Enterprise Resilience Academies Interim Report

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Executive Summary

The ability of vulnerable communities to adapt to climate change depends largely on informed strategies that enable them to effectively prepare for and respond to climate-related disasters. Concurrently, and just as critical, is the current and future need for affordable and sustainable housing.

Many affordable housing organizations are acutely aware of the environmental threats to their properties – and how those threats could adversely affect the safety and security of residents – but often lack the capacity and resources to address them head on. As a national leader in affordable housing, resilience and green building, Enterprise is supporting affordable housing owners, operators and developers by hosting seven regional Climate **Resilience Academies** (the Academies) that provide geographically focused solutions to address critical vulnerabilities, along with individualized technical assistance for integrating community engagement and resilience strategies.

Launched in 2021, the Academies leverage Enterprise's expertise, relationships with regional experts, and vast experience to equip affordable housing owners and operators with practical information and tools to become more resilient to the effects of climate change. Over the course of eight weeks, a regional cohort of affordable housing practitioners is guided through a robust curriculum addressing a range of topics including risk assessment, resilience strategies, funding and financing, business continuity planning, decarbonization, insurance, and local laws and policy. The Academies also provide practical examples of how peer organizations have navigated common challenges, equipping participants with the strategies and connections to help steer their own climate resilience efforts.

Enterprise is committed to ongoing learning and field building, using evaluation to inform and assess program design, implementation and impact. The evaluation of the Resilience Academies aims to inform continuous improvement of the program as it is implemented, and to measure program outcomes. The purpose of this report is to document the needs of participating organizations as they entered the Academies and identify early successes and learnings after the completion of the first three cohorts.

A series of surveys were administered to Academy participants to assess and track knowledge and the application of resilience strategies over time, and interviews were conducted with a subset of organizations, as well as with Enterprise staff. Analysis of survey and interview data shows that the Academies are providing a unique resource not otherwise available to affordable housing developers. Regardless of their varied starting points, there was an overall increase in participants' ability to conduct resilience activities following the Academy, and they provided overwhelmingly positive feedback regarding the content and impact of the Academy sessions.

Key findings explored in this report include:

- Affordable housing owners and operators seek to manage the impact of both ongoing and acute weather challenges.
- While climate disaster is an ever-present concern for organizations coming into the Academies, most lacked the dedicated staff time and resources necessary to formulate a path to resilience.
- The Academies were effective in identifying the climate resilience priorities of participant organizations and providing content and tools that align with those needs.
- The Academies had a positive impact on participants' ability to undertake climate resilience activities and promoted action: Six months after the Academy, nearly 80% of organizations were working on or planning to work on climate adaptation or disaster preparedness for specific properties within their portfolios.
- The Academies' peer cohort created an opportunity to learn from and share with other affordable housing organizations, and was seen by participants as a key benefit of participation.
- Identifying and accessing appropriate funding sources to plan for and mitigate climate threats is an ongoing priority for organizations after their participation in the Academies.

This report provides an overview of the Academies, a description of the evaluation goals and methods, and a discussion of interim findings and lessons learned. It also highlights the experiences of six participating organizations, and considers next steps as the remainder of the program is implemented and evaluated. A final report will be developed after the completion of the seventh Academy in late 2024.

Program Overview

Background

Storms, heat waves and wildfires have become more frequent and intense, and most of the country's stock of affordable housing wasn't built to withstand these threats. Damages from extreme climate events cost the U.S. billions of dollars each year. People of color and low-income families are disproportionately affected and are more likely to become homeless after disaster strikes.

As climate-related disasters threaten the already-limited existing affordable housing stock, owners, operators and developers of affordable housing want to make their properties more resilient in order to ensure residents' safety and protect their investments. Yet there is an uncertainty among many affordable housing owners as to which strategies will most effectively and affordably minimize the risk of loss and displacement and increase safety and well-being for households.

Enterprise has a long history of working alongside communities to protect, preserve and produce affordable housing. The Enterprise Climate Resilience Academies (the Academies) stepped into this gap, offering much-needed support and guidance to affordable housing owners, operators and developers.

In 2021, Enterprise's Building Resilient Futures team launched the Academies to help participants identify critical vulnerabilities, improve portfolio resilience to future threats, and pursue community resilience strategies.

Over the course of the Academy, participants gain the knowledge and develop the ability to perform activities that bolster the resilience of their portfolio, including:

- Conducting risk assessments and developing climate adaptation and disaster preparedness strategies aligned with the identified local risks.
- Integrating best practices for sustainability and climate resilience in new construction and retrofits within their existing portfolio.
- Engaging residents in community activities to foster social resilience.
- Undertaking business continuity planning for extreme weather events.
- Accessing funding sources for these efforts.

The goal is to establish seven geographically focused learning cohorts. Each cohort attends a series of sessions spanning eight weeks and includes 10 to 20 affordable housing developers, owners or operators within a particular region.

This report focuses on the first three cohorts, which were comprised of organizations located in the Southeast, Gulf Coast and New York/New Jersey regions. The remaining four cohorts will be held over the next three years.

Enterprise's Resilience Academies are one component of a multipronged initiative to build and refurbish affordable homes to be sustainable, climate-resilient and affordable, and to equip communities with the resources to help them withstand and recover from natural disasters.

Resilience Academy Participants

A total of 50 organizations participated in the initial three Academies, including 18 in the Southeast, 22 in the Gulf Coast, and 10 in the New York/New Jersey area. All organizations identified as developers, owners or operators of affordable housing, and some reported additional functions, e.g., capital or service provider.

The size of participating organizations varied greatly: 40% of organizations had fewer than 100 units in their portfolios, and 33% had more than 1,000 units. This diversity in organizational size underscores the prevalence of climate resilience needs across the affordable housing industry. The types of disasters most commonly reported as a concern across the three listed regions are flooding, high winds and extreme temperatures, though there are nuances even within those categories, such as the difference between coastal and inland flooding.

