

Summary of Interview Results

The Cadmus team conducted a series of interviews with several DC stakeholders and similar programs around the country to identify best practices for flood retrofit programs. As part of this task, Cadmus conducted interviews with agencies to identify common impacts from flooding and water damage within the housing stock, current flood retrofit projects being pursued, and existing challenges in moving homeowners from audits to retrofits. The CRDC agencies that were reviewed are outlined below:

- **Vermechia Alsop**, HSEMA
- **Casey Studhalter**, DOEE Urban Sustainability Administration
- **Marco Ciarla and Stacey Underwood**, U.S. Army Corps of Engineers (USACE)

During the desk research phase, Cadmus identified numerous key case study programs with existing flood retrofit programs including: the NYC Home Resiliency Audit Program, South Carolina Safe Home Mitigation Grant Program, Mecklenburg County RetroFIT Program, and the Cook County Flood Damage Assistance Program. Despite multiple outreach attempts to Cook County, Cadmus was only able to interview program managers from Mecklenburg County and New York City:

- **Tim Trautman, RetroFIT Program, Mecklenburg County:** The RetroFIT program is one of several projects supported by Mecklenburg County's stormwater fee and has been operational for five years. The program provides cost-free audits by County staff for homeowners and with grants for retrofits. Homeowners are expected to provide some cost share. RetroFIT was designed as a pre-disaster mitigation program, though the County indicated it would be part of response efforts, were any future disaster to occur. The program staff indicated that they can provide immediate support more quickly than FEMA post-disaster assistance. Their funds tend to be distributed with an average turnaround time of 40-120 days for projects. Since its inception, the program has had over 100 applicants with 20 completed projects, largely driven by flood vents and elevation projects.
- **Caroline Nagy, Aaron Sterm, and Sara Melomedov, FloodHelp NY and NYC Home Resiliency Audit Program:** FloodHelp NY is an education portal targeted for New York City homeowners. It consolidates information for homeowners in the floodplain on lending and incentive programs available to them. FloodHelp NY staff indicated that the program is funded through CDBG-DR funding.¹ FloodHelp NY's Home Resiliency Audit program offers cost-free audits and elevation certificates to homeowners in the floodplain. The program was designed to be education-oriented and has recently switched to providing support for low-income homeowners (80% AMI) for backwater valves. The program has supported over 600 homeowners since 2016, and 50% of program participants successfully reduced flood insurance rates through the elevation certificates and support provided.

¹ \$8 million dollar resilience program in seven Sandy-impacted communities announced: <https://cnycn.org/center-nyc-neighborhoods-governors-office-storm-recovery-announce-launch-8-million-resiliency-program-seven-sandy-affected-new-york-city-communities/>

Cadmus will also interview relevant personnel to discuss prioritization and pricing of common retrofit measures to support the cost analysis. These interviews include:

- **Lea Adams:** Chief, Water Resources Division, U.S. Army Corps of Engineers
 - Interview scheduled for November 11
- **Tom Little,** Smart Vents
 - Interview scheduled for November 14

The Cadmus team prioritized agencies for interviews based on desk research, which included a review of documents and policy proposals related to the Watt's Branch study as well as a review of existing retrofit programs and resilience guidance for residential buildings. The Cadmus team conducted one-hour phone interviews with contacts internal and external to the District, with a member of the Cadmus team recording detailed notes from each session.

Summary of Interviews

Many stakeholders indicated that in many parts of the District, residents' have limited recent experience with flooding. Mrs. Alsop, Mitigation Planner at HSEMA, noted that from community meetings and personal experience, the **most common flood issue District residents are facing is interior flooding, particularly in basements**. Marco Ciarla and Stacey Underwood of the USACE noted that in one of the most flood-vulnerable sections of the District, near the Watts Branch, residents haven't experienced more than nuisance flooding in recent memory. Hydrologic models and floodplain analysis, however, indicate significant potential riverine flood risk. In their experience with outreach to Advisory Neighborhood Commissions (ANCs), a concern more commonly expressed in the community is flooding that has occurred due to aging infrastructure. Notable exceptions to this experience are flooding in Federal Triangle; and flooding in the Bloomindale neighborhood, where flooding issues are currently being addressed by DC Water programs.

