



# City of Boston Regional Catastrophic Preparedness Grant Program (RCPGP) Case Study

Fiscal Year (FY) 2019

December 2024



FEMA

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## Table of Contents

<b>1. Overview</b> .....	<b>1</b>
<b>2. Background</b> .....	<b>2</b>
<b>3. Regional Approaches, Solutions, and Outcomes</b> .....	<b>3</b>
3.1. Network Building.....	4
3.2. Interjurisdictional Collaboration Strategies.....	6
<b>4. Key RCPGP Investments</b> .....	<b>7</b>
4.1. Regional Housing Stock Analysis.....	7
4.2. Housing Policy Recommendations.....	8
4.3. Post-Disaster Housing Plan Template and User Guide.....	9
4.4. Post-Disaster Housing Summit.....	10
<b>5. Conclusion</b> .....	<b>11</b>

# 1. Overview

In 2023, the Federal Emergency Management Agency (FEMA) conducted a case study with the City of Boston to better understand how this region used its Regional Catastrophic Preparedness Grant Program (RCPGP) award for fiscal year (FY) 2019 to build its capability in the Housing core capability.

FEMA conducted an on-site visit to Boston, Massachusetts, to meet with the City of Boston and key stakeholders, including two contracted companies--Tetra Tech and DREAM Collaborative, the Massachusetts Institute of Technology (MIT) Urban Risk Lab (URL), and the Metro Boston Homeland Security Region (MBHSR). On-site discussions with stakeholders helped FEMA to gain insight into investment decision-making, regional capability-building strategies, and community-level experiences with RCPGP-funded projects.

Overall, this case study resulted in the following key findings:

- As the first RCPGP recipient to address the Housing core capability, the Boston Office of Emergency Management (OEM) has become a leader in developing post-disaster housing capability from an emergency management perspective and their efforts provide a model for how future RCPGP recipients can use customizable templates and stakeholder engagement strategies.
- Broad engagement with a variety of stakeholders, such as local department representatives, private-sector partners, and academic institutions, helps build a network of subject matter experts that facilitates greater knowledge-sharing.
- Customizable planning templates and interjurisdictional policy options developed with the RCPGP award enable individual jurisdictions to select and implement solutions that best meet their jurisdictions' specific post-disaster housing needs and objectives.
- Boston's Post-Disaster Housing Summit, held with grant funding, gathered stakeholders from across the region to increase information-sharing, build relationships in the emergency management and private sectors, and break down communication barriers across these communities.

This case study is part of a series that FEMA is conducting to better understand the implementation and use of RCPGP awards. These case studies explore the RCPGP grant recipients' efforts to improve regional collaboration and stakeholder relationships, in addition to their efforts to build regional capability in areas targeted by the RCPGP.

The following section provides a brief overview on the background of the MBHSR and its unique challenges. Next, the report outlines the Boston OEM's regional approaches, solutions, and outcomes to address those unique challenges. Finally, the report discusses specific RCPGP-funded projects, highlights best practices identified through these investments, and describes the benefits of these projects to Boston jurisdictions and their communities.