Academy participants are identified through outreach via Enterprise's newsletters and social media platforms as well as through Enterprise staff who are already working closely with a host of affordable housing organizations in each region. Interested organizations complete a brief application that asks them to describe their organization and its resilience goals. Participants then complete a baseline survey to identify their climate resilience challenges and goals coming into the Academies, enabling the Enterprise team to tailor Academy content accordingly.

Resilience Academy Components

Each Academy consists of a series of five or six 2.5-hour live virtual sessions, spaced two weeks apart (participants also receive access to session recordings). While each Academy followed roughly the same curriculum, they are tailored to the specific climate hazards and concerns of the region, and are responsive to the needs indicated by each cohort on the baseline survey.

Session content is delivered by national and regional experts, and participants also have access to technical assistance (TA) provided by the Institute for Building Technology and Safety (IBTS).

The curriculum includes the following topics:

- Assessing Portfolio Risk
- Continuity of Operations
- Building New and Resilient Home Construction
- Retrofitting Existing Housing
- Understanding Local Laws & Regulations
- Community Engagement
- Funding and Financing Resilience Efforts

During training sessions and TA, participants are introduced to and provided guidance on the use of a suite of Enterprise's tools and resources designed to facilitate climate resilience work. **Brief descriptions of these tools and resources are provided below.**

- **Portfolio Protect:** This tool offers users the ability to identify the highest risk properties by address and offers recommendations and resources to help minimize any potential harm to a property or properties to help keep residents' homes safe.
- **Business Continuity Toolkit:** This toolkit equips multifamily affordable building owners and managers with a plan to address crisis.
- **Building Protect:** This guide assists users in evaluating the specific needs of properties and identifying resilience strategies at the building level through site assessments.
- **Enterprise Green Communities Criteria:** The nation's only national green building program designed explicitly for affordable housing construction, this resource guides the implementation of sustainable, green building practices.

Interim Evaluation Overview

Evaluation is an integral component of much of Enterprise's work. Results are used to inform improvements to ongoing programs, measure the impact of our capital and programmatic initiatives and direct efforts to scale successful initiatives.

Enterprise is undertaking a multipronged evaluation effort to assess the efficacy of the Academy's program design and implementation. **The evaluation intends to:**

1. **Inform continuous improvement:** The evaluation closely monitors the experience of cohort participants, gathers feedback and identifies opportunities and challenges that arise in implementation. These insights allow the Enterprise team to adapt the cohort design and content accordingly, maximizing the impact of the Academies over time.
2. **Measure program outcomes:** In addition to gaining an understanding of the cohort members' experience, the evaluation also examines the impact of the Academies on participating organizations. In particular, the evaluation captures each cohort's learnings, as well as the capacity building and resilience efforts initiated or expanded as a result of participation.

The evaluation of the Resilience Academies aims to answer the following questions:

1. What are the primary needs of participants prior to participation in the Academies?
2. What is the perceived impact of the Academies on participants' capacities to improve the resilience of their portfolios to future threats?
3. What are the continuing needs of participants six months after completing the Academies?
4. What can we learn from the first three Academies about implementing this cohort-based program, and what are the successes and challenges associated with its delivery?

Data Collection and Analysis Methods

In partnership with a consultant that specializes in survey development and administration, three surveys are conducted for each cohort to measure participating organizations' needs and capabilities regarding climate resilience over time. A baseline survey is administered just prior to the first session for each cohort, a follow-up survey is administered immediately following the last session, and an impact survey is administered approximately six months after the conclusion of the Academy.[1]

The consultant performs an analysis after each survey is administered to inform continuous improvement during implementation of the Academies. Once all three surveys are completed for a given cohort, a change-over-time analysis is conducted to reveal areas where participants have grown in capacity, and where they may still need support.

Further, survey data are aggregated and compared across cohorts to unearth common trends and regional differences in regard to needs and perceived impact of the Academies on organizations' resilience efforts. Enterprise uses the results of both the consultant's and internal evaluators' analyses of the raw survey data to develop cross-cohort findings.

Across the three cohorts, respondents from 47 organizations completed the baseline survey, 39 completed the follow-up survey at the end of the Academy, and 30 completed the impact survey six months after Academy completion. Organizations for which follow-up and/or impact survey data were not available were excluded from the analyses presented in this report, which specifically focuses on an analysis of change over time.

To contextualize the survey findings and gain a nuanced understanding of the Academies, Enterprise's Impact & Evaluation team conducted interviews with Academy attendees (two per cohort) and Enterprise staff who participated in recruitment, program development and implementation. Participant interviews were conducted in June and July of 2023, approximately 18 months after the Southeast Academy, one year after the Gulf Coast Academy, and six months after the New York Academy. The evaluation team was able to interview the primary Academy participant at each of the selected organizations.

[1] The baseline survey for the inaugural Academy, Southeast, was administered between the first and second session.

Interim Evaluation Findings

The results of the evaluation provide valuable insights into understanding the needs of participating organizations upon entering the Academies, the impact of the Academies on their ability to address climate- and disaster-related risks, and the ongoing needs they face in the months following completion of the Academies. This section discusses key findings that have emerged in the evaluation of the first three Academy cohorts. It is important to note that additional impacts may emerge in the years to come.

Resilience Needs Entering the Academies

Affordable housing owners and operators seek to manage the impacts of both ongoing and acute weather challenges. Extreme heat and cold have become more frequent, placing a strain on climate control systems, while at the same time making them increasingly indispensable. Storms are common in all three regions, from hurricanes to blizzards and everything in between, and the associated high winds and precipitation pose myriad threats to housing structures and systems. Participants value and benefit from learning how to protect against these climate concerns through new construction and retrofits to existing properties.

While climate disaster is an ever-present concern for organizations coming into the Academies, most lacked the dedicated time and resources needed to formulate a path toward resilience. Nearly all Academy participants had experienced severe weather events previously and therefore had some exposure to disaster recovery, yet on the whole they were less experienced with proactive measures to mitigate the effects of future climate events. One of the key challenges to implementing proactive measures is identifying and applying for appropriate funding/financing resources, and most organizations indicated support in this area was among their greatest needs coming into the Academy.

