result, municipal officials approached the state about funding the town, which led to several other programs. In 2005, the NJDEP and USACE identified the Hoffman Grove neighborhood in Wayne as a priority area for buyout funding (USACE 2005). A series of allocations since 2005, including additional funding after hurricanes Irene and Sandy, allowed for the purchase and removal of 96 homes in the Hoffman Grove neighborhood. FEMA was the primary source of funding for these purchases; the Blue Acres Program provided the nonfederal match. Despite these significant subsidies, news sources reported that "there is no immediate funding to buy and raze the houses that are left standing" (McGrath 2011). Nevertheless, all but 29 homes in this neighborhood have now been purchased and removed.

A buyout program in the Hoffman Grove neighborhood of Wayne, New Jersey, which has experienced severe riverine flooding since colonial times, will restore the area to a floodplain. Credit: Tim Pioppo/FEMA.

In May 2015, the USACE, together with NJDEP, released a follow-up to that 2005 study and identified 27 additional properties within Hoffman Grove as priorities for acquisition. Municipal officials in Wayne are now working to identify willing residents in order to move the program forward. Once these buyouts are complete, the entirety of the Hoffman Grove neighborhood will return to a floodplain.

The buyout programs in Wayne more closely resemble the FEMA buyout programs that began in the 1990s in response to the Great Flood of 1993, given Wayne's vulnerability to seasonal and storm-related riverine flooding. Buyouts have undergone greater testing in riverine settings, leading to simpler program designs. Additionally, lower property values in inland riverine areas make it possible for buyout programs to purchase a greater number of homes. (Following disasters, property values of riverine flood properties are less resilient than coastal property values.)

The fiscal impact analysis for Wayne reveals that, after the acquisition of 96 Hoffman Grove properties, the township has a relatively small number of properties vulnerable to severe flooding compared to the other case studies. Even so, a 100-year flood event could still severely damage 127 homes, costing $25 million, as shown in table 1 (p. 32). It is worth noting that applying Wayne's buyout program to the remaining most vulnerable properties may lead to an average of $840,000 in lost tax revenues per year.

**Table 1** Fiscal Impact Analysis of Buyouts in the New York Metropolitan Area

| CITY/STATE | OAKWOOD BEACH, NY | WAYNE, NJ | MILFORD, CT |
|---|---|---|---|
| PROPERTIES AT RISK | 830 | 127 | 428 |
| MOST RECENT APPROPRIATIONS* | $75,027B | $78.1M | $202.2M |
| **Avoided Damages and Dislocation Costs** | | | |
| **100-Year Flood Event**<br>*per property:* | $139,535,223<br>$168,115 | $25,158,629<br>$198,099 | $192,118,514<br>$450,982 |
| **Annual**<br>*per property:* | $5,683,325<br>$6,847 | $1,972,474<br>$15,531 | $14,358,247<br>$33,700 |
| **Net Present Value**<br>*per property:* | $81,096,791<br>$97,707 | $28,145,719<br>$221,620 | $204,852,881<br>$480,875 |
| **Avoided Flood Insurance Premiums** | | | |
| **Annual**<br>*per property:* | $816,699**<br>$984 | $242,611<br>$1,910 | $435,582<br>$1,022 |
| **Net Present Value** | $11,653,681 | $3,461,884 | $6,215,424 |
| **Cost of Removing Properties** | | | |
| **Cost of Removing Properties**<br>**Total Property Values at Risk** | $154,288,240<br>$185,889 | $31,209,638<br>$245,745 | $136,811,570<br>$321,154 |
| **Losses in Property Taxes** | | | |
| **Annual**<br>*per property:* | $2,960,947<br>$3,567 | $840,485<br>$6,618 | $2,756,857<br>$6,471 |
| **Net Present Value**<br>*per property:* | $42,250,495<br>$50,904 | $11,993,089<br>$94,434 | $39,338,287<br>$92,343 |
| **Lost Taxes as Percent of Most Recent Budget** | 0.00% | 1.08% | 1.36% |

* *Appropriations for Oakwood Beach and Milford are based on 2015 figures; appropriations for Wayne are based on 2014 figures. The Oakwood Beach number includes all appropriations for New York City.*