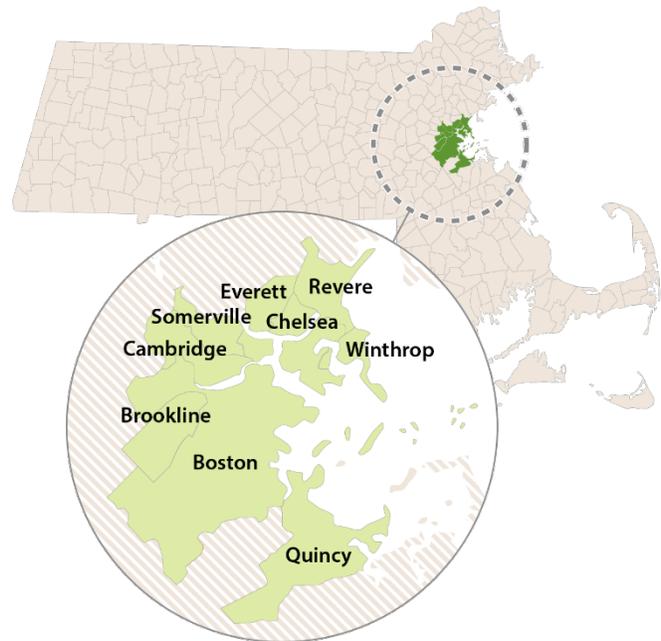
## 2. Background

Boston received FY 2019 RCPGP award funds and used them to conduct work in partnership with the MBHSR and the Commonwealth of Massachusetts. The MBHSR, highlighted in **Figure 1**, consists of nine jurisdictions with a Jurisdictional Point of Contact (JPOC) for each. The Boston OEM leveraged this network for RCPGP planning and implementation.

The greater Boston region faces unique challenges regarding its housing landscape. Boston is a densely populated, historical city with aging housing infrastructure and little space for new housing. Additionally, there is a larger shelter capacity crisis in the

Commonwealth of Massachusetts due to an increased influx of migrants to the state, which also affects the MBHSR. In August 2023, the governor of Massachusetts declared a state of emergency due to the strain on the commonwealth's emergency housing systems.<sup>1</sup> Additionally, the nine MBHSR communities are susceptible to sea level rising and flooding due to the coastal zones and several rivers that run through the region.<sup>2</sup> These factors require the MBHSR to take unique approaches to address its housing crisis as well as its all-hazards preparedness for coastal flood impacts.

Although Boston administers the RCPGP grant on behalf of the MBHSR and the Commonwealth of Massachusetts, all MBHSR jurisdictions provided input on RCPGP initiatives. The level of participation from each jurisdiction was dependent upon the capacity of jurisdictional staff and resources. As an example, some MBHSR jurisdictions do not have dedicated emergency management staff and thus were not able to be consistently involved in RCPGP planning. Additionally, response efforts to the COVID-19 pandemic exacerbated this challenge by requiring additional time and resources from individual jurisdictions.



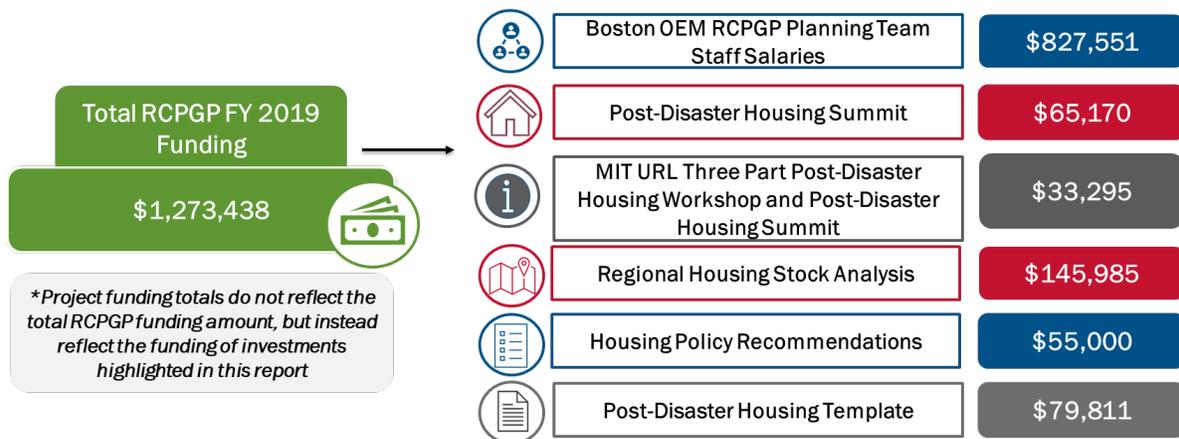
**Figure 1: MBHSR Jurisdictions**

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<sup>1</sup> Massachusetts Governor's Press Release on State of Emergency: [Governor Healey Declares State of Emergency, Calls for Support for Newly Arriving Migrant Families | Mass.gov](#).