Academy Impact in Moving From Awareness to Action

The Academies successfully identified the climate resilience priorities of participating organizations and delivered content and tools that align with those specific needs. Survey data reveal that, over time, organizations grew the most in the areas in which they felt the least capable prior to Academy participation. For example, most organizations indicated at baseline that they needed assistance with accessing tools and resources related to climate adaptation or disaster preparedness. Post-Academy survey results showed a significant increase in participants' capability in this area. The proportion of respondents who felt capable or very capable grew from 42% to 76% just six months after Academy completion.

Another priority need that the Academies successfully met was building staff knowledge and capacity to address climate resilience in their regions. Participants reported significant increases in capability, with 97% of respondents reporting that they were prepared in this area six months after Academy participation, and over 50% felt very prepared.

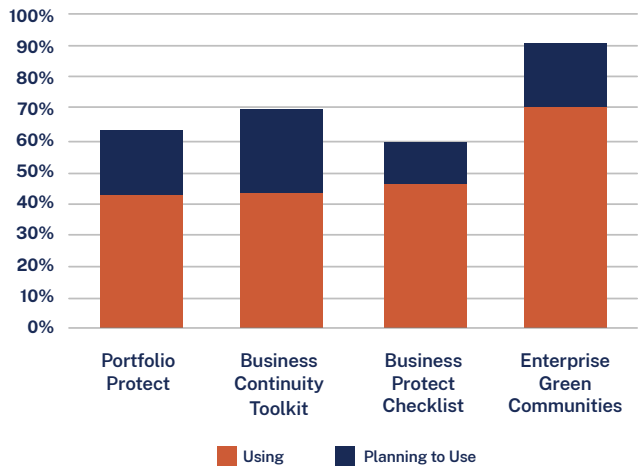
The Academies had a positive impact on participants' ability to undertake activities that will bolster the resilience of their affordable housing portfolios. Across the initial three cohorts, participants reported increased capability in all key climate resilience activities over the course of the Academy, a trend that persisted six months after the conclusion of the Academy. Immediately after completing the Academy, participants reported the largest gains in capability in integrating climate mitigation and adaptation practices into their existing portfolios. Six months after completion, the area that saw the most growth was engaging in community-led discussions on resilience. The overall gains in capability decreased slightly in the six months between Academy completion and the final survey, which may indicate that participants' comfort and confidence were significantly boosted during the Academy and then were tempered by the realities of competing priorities and resource constraints.

Figure 1: **Change in Average Capacity**

Resilience Activities	Average Baseline	Average Impact	Average Capability Change
Engaging in community-led discussions on resilience	2.4	3.0	0.63
Assessing the social risk of property residents in our portfolio	2.7	3.1	0.42
Undertaking business continuity planning in preparation for extreme weather events	2.6	3.1	0.56
Identifying and applying for funding related to climate adaptation or disaster preparedness	2.4	3.0	0.57
Accessing funding related to climate adaptation or disaster preparedness	2.8	2.9	0.05
Assessing the climate risk of our portfolio	2.4	2.9	0.52
Accessing the tools and resources needed for climate adaptation or disaster preparedness	2.4	2.9	0.48
Integrating climate mitigation and adaptation practices into our existing portfolio	2.9	3.3	0.50
Integrating climate mitigation and adaptation practices into new construction	2.3	2.7	0.40

Note: *Respondents were asked to select their capability to perform each of the listed climate resilience activities according to the following scale: Not Capable = 1, Somewhat Capable = 2, Capable = 3, Expert/Very Capable = 4*

Figure 2: **Use of Resilience Tools Following Academy**

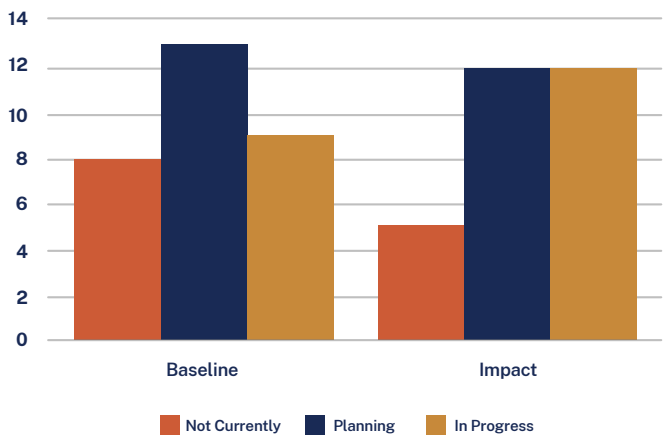


The Academies provided time and space to be intentional about climate resilience. Coming into the Academies, participants noted that one of the primary challenges to pursuing climate resilience activities is a lack of dedicated time, personnel and resources. The Academies addressed this challenge by helping organizational staff to focus on the issue with intention, develop knowledge and a sense of urgency, and identify tools to support their efforts. While the risk of climate disaster is increasingly on the minds of developers, owners and operators, the Academies pulled it to the forefront and provided much-needed technical strategies and solutions to mitigate risk and protect residents. Indeed, as shown in Figure 2, most survey respondents were using or planned to use specific tools presented at the Academy within six months of participation.

Furthermore, after participating in an Academy, the number of organizations planning or actively engaged in climate adaptation or disaster preparedness activities increased. Six months after the Academy, nearly 80% of organizations were working on or planning to work on climate adaptation or disaster preparedness for a specific property or set of properties within their portfolios (see Figure 3). Examples of projects include installing storm-resistant windows and roofs, green and resilient rehabilitations, and moving utilities away from basements in flood-prone areas. Survey responses also indicated a widespread commitment to incorporating sustainability and resilience practices into new construction.

The opportunity to learn from and share with other affordable housing organizations afforded by the Academies' cohort model was a key benefit of participation. Several interview respondents reported that being able to network with organizations doing similar work and experiencing similar challenges within their regions was an appealing incentive to join a cohort. While there were some differences in climate threats and state and local policies within cohorts, given the large geographic spans of some regions, the collective learning was enhanced by interacting with peers. Some expressed interest in an "alumni network" that would formalize ongoing communication and resource sharing among and across Academy cohorts.