** *Flood insurance premium figures based on aggregate figure for New York City.*

*Source: Regional Plan Association.*

## MILFORD, CONNECTICUT

Milford is a coastal city of 52,000 people, midway between Bridgeport and New Haven on Long Island Sound. Milford has the longest coastline of any town in Connecticut (14 miles) plus two significant rivers, the Wepawaug and Housatonic, leaving residents vulnerable to both coastal and riparian flooding. Oceanfront property is one of Milford's most prized amenities, and the town has more waterfront homes than any other case study in this article. Currently, there are 8,100 Milford residents in the 100-year flood zone, with a 26 percent increase projected by 2050. Milford also has the most repetitive-loss properties of any municipality in Connecticut. Since 2007, Milford residents have made up 20 percent of registrants in FEMA's individual assistance program; FEMA awarded them $3.5 million. The town is 25 percent low-to-moderate income, 15 percent nonwhite, and overwhelmingly owner-occupied.

Milford's own analysis confirmed the city's extreme vulnerability. A Category 2 hurricane has the potential to inundate more than 2,000 properties, including 35 city facilities. More than 1,500 homes were damaged by Irene and Sandy, over 200 severely (Daley 2014). An excess of $60 million in flood insurance claims were paid to Milford residents in 2011 and 2012 (City of Milford 2015). A year after Sandy, entire streets and dozens of homes remained empty, while many others were elevated on piles and rebuilt. As in many areas damaged by Sandy, government funding came slowly, which retarded recovery (Zaretsky 2013). An estimated 4,000 to 5,000 homes in the city may still need to be elevated to satisfy building code requirements (Buffa 2013).

The primary strategies for combating flood risk in Milford have included beach nourishment projects, building retrofits and elevations, revetments, jetties, and groins. The city's 2013 Hazard Mitigation Plan outlined over $14.4 million in flood mitigation projects, including elevating structures, protecting or upgrading critical infrastructure such as the wastewater treatment plant, and replenishing dunes (City of Milford 2013). The highest-priority projects were neighborhood drainage systems and catch basins. Due to lack of funding, however, many proposed projects either stalled or have not begun.

Hurricane Sandy damaged 1,500 properties in Mllford—which has the longest coastline in Connecticut, two rivers, and the state's highest number of repetitive loss properties—but the city and most home owners have resisted buyout programs. Credit: Denis Tangney, Jr.

The USACE evaluated the coastline of Milford for the North Atlantic Coast Comprehensive Study and found that the implementation of structural measures, like beach fill or dune projects, may be limited due to space constraints even in areas where these approaches might normally be most cost effective. If these measures are not applicable, flood proofing, and even acquisition and relocation, might be the most economical long-term strategies (USACE 2015). These challenges are shared by many highly developed areas along the eastern Atlantic coast. Buyouts can be difficult to secure in the short term, and structural solutions do not effectively reduce risk.

Yet buyouts have received some attention from the city's residents. FEMA Hazard Mitigation Grant funds were used to buy several properties. Additionally, Milford has received $1.4 million from the USDA Floodplain Easement Program to buy at-risk properties (USDA n.d.). Despite available funding, however, the programs received only seven applicants in 2013. Furthermore, the city's official position was "unenthusiastic" (Spiegel 2013). Milford stakeholders interviewed for this report cited concerns over the loss of the municipal tax base as the primary cause of resistance to buyouts, as coastal property owners pay the highest property taxes.

From the state's perspective, Milford presented a promising case for a buyout program since many of the repetitive-loss properties were adjacent to the Silver Sands State Park, and acquired parcels could be incorporated into the park. Stakeholders indicated that positive alternative models for development are needed to encourage participation in buyout programs. The fiscal analysis performed for this study reveals that, while buyouts would impact property taxes, the effects would not be as severe as perceived by municipal officials. As a percentage of the most recent budget, buyouts of the most vulnerable properties would result in only a 1.36 percent loss in revenue, as indicated in table 1 (p. 32).

Milford's vulnerable properties have the highest average value among the case studies. Factoring in 2050 sea level rise projections, Milford's most vulnerable homes—those that could suffer over 50 percent damage—could face $204 million in damage and dislocation costs over the next 100 years. Relocating home owners from just these properties that are most at risk could save $435,000 in annual flood insurance premiums.

## Conclusion

Buyout programs have long been avoided in public dialogue. Yet when weighed against the magnitude of risk faced by some U.S. coastal and riverine communities, they can be a viable and effective way to enable retreat from flood zones. As tools to preserve communities and strengthen resilience, they deserve serious consideration.