<sup>2</sup> Massachusetts Office of Coastal Zone Management: [Coastal Resilience Grant Program | Mass.gov](#).

Boston received \$1.4 million in FY 2019 RCPGP funds, which it used to build capability in the Housing core capability by supporting preparedness efforts across the nine MBHSR jurisdictions. **Figure 2** illustrates Boston’s FY 2019 RCPGP funding.



**Figure 2: RCPGP Funding by Investment**

The following sections describe the MBHSR’s approach to regional preparedness and how Boston’s investments provided solutions to regional challenges. These sections also provide insight into the jurisdictions’ experiences with RCPGP-funded preparedness efforts.

### 3. Regional Approaches, Solutions, and Outcomes

In choosing to address the Housing core capability with their FY 2019 RCPGP grant award, Boston OEM became a leader in building post-disaster housing capability from an emergency management perspective. No other FY 2019 RCPGP recipient had prioritized the post-disaster housing capability with such an in-depth focus. Often, emergency management agencies focus planning efforts on short-term post-disaster housing. Boston OEM, however, recognized the importance of developing interim post-disaster housing plans while also building regional housing capability.

Housing is a complex and cross-cutting issue with a wide variety of stakeholders, and the scope of this issue creates unique challenges. First, many public and private organizations are involved in Boston’s housing sector, including public entities such as planning, housing, and health departments, and private entities such as architecture, construction, and insurance firms. In the case of the MBHSR, it is a densely populated region with a pre-existing housing capacity challenge that Boston had to consider during its grant implementation process. Lastly, Massachusetts has a governance structure that enhances self-governance for cities and towns but can also result in a lack of communication between jurisdictions. This governance structure makes it difficult for smaller jurisdictions, often with limited emergency management capabilities, to effectively address post-disaster housing.

By employing two distinct approaches, Boston OEM used FY 2019 RCPGP funds to build capacity in post-disaster housing while accounting for these structural challenges. First, Boston built a strong network to bring together a wide variety of regional stakeholders and focused on building

partnerships outside of the public sector. Second, Boston prioritized investments and products that provided value across different jurisdictions throughout the region. The following sections describe the specific ways in which Boston approached these challenges and the resulting outcomes.

### 3.1. Network Building

Throughout the RCPGP planning process, the RCPGP planning team engaged MBHSR stakeholders from a variety of local departments that do not frequently work together. For example, the RCPGP planning team included the planning and development, public health, housing and community development, and advocacy departments across regional cities and towns in its planning process. Inclusion of local representatives expanded perspectives and enabled knowledge-sharing throughout the region. The broad inclusion of stakeholder voices also served to expand each jurisdiction's understanding of housing initiatives in different departments and communities and provided potential collaborations and partnerships for future housing endeavors.

The RCPGP planning team also built partnerships beyond the public sector. Most notably, Boston OEM reached out to several Boston area academic institutions and formed relationships that resulted in expanded knowledge-sharing across sectors. Boston OEM's primary academic partnership was with the MIT URL. In addition, they engaged with the Massachusetts Maritime Academy and Boston University. Because RCPGP-funded staff were able to dedicate time to coordinating planning activities and organizing meetings with stakeholders across the region, Boston developed strong working relationships with these academic institutions, facilitated greater knowledge-sharing between practitioners and academics, and helped to break down communication barriers across these communities.