Figure 3: **Number of Organizations Pursuing Climate Adaptation or Disaster Preparedness for a Specific Set of Properties**

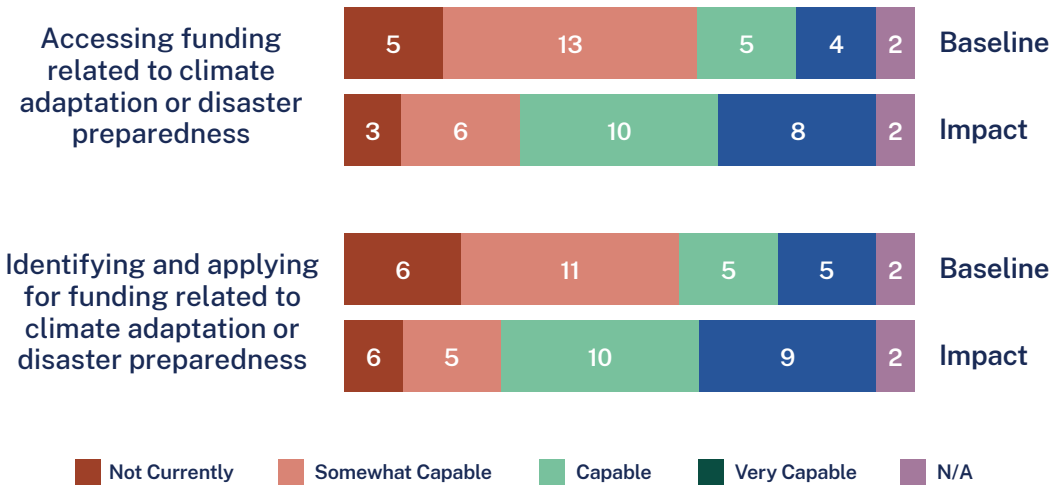


Remaining Resilience Challenges After the Academies

Identifying and accessing appropriate funding sources to plan for and mitigate climate threats is an ongoing priority. Prior to participation, most organizations across the three cohorts indicated that assistance with identifying and applying for funding to support resilience work was their greatest need and the task they felt least capable of. Fewer than half of the organizations had applied for and received funding in the five years prior to the Academy. While participants' capability to access funding related to climate adaptation or disaster preparedness increased significantly between baseline and impact – 33% of respondents indicated they were capable or very capable in this area at baseline, versus 62% percent six months after the Academies – many indicated a need for additional financial support to operationalize their climate resilience aspirations. Indeed, both organizations and Enterprise staff reported that insufficient funding was one of the biggest barriers to implementing the strategies presented at the Academies.

In response to participants' needs related to funding, Enterprise released a Request for Proposal in September 2023 for a competitive Resilience Academy Capacity Grant, open to participants of the completed Academies. Twelve successful applicants have since received $25,000 each to implement either business continuity plans or alternative resilience projects.

Figure 4: **Change in Capability Related to Funding**



Participant Profiles

This interim report provides participant profiles for a sample of participants representing all three cohorts. The profiles illustrate the emerging storylines and highlight common themes and unique perspectives across a small sample of organizations engaged in resilience activities. The profiles describe the organizations' ongoing work and how their approaches or decision-making have been impacted by participation in the cohort sessions and technical assistance.

Acacia Network

Academy Cohort:	New York/New Jersey
Year Founded:	1969
Areas Served:	Buffalo, New York City, and Syracuse
Portfolio Size:	2,300 Units
Populations Served:	Low-income households

Community Context

Acacia Network is a nonprofit human services organization working in New York and Puerto Rico that offers a comprehensive range of programs and services including affordable housing. Acacia Network and its affiliates own nearly 4,000 affordable units across New York state, and it self-manages approximately 2,300 units.

Climate Resilience Needs and Goals

Acacia operates in regions of New York with notable climate hazards, emphasizing the critical importance of fortifying housing to withstand the growing frequency of severe weather events. In response to these pressing concerns, Acacia Network focused on strengthening the resilience of its portfolio and intends to integrate key resilience measures into its next strategic plan. Prior to participating in the Academy, Acacia had developed emergency preparedness plans and practices, and was actively integrating climate resilience strategies into the initial phases of new property development.

Risk Climate Hazard Risks in New York City

Climate Hazard	Risk Rating		
	New York County, NY *Manhattan*	Kings County, NY *Brooklyn*	Bronx County, NY *The Bronx*
Coastal Flooding	High	High	High
Earthquake	Low	Moderate	Low
Heat Wave	High	Very High	High
Hurricane	High	High	High
Ice Storm	High	High	High
Landslide	Moderate	Moderate	High
Lightning	Moderate	Moderate	Moderate
Riverine Flooding	Moderate	High	High
Strong Wind	Very High	Very High	Very High
Tornado	Moderate	Moderate	Moderate
Winter Weather	Moderate	Moderate	Moderate

This table displays March 2023 FEMA National Risk Index (NRI) scores for top hazard types in the counties that include the New York City boroughs of Manhattan, Brooklyn and the Bronx. The NRI program employs both hazard data and community risk factors to develop risk scores for each county, relative to other U.S. counties.

Ready to turn their focus to the portfolio of existing properties, Acacia joined the Academy in an effort to "get all staff engaged, understand why [resilience] is important, build urgency, focus on operational challenges, and implement strategies to meet challenges that come." The staff also aspired to gain insights into the financial resources available for retrofitting existing buildings.

Also factoring into Acacia's work are state laws geared toward increasing the energy efficiency of buildings and limiting carbon emissions. As a result, the organization must be mindful of its compliance with these laws while implementing measures to enhance property sustainability and safeguard residents from climate risks. In pursuit of this goal, Lorraine Coleman, senior vice president of Development Policy & Planning, aimed to discover how to "retrofit in a way that's viable" and identify funding for those projects.