The three case studies highlight both the potential value of buyout programs and the political, social, and economic challenges of implementing them. Many factors contributed to the relative success of buyout participation in Oakwood Beach and Wayne and to the failure in Milford. The timing of the program, the level of program engagement with residents, the attachment to place, and the availability or lack of alternatives all played a role. In order to meet the needs of residents and municipalities, we must rethink the goals, strategies, and time frame of buyout programs, improve the administration of funding, reform the planning process, and design minimally disruptive programs.

For an in-depth exploration of managed retreat in the New York metropolitan region, see the forthcoming Policy Focus Report, *Buy-in for Buyouts: The Case for Managed Retreat from Flood Zones*, to be published in August 2016 by the Lincoln Institute of Land Policy in conjunction with Regional Plan Association.

**Robert Freudenberg** is director of Energy and Environment at Regional Plan Association (RPA), where **Ellis Calvin** is an associate planner in the same department. **Laura Tolkoff** is a former senior planner for Energy and Environment, and **Dare Brawley** is a former research analyst at RPA.


New York City residents posted a warning to Hurricane Sandy. Credit: jaydensonbx/ Flickr/CC (2012).

## REFERENCES

Buffa, Denise. 2013. "Storm-Battered Shoreline Gets a Lift, One House at a Time." *Hartford Courant*. August 3. *http://articles.courant.com/2013-08-03/news/hc-houselifter-20130803_1_houses-milford-contractor-coastline.*

City of Milford. 2015. "Flood Insurance Claims Paid to Milford Residents by Year."

Daley, Beth. 2014. "Milford, East Haven Top Connecticut in Costly Flood-Prone Homes." *New Haven Register.* March 21. *http://www.nhregister.com/general-news /20140321/milfordeast-haven-top-connecticut-in-costly-flood-prone-homes.*

Governor's Office of Storm Recovery. 2015. "Notice of Change of Use of Acquisition Properties by NY Rising." New York.

Koslov, Liz. 2014. "Fighting for Retreat after Sandy: The Ocean Breeze Buyout Tent on Staten Island." *Metropolitics.* April 23. *http://www.metropolitiques.eu/Fighting-for-Retreat-afterSandy.html.*

Lavey, Nate. 2014. "Retreat from the Water's Edge." *The New Yorker. http://www.newyorker.com/news/news-desk/hurricane-sandy-retreat-waters-edge.*

McGrath, Matthew. 2011. "Hoffman Grove is More Wilderness than Neighborhood." *NorthJersey.com.* December 30. *http://www.northjersey.com/news/wayne-neighborhood-surrendering-to-the-river-1.276454.*

Oakwood Beach Buyout Committee. 2015. "About Us." *http://foxbeach165.com/about-us/.*

Rush, Elizabeth. 2015. "Leaving the Sea: Staten Islanders Experiment with Managed Retreat." Urban Omnibus. *http://urbanomnibus.net/2015/02/leaving-the-sea-staten-islanders-experiment-with-managed-retreat/.*

Special Initiative for Rebuilding and Resiliency (SIRR). 2013. "A Stronger, More Resilient New York." City of New York. http://*www.nyc.gov/html/sirr/html/report/report.shtml.*

Spiegel, Jan Ellen. 2013. "Despite Storms, Few Coastal Homeowners are Open to Buyouts." *Connecticut Mirror.* September 16. *http://ctmirror.org/2013/09/16/despite-storms-few-coastalhomeowners-are-open-buyouts/.*

U.S. Army Corps of Engineers (USACE). 2005. "Passaic River Floodway Buyout Study Limited Update: Final Report and Environmental Assessment."

U.S. Army Corps of Engineers. 2015b. "North Atlantic Coast Comprehensive Study: Main Report."

U.S. Department of Agriculture (USDA).N.d. "Emergency Watershed Protection Program - Floodplain Easement Option." *http://www.nrcs.usda.gov/wps/portal/nrcs/detail//?cid=nrcs143_008225.*

Zaretsky, Mark. 2013. "1 Year After Superstorm Sandy, Recovery Moves Slowly on Connecticut Shore" *New Haven Register.* October 26. *http://www.nhregister.com/generalnews/20131026/1-year-after-super-storm-sandy-recovery-moves-slowly-on-connecticut-shore.*