In general, most DC stakeholders have not observed much current uptake of residential flooding retrofits. None of the agencies interviewed were able to confidently speak to the current landscape of retrofit projects in DC, as little data is available at the residential-level. Mr. Studhalter, Program Analyst at DOEE, revealed that of the few retrofit strategies taken, the **installation of backflow preventers is one of the most frequent** ones, as a treatment for nuisance water intrusion. Backflow preventers avert sewage from backing up into drains and plumbing fixtures.

Due to a recent program expansion, FloodHelp NY similarly is providing financial support for backflow valves as part of their audit program. The RetroFIT Program in Mecklenburg County saw flood vents as the most common retrofit, as flood insurance rates can drop by hundreds of dollars per year. Mr. Trautman, RetroFIT program manager, additionally described numerous instances where tear-down and rebuild scenarios were more cost-effective than retrofitting the property into compliance, especially given RetroFIT funds some of the cost of demolition.

Many stakeholders interviewed, including New York City and Mecklenburg County, identified similar **key challenges** preventing greater uptake of retrofits including:

- (1) Many homeowners are hesitant to act due to the **prohibitory costs** associated with elaborate retrofit strategies. Avoided losses rather than guaranteed savings often turn homeowners away from large retrofit projects. As such, many residents typically strive for less expensive and

temporary fixes. In the case of New York City and Mecklenburg County, they viewed the education provided by the audits as the most valuable part of the program offering, so that homeowners were more aware of their risk and able to act when they can. Both programs also helped homeowners understand opportunities to lower their flood insurance.

- (2) **Permitting** for home improvement projects can be costly and time consuming for homeowners. The process can be confusing and a barrier to entry if the homeowner or their contractor is unsure of what might be required. Much like with distributed energy generation projects (e.g. solar), there may be pathways to increase transparency and streamline processes for common retrofit measures.
- (3) **Low-to-medium income households** have less disposable income to spend on costly retrofit measures. In some cases, these homes are also some of the most vulnerable. District agencies indicated that outreach should be tailored differently based on income-level. In practice, both New York City and Mecklenburg County have income-qualified pathways in their program where a higher-level of grant support is available to income-qualified homes. For example, FloodHelp NY offers grants for flood vents for income-qualified individuals. The program normally provides cost-free audits and elevation certificates to reduce flood insurance premiums for program participants. Mecklenburg County also has cost share percentages ranging from 10-25% with the possibility of cost share reductions of 5% for elderly residents on fixed incomes or disabled veterans.²
- (4) **Split incentives between renters and landlords** may make property owners less incentivized to retrofit. Since retrofits can be costly, stakeholders suggested that landlords might be more incentivized to sell the property rather than retrofit, particularly in cases when the building is not owner-occupied. If a landlord does choose to pursue a retrofit, it may cause disruptions to the building and occupant space. These tradeoffs will need to be considered.
- (5) Some retrofit strategies require major construction and can have **large impacts** on the home, such as eliminating an entire floor, and as a result are seen as worst-case scenarios by homeowners. FloodHelp NY and RetroFIT have chosen to focus on measures, which can reduce flood insurance premiums as a method of appealing to homeowners.
- (6) In addition, many of the District stakeholders expressed that they have **limited knowledge of the other ongoing retrofit programs in the District outside of their agencies**. They emphasized that FloodSmart Homes should not duplicate existing efforts.

Furthermore, given that the District is seeking to operate FloodSmart Homes as an audit program, interviewees were asked to speak to their experience with **moving homeowners from audits to retrofits**. One potential method suggested was to **refund the cost of audits** to homeowners who have implemented the strategies resulting from an audit. Though this may reduce the total number of audits, the rate of implementation may increase. Additionally, District stakeholders recommended that cost expectations be set in the early stages of the auditing process. In example, in order to help homeowners prioritize retrofit suggestions, cost estimates should be presented alongside the resilience strategies outlined (e.g. list retrofit strategies in the \$200-500 range, in the \$500-\$1000 range, etc.).