Climate Hazard Risks in Upstate New York

Climate Hazard	Risk Rating	
	Erie County, NY *Buffalo*	Onondaga County, NY *Syracuse*
Coastal Flooding	Low	N/A
Cold Wave	Very High	High
Heat Wave	Moderate	Moderate
Ice Storm	High	High
Riverine Flooding	Moderate	Moderate
Strong Wind	Low	High
Winter Weather	Very High	Moderate

This table displays March 2023 FEMA National Risk Index (NRI) scores for top hazard types in the counties that include Buffalo and Syracuse, New York. The NRI program employs both hazard data and community risk factors to develop risk scores for each county, relative to other U.S. counties.

Academy Impact

By participating in the Academy, Acacia gained the connections and knowledge that allowed them to implement their strategic resilience priorities to protect residents from the risks of climate change. Increasing the resilience of a portfolio as large as Acacia's can be daunting, especially when competing priorities vie for staff time and resources. However, the Academy sessions on how resilience affects properties and tenants, the technical information and examples of how other organizations have implemented various measures to prepare for and recover from climate events were effective in enhancing their capacity to undertake resilience work. The networking opportunities afforded by the Academy's cohort model were extremely valuable in demonstrating that Acacia is "not alone in this," and the experiences of other organizations offered authentic, practical applications of the session content.

The Academy was well-timed to propel and support Acacia's efforts to increase the resilience and energy efficiency of its portfolio, and the safety and comfort of its residents. Since participating in the Academy, Acacia has made progress on key resilience activities that were informed by the content and peer connections offered through the Academy.

Major initiatives underway include:

- Retrofitting buildings to minimize flood damage.
- Installing backup generators.
- Updating the Agency Disaster Plan.
- Developing a new Continuity of Operations Plan.

Acacia has engaged partners to support its work and further its resilience goals, including the **NYC Accelerator**, which provides free resources and guidance to building owners in New York City seeking to improve energy efficiency and reduce carbon emissions. The organization has also continued to engage with peers and Enterprise staff to further its resilience goals. Ongoing support and guidance are significant benefits of participating in the Academy, and organizations like Acacia are bolstered by this continued access to information and resources.

Ongoing Needs

Given Acacia's commitment to long-term sustainability, the organization will continue to benefit from opportunities for additional learning, peer engagement, and to be kept apprised of any new resources made available. As with many other Academy participants, gaining access to public and philanthropic funding remains an area Acacia could use additional support with after participating in the Academy. The organization would also welcome additional support around integrating climate mitigation or adaptation practices into their existing portfolio.

Summary

The Academy enhanced Acacia's staff capacity, empowering them to fine-tune and execute strategic priorities aimed at fortifying properties against climate hazards and ensuring long-term financial viability. This concerted effort is geared towards safeguarding residents both presently and in the future.

Biloxi Housing Authority

Academy Cohort:	Gulf Coast
Year Founded:	1939
Areas Served:	Biloxi, Mississippi
Portfolio Size:	1748 units
Populations Served:	Low-income families, homeless veterans and seniors

Organization Overview

Biloxi Housing Authority (BHA) is located in Biloxi, Mississippi, a coastal city situated on the Gulf of Mexico. Founded in 1939, the BHA currently provides housing assistance to 1,748 families through various mechanisms including vouchers and BHA owned and operated properties.

Climate Resilience Needs and Goals

Biloxi was devastated by Hurricane Katrina in 2005, and still feels the effects nearly 20 years later. Among the lasting impacts are expanded flood zones and the associated rise in insurance premiums for properties within the city. These changes have a negative impact on the supply of affordable housing by significantly increasing the costs associated with maintaining existing properties as well as those in development. Increased costs have also limited landlords' ability to accept vouchers. Several BHA properties date back to the 1940s, and while their locations were not in flood zones when they were built, that changed after Katrina.

Building outside of the flood zone and/or building to mitigate the impact of climate disasters can be cost-prohibitive for affordable housing developers, especially when factoring in increased insurance costs. In the private housing market, vouchers are insufficient to bridge tenants' ability to pay and the rents landlords need to charge to recoup the cost of insurance. These insurance-related barriers to affordability limit the BHA's ability to adequately meet the housing needs of low-income Biloxi residents. Despite these impediments, the BHA remains dedicated to making improvements that benefit residents, and ultimately seeks to "build smarter in the places people want to live."

With these ever-present challenges top of mind, joining the Gulf Coast Resilience Academy cohort was a relevant and timely opportunity for the BHA. Executive Director Helen Werby explained that she was interested to hear what other organizations were doing to address similar issues. In her own words:

"There's no school for this. The best way we learn is by talking to other people doing it and talking to people in other areas or having the same problem … That's the best way to learn how to solve problems."

The BHA also entered the Academy needing assistance with identifying and applying for appropriate funding/resources to support resilience and developing industry connections and partnerships related to this work.

Academy Impact

The BHA has made tangible progress on their climate resilience work since participating in the Academy. Talking with people from other organizations experiencing the same issues in similar locations proved to be one of the highlights. Werby shared that the BHA continues to engage with other Academy participants "about solutions to challenges in the region."

The BHA also benefited from content presented on topics such as mitigation in construction and business continuity planning. They had previously developed a business continuity plan, and will now be able to use Enterprise's Business Continuity Toolkit to validate and update their existing plan, ensuring their ability to continue serving residents even in the face of climate disasters.

In the six months after the Academy, the BHA used Enterprise's tools and resources and knowledge gained from their participation to assess the climate risk of their portfolio. Application of their Academy learning also helped in determining how to use their nearly $4 million allocation of Hurricane Zeta relief funds. These funds will be used to install hurricane-resistant, energy-efficient windows at two properties and to purchase a new office building outside the flood zone, enabling them to continue operations during severe weather.

The BHA was also able to use what they learned during the Academy to engage in community-led discussions on resilience and access resilience-related technical assistance. This is an important step in centering resident needs in resilience planning efforts. They are planning to continue to use other tools and resources presented during the Academy to support their climate adaptation and disaster preparedness.

Harrison County, MS (Biloxi)	
Climate Hazard	**Risk Rating**
Coastal Flooding	Moderate
Hail	Moderate
Heat Wave	Moderate
Hurricane	High
Lightning	High
Strong Wind	Moderate
Tornado	High
Wildfire	Moderate
Winter Weather	Moderate

This table displays March 2023 FEMA National Risk Index (NRI) scores for top hazard types in Harrison County, Tennessee. The NRI program employs both hazard data and community risk factors to develop risk scores for each county, relative to other U.S. counties.

Ongoing Needs

Insurance costs and other resource constraints continue to present a substantial barrier to the BHA's ability to operate and develop affordable housing in the region. The BHA knows all too well that the relief and resources that pour in in the immediate aftermath of a disaster dry up long before the need does – and persistent problems remain. Long-term solutions to these challenges likely will require changes in federal housing policy and rental assistance rules. Despite the need for larger structural changes that can ease these systemic barriers, the resources provided through the Academy have supported the BHA and others in proactively strengthening their climate resilience efforts.

Summary

Climate threats, past and present, pose significant challenges to Biloxi's affordable housing stock. The Academy offered proactive strategies and networking opportunities to reinvigorate the BHA's resilience efforts and position them to make crucial improvements as funding becomes available.

Diverse Housing Services

Academy Cohort:	Southeast
Year Founded:	2019
Areas Served:	Palm Beach County, Florida
Portfolio Size:	44 Units
Populations Served:	Very low-, low-and moderate-income families and seniors

Organization Overview

Diverse Housing Services, Inc. (DHS) is a nonprofit developer and operator of affordable housing located in Palm Beach County, Florida. The organization was founded by the president and CEO of Nelson & Associates, which specializes in management of affordable housing properties and has worked extensively with public housing authorities to address the need to preserve affordable rural housing in Palm Beach County.

DHS currently owns and operates a 44-unit rental property in the small agricultural town of Pahokee, Florida. The organization accessed U.S. Department of Agriculture funds and programs to acquire the property and continues to seek opportunities to acquire additional properties. Their aim is to preserve affordability, upgrade units through rehabilitation and renovation, and provide additional services to residents as resources permit.

Climate Resilience Needs and Goals

Many of the residents of DHS' first property are low-and very low-income seniors who cannot or will not leave the property during severe weather events. The property is made up of older units that aren't equipped to withstand climate impacts such as heat and humidity, in addition to storms and other disasters, jeopardizing residents' health and safety. DHS seeks to improve individual units to help address some of this vulnerability and provide higher-quality housing for residents. Additionally, DHS would like to be able to provide cooling centers and/or a standalone solar-powered shelter with backup generators to protect residents during the increasingly frequent extreme weather. Despite the critical need for these improvements – as evidenced by the Federal Emergency Management Agency's (FEMA) climate hazard ratings shown in the table below – identifying and accessing the financial resources to implement them is an ongoing challenge.

The Southeast Climate Resilience Academy offered an opportunity to learn more about the topic, gain technical knowledge, make connections with peers and funders, and potentially help to locate elusive resources. An area of particular interest was how DHS might leverage resources to make needed property improvements that promote resident health and stability and reduce their vulnerability to extreme weather and climate disasters. They were also interested in improving the property's operational efficiency in order to generate cost savings that will strengthen its long-term financial sustainability.

Academy Impact

The Academy provided DHS with the knowledge and tools necessary to strategically incorporate resilience efforts into their work and prepared them to use funds for maximum impact as they become available. DHS was also able to cultivate the vocabulary needed to define the extent of the property's resilience needs and develop strategies to operationalize solutions.

Additionally, Enterprise's tools enabled DHS to assess the climate risk of its portfolio – a critical first step in the rehab process. For example, DHS was able to identify state-of-the-art products and practices that could be proactively incorporated in the rehabilitation of the property within budget. These improvements ultimately will reduce units' operating costs while improving functionality and resilience, contributing to the property's financial sustainability.

"The Academy exceeded expectations and made me realize how little I actually knew [about climate resilience] … I came looking for [funding] but got so much more."

– GREG HYSON, EXECUTIVE DIRECTOR

The Academy empowered DHS to create a clear roadmap with concrete solutions for incorporating greater resilience and sustainability into their efforts to preserve affordable housing for low-incomes residents. Furthermore, the knowledge gained effectively transformed resilience activities from "nice to haves" to "need to haves" in DHS's plans for rehabilitation, and offered insights about how to access funding and capitalize on insurance incentives to free up resources and implement priority strategies that can translate into long-term cost savings.

Ongoing Needs

Resource availability continues to challenge the ability of DHS to implement solutions and realize tangible benefits for the property, residents and the organization as a whole. While some improvements have been possible without additional funding, the majority of improvements would increase the rehabilitation budget by 20-30% – a cost they can't afford without additional financial resources if rents are to be preserved at levels affordable to residents.

This balance between investing in resilience and preserving affordability is an ongoing tension that DHS and similar organizations face on a daily basis. The Academy equipped DHS with the knowledge and language necessary to advocate for resources that will address this tension, but field-wide advocacy and support is necessary to make lasting change and free up the resources to invest in DHS' projects and others like theirs.

Climate Hazard Risks in Palm Beach County	
Climate Hazard	**Risk Rating**
Cold Wave	High
Drought	High
Hurricane	Very High
Landslide	Moderate
Lightning	Very High
Riverine Flooding	High
Strong Wind	Moderate
Tornado	High
Wildfire	High

This table displays March 2023 FEMA National Risk Index (NRI) scores for top hazard types in Palm Beach County. The NRI program employs both hazard data and community risk factors to develop risk scores for each county, relative to other U.S. counties.

Summary

The Academy strengthened DHS's capacity to address climate hazards and provided the knowledge and tools to bridge affordability and resilience more effectively. Moving forward, the organization will continue to pursue funding opportunities that facilitate investment in climate mitigation strategies with the goal of reducing long-term costs while simultaneously enhancing residents' safety and stability.