Both New York City and Mecklenburg County offered cost-free audits with varying levels of grant support for specific measures for qualifying properties. Homeowners were presented with potential measures and their cost and potential insurance benefits after the completion of assessments. They both emphasized that the education through the audits was the most valuable part of their programs. As flood retrofits are

² RetroFIT Program Policy Document:

https://charlottenc.gov/StormWater/Flooding/Documents/RetroFITProgramPolicyDocument_2015.pdf

expensive, even if homeowners are interested, the cost means that conversion rates from audits to project might be lower than in other retrofit programs.

There were also mixed experiences with using third-party to perform audits and the resulting work. Both Mecklenburg and FloodHelp NY did home audits themselves (North Carolina) or selected qualified third-parties to complete the work (New York), but neither had qualified contractors for consumers to choose from for retrofits. Based on experience from other incentive programs, Casey Studhalter commented on the pros and cons of a preferred provider method. Saving homeowners the uncertainty around finding providers can ease implementation. However, the preferred provider method could potentially create bottlenecks due to preferred providers' limited capacity or result in poor performance if providers become less incentivized to compete for business. A flexible preferred provider system could be most effective where, for example, if demand is high residents would be permitted to employ other contractors that meet specified requirements. The other external program managers also expressed similar sentiments about the tradeoffs. Mecklenburg County acknowledged that less sophisticated homeowner may not know how to identify an appropriate contractor.

Key Takeaways

- The internal stakeholders had little tangible data on the current state of flood retrofits within the District. Numerous stakeholders directed Cadmus to the Office of Risk Management and DCRA for data availability. Another possible data source is the through the Great Streets Program: though targeting commercial businesses, we can perhaps assume surroundings residences are facing similar issues as well.
- Despite the low availability of data, Cadmus learned from anecdotal evidence that few residents are conducting retrofits. Some elevations and dry floodproofing were noted, but the most common flood prevention strategy were covering of window wells and sand bagging (not favorable given that must know of flooding in advance) in existing homes; and cognizance of the BFE when constructing new homes.
- Generally, the conditions of the DC housing stock for LMI households are generally quite poor. Many buildings built within the floodplain are backed into streams, numerous buildings are experiencing seepage, and the infrastructure is poor and aging.
- Based on experience with other incentive programs and community outreach, stakeholders recommended reaching out to Area Neighborhood Commissions (ANCs) and neighborhood civic associations, which are present in the majority of sub-neighborhoods in the District for program outreach. Different in-person and outreach media were also discussed; for examples, ANC meetings offer opportunities for in-person outreach; many neighborhood civic associations have social media networks to leverage; while for older populations, door-to-door communication is most effective. FloodHelp NY and Mecklenburg County also did targeted outreach in the form of attending community meetings and bill inserts, respectively, to reach impacted communities.

Suggested Next Steps

The Project Team is conducting a review of costs of retrofit measures. This final piece of research will be included in a summary presentation for DOEE, which will describe the final results of the quantitative analysis, cost estimates, and key takeaways from the other existing flood retrofit programs. This is anticipated to be delivered by November 22nd.

Based on the feedback from the interviews on commonly occurring measures, the project team has refined the list of proposed measures and will work to prepare cost estimates for the following ten measures.

- Wet floodproofing
- Deployable flood barriers
- Elevation of the structure above the DFE/BFE
- Elevation of electrical equipment
- Fill basement/cellar
- Demolition: This item was added based on DOEE's interest in exploring demolition as a strategy and the practical experience of Mecklenburg County in supporting demolition for tear-down and rebuilds. This is a new addition to the original list.
- Sump pumps
- Backwater valves
- Elevation certificates: This is a new item from the original list based on New York's experience with successfully lowering flood insurance premiums. It also adds an additional lower-cost measure to the suite of potential program offerings.
- Water alarms

Based on these interviews, the Project Team was also able to obtain insight on ways to categorize building construction and age to inform the GIS analysis. This will be applied in the final mapping, depicting the number of vulnerable residences based on their location in a flood risk area or their building characteristics.