Urban Housing Solutions

Academy Cohort:	Southeast
Year Founded:	1991
Areas Served:	Nashville, Tennessee
Portfolio Size:	1,300 Units
Populations Served:	Formerly homeless, low-income and workforce

Community Context

Urban Housing Solutions (UHS) is a nonprofit affordable housing developer and manager located in Nashville, Tennessee. Like much of the country, Nashville is facing an affordable housing crisis, with an expected shortfall of 31,000 affordable housing units in the city by 2025.[3] In addition to providing affordable housing, UHS partners with government agencies and other nonprofit organizations to offer its residents services such as transportation access, medical and mental health support, substance abuse recovery and civic services.

Climate Resilience Needs and Goals

Since 2020, Nashville has experienced a number of environmental "stressors and shocks," including floods, tornados, lightning strikes, and record snowfall – in addition to the COVID-19 pandemic. Adding further concern, extreme heat is increasingly seen as a risk for residents, as confirmed by the Federal Emergency Management Agency (FEMA) assessment of climate hazards in the county (see table).

While UHS has seen the resilience of its properties, and the vulnerability of its residents, as a key concern, the organization lacked staff capacity and the dedicated time to prioritize resilience and think strategically about how to address this issue. They were familiar with and had used some risk assessment tools and resources previously, but were unsure as to how to tailor them to their specific needs, much less put them into practice to make tangible improvements to the resilience of their properties.

UHS staff were looking to learn more about how to assess and evaluate both current and future climate risks, identify how each might impact their portfolio, and strengthen their infrastructure to respond and adapt to evolving climate threats. The Southeast Climate Resilience Academy offered both the technical content that UHS sought, as well as the time in a supportive environment to think intentionally about how to bolster the resilience of their properties.

[3] Urban Housing Solutions. (n.d.) Nashville's Housing Crisis. https://www.urbanhousingsolutions.org/nashvilles-housing-crisis/

Academy Impact

UHS entered the Academy with a solid understanding of issues related to climate resilience, and had identified several risks to the organization's portfolio. They found the combination of the Academy content and peer network invaluable in enhancing the resilience of their properties.

In the six months following the Academy, UHS performed clear assessments of the climate and social risks of its portfolio and residents while successfully accessing tools and resources related to climate adaptation and disaster preparedness. They noted that the introduction of these new tools and templates was an especially helpful aspect of the Academy.

UHS also expanded their resilience planning efforts to include a wide range of climate hazards, and embedded resilience principles and practices in many projects. For example, one of UHS's current priorities is devising a long-term solution to replace more than 50 units that are in a flood-prone property. They also retrofitted a property that had been struck by lightning to avoid future strikes.

While most of the work to existing properties has been reactive, UHS shared that they are "evaluating a broader capital improvements plan that would incorporate resilience measures, particularly for severe storms, flooding, and extreme heat." In addition, UHS is incorporating resilience and redundancy principles into new construction.

Ongoing Needs

Participating in the Academy provided UHS with new tools and resources and allowed staff the time to focus on resilience. However, the organization expressed some concern about sustaining the momentum around planning, being proactive and getting the whole team on board with prioritizing this work.

Kelsey Oesmann, UHS's director of design and development and an Academy participant, spoke about the need for raising awareness about both the financial and human costs associated with climate disaster in order to build interest in preparedness and prevention among the funding community, rather than focusing predominantly on recovery. She also noted that it would be helpful to have someone on staff dedicated to resilience to enable the issue to gain more traction: "We know that these are the challenges, and we have tools, but we don't have a dedicated staff person who is running point on these things," said Oesmann.

Climate Hazard Risk in Davidson County, TN (Nashville)	
Climate Hazard	**Risk Rating**
Cold Wave	Moderate
Earthquake	Moderate
Hail	Moderate
Heat Wave	Moderate
Lightning	Moderate
Riverine Flooding	Very High
Strong Wind	High
Tornado	High

This table displays March 2023 FEMA National Risk Index (NRI) scores for top hazard types in Davidson County, Tennessee. The NRI program employs both hazard data and community risk factors to develop risk scores for each county, relative to other U.S. counties.

Summary

Enterprise's Resilience Academy enabled Urban Housing Solutions to build on their existing knowledge of climate issues by sharpening their understanding of the risks to their portfolio, providing them with new tools and templates, and offering a supportive environment and dedicated time to discuss resilience issues with subject-matter experts and their own colleagues in the field. While there is much work to be done, the experience of participating in the Academy has better equipped UHS to meet future challenges for the benefit of both the organization and its residents.

Urban Restoration Enhancement Corporation

Academy Cohort:	Gulf Coast
Year Founded:	1992
Areas Served:	Baton Rouge, Louisiana
Portfolio Size:	38 Units
Populations Served:	Families, grandparents raising grandchildren, and adults 55 years and older

Community Context

Urban Restoration Enhancement Corporation (UREC) is a nonprofit organization that focuses on affordable housing, human development and community engagement in Baton Rouge, Louisiana, and neighboring rural areas. UREC develops new construction, rehabilitates existing properties and offers both ownership and rental opportunities.

Climate Resilience Needs and Goals

Louisiana is prone to hurricanes and flooding, and UREC was interested in learning about new construction practices that could be incorporated to strengthen properties against those threats. Prior to participating in the Academy, UREC had already decided not to acquire land and/or properties in flood zones because of the financial and social vulnerability associated with building, maintaining and living in in those areas. While they connected this practice with the long-term viability and affordability of their portfolio, they had not yet explicitly defined it as climate resilience. The Gulf Coast Academy was well timed to both increase UREC staff's knowledge about the topic and provide practical strategies for mitigating the effects of current climate concerns.

The primary areas in which UREC sought assistance were building staff knowledge and capacity, identifying and prioritizing properties in the existing portfolio to support resilience, and identifying and applying for appropriate funding/financing resources to advance their resilience priorities.

Climate Hazard Risk in East Baton Rouge Parish, LA (Baton Rouge)

Climate Hazard	Risk Rating
Coastal Flooding	Moderate
Heat Wave	Moderate
Hurricane	High
Ice Storm	Very High
Lightning	Very High
Riverine Flooding	Very High
Tornado	Very High
Winter Weather	High

This table displays March 2023 FEMA National Risk Index (NRI) scores for top hazard types in East Baton Rouge Parish, Louisiana. The NRI program employs both hazard data and community risk factors to develop risk scores for each county, relative to other U.S. counties.

Academy Impact

The Academy reinforced ideas and practices that UREC was familiar with and tied them together within the framework of climate resilience. All aspects of the Academy were helpful and effective, and UREC found particular utility in the technical assistance (TA) sessions that delved into its individual projects and provided resources that would be beneficial to their portfolio. The session on disaster preparedness and the associated checklist tool were especially relevant and highlighted some issues the organization had not previously considered. Overall, UREC found the topics to be strategically organized and felt the Academy took a holistic approach to building its organizational capacity around climate resilience.

There were a number of "aha moments" during the Academy that led to UREC being "more intentional" about resilience after participating. For example, they became more conscientious about building materials, prioritized energy efficient appliances, changed the tonnage on their air-conditioning units, and invested in putting all utilities underground. They also continue to access tools and resources related to climate adaptation or disaster preparedness, as well as resilience-related TA. The Academy enabled UREC to incorporate resilience more deliberately into the design process, and they now use the new language and information gleaned to help guide conversations with the community.

Ongoing Needs

As with other cohort members, a lack of funding impedes their ability to implement the practices and strategies presented at the Academy. UREC would benefit from additional assistance in collecting and analyzing data and communicating the need for proactive resilience measures. UREC's executive director, Carl Dillon, expects that additional resources would lead their resilience work to become "second nature" given the urgency of climate concerns and the potential value to affordable housing properties and residents.

Summary

The Enterprise Resilience Academy wove together key topics in a way that enabled UREC to devise a path forward toward greater climate resilience. Acquiring resources that enable the organization to implement key strategies while maintaining affordability for residents is an ongoing tension, so UREC would benefit from additional assistance in gathering data to demonstrate the need for the work and connecting with funders that can support it.

Lessons Learned

Implementation of the first few Academy cohorts has provided valuable insights related to both program implementation and outcomes that supported Enterprise's goal of continuous improvement. These insights were gained through the survey findings, as well as Enterprise staff reflections as part of the program implementation and evaluation processes. The architects and administrators of the program, Enterprise's Building Resilient Futures team, were able to use these insights to make several modifications to the model that enhanced the experience for participants. A few examples of these lessons learned are described below and will be further explored in the final evaluation report at the conclusion of the Academies.

One lesson learned during the implementation of the program pertained to the inclusion of specific types of organizations as participants in the Academy. A few of the organizations in the early cohorts did not own or operate affordable housing at the time of their participation. This meant that a large portion of the Academy content, such as assessing portfolio risk and retrofitting units and buildings, was not directly relevant to them. The Building Resilient Futures team determined that to achieve maximum benefit in remaining Academies, participants must be active owners or operators of affordable housing. This became a requirement for participation in future cohorts, making the Academy content more directly relevant and applicable to all participants.

Another lesson learned focused on the structure of Academy training sessions. Originally, the Academies planned to offer two of the training sessions to any interested organization in the region, not just cohort members. As the program progressed, the Enterprise team found that these larger sessions were not conducive to peer sharing and networking, and therefore less effective than the smaller sessions designed for only cohort members.

A defining feature of the Academies is the peer network, making a change to the program design warranted in order to ensure that this defining feature had the maximum positive impact on participants, as intended. The team now delivers Academy content exclusively to participating cohorts during training sessions, and is considering hosting public webinars to showcase key findings and learnings from each cohort.

The provision of technical assistance (TA) has also evolved since the inaugural Southeast Academy. Initially, TA was offered as virtual "office hours," during which cohort members could drop in to ask questions. The team found that participants were not fully taking advantage of this opportunity and modified the program accordingly. During the Gulf Coast and New York Academies, IBTS began scheduling individual meetings with interested participants to address their individual needs and provide practical support.

Conclusion

Across the United States, 60 million homes are at risk from climate disasters.[4] In recent years, hundreds of thousands of Americans have been forced to move as the consequence of a natural disaster or fire.[5] The dual crises of climate change and an affordable housing shortage have created urgency around providing affordable housing developers, owners and operators with the knowledge, tools and resources to support their climate resilience efforts.

Enterprise's Resilience Academies offer a high-value proposition for organizations seeking to develop or advance climate resilience strategies for their existing and future portfolios. One of the key characteristics of the Academies is the flexibility of the approach. The program's designers are responsive to feedback and dialed in to the primary challenges of various regions across the U.S., enabling them to leverage the resources and expertise most suitable to each cohort. Within a thoughtfully crafted framework are opportunities to customize the program to maximize its impact on participating organizations. Similarly, the various modes of content delivery, including tools, presentations, peer learning and individual technical assistance, enable participants to engage with the material from multiple angles and explore different applications. In addition to providing a critical service to the field, operating this program has helped Enterprise to identify common resilience needs of affordable housing organizations, better equipping us to create resources and design programs that are responsive to those needs.

With four cohorts remaining, the Academies will persist in offering vital resources to the field while incorporating insights gained from lessons learned along the way. The evaluation process will continue to track participants' experiences and program outcomes. Upon completion of all surveys and interviews for the final cohorts, Enterprise will develop a final report that presents additional findings and offers recommendations for how resilience efforts might continue to be supported in the affordable housing field.

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[4] The State of the Nation's Housing 2023. Harvard Joint Center for Housing Studies. 2023, p. 44. THE STATE OF THE NATION'S HOUSING 2023 (harvard.edu)

[5] Enterprise Community Partners tabulations of 2021 American Housing Survey data.

About Enterprise Community Partners

Enterprise is a national nonprofit that exists to make a good home possible for the millions of families without one. We support community development organizations on the ground, aggregate and invest capital for impact, advance housing policy at every level of government, and build and manage communities ourselves. Since 1982, we have invested $72 billion and created 1 million homes across all 50 states, the District of Columbia, Puerto Rico and the U.S. Virgin Islands – all to make home and community places of pride, power and belonging. Join us at **enterprisecommunity.org**.