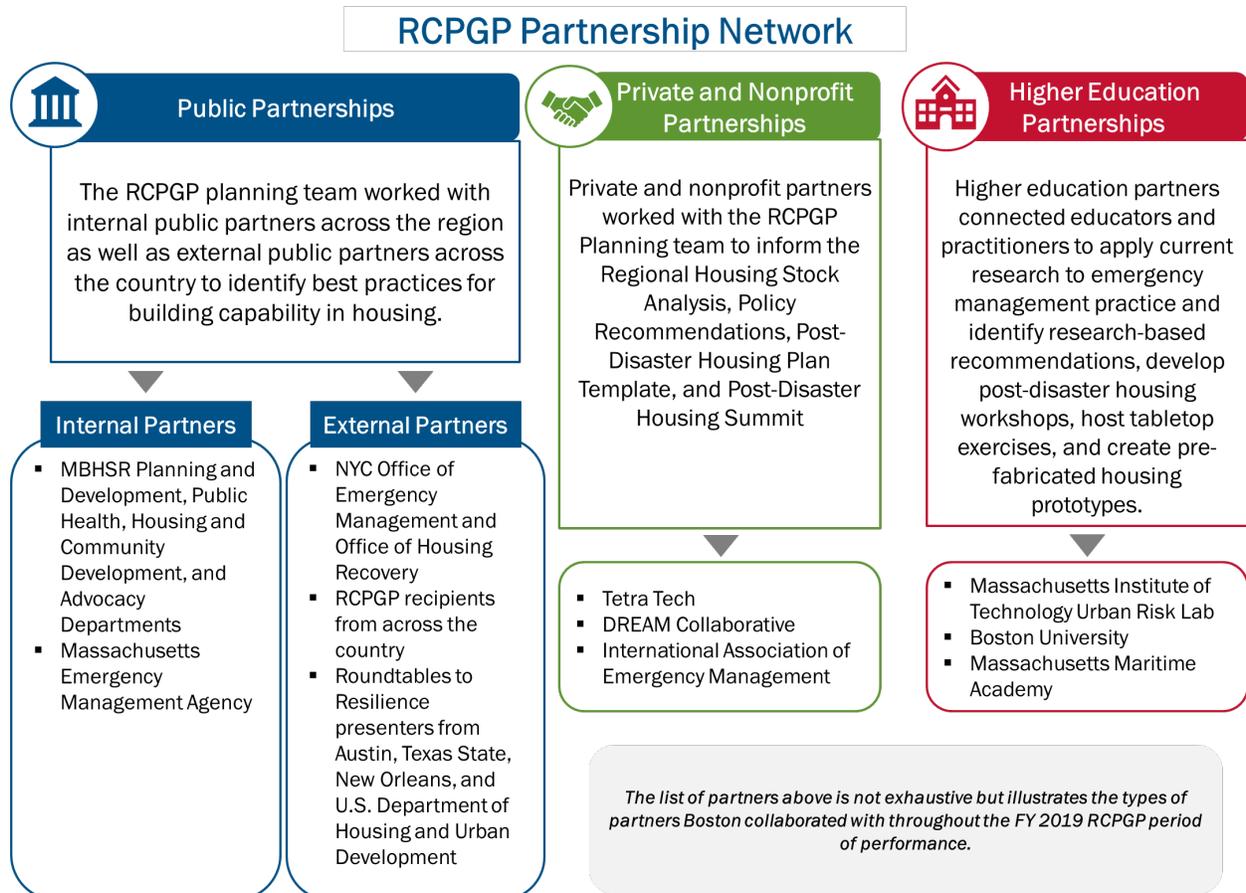
*"I appreciate the broad engagement of stakeholders in this effort and am realizing that while we might be working towards different goals, we're working towards similar solutions."*

*-Paige Roosa, Boston Mayor's Office of Housing Innovation Lab*

Throughout the period of performance, the RCPGP planning team also built public partnerships with local offices and offices from other communities, such as the New York City Office of Emergency Management and the New York City Office of Housing Recovery. Additionally, the planning team used private, non-profit, and higher education partnerships to provide further expertise and help develop post-disaster housing solutions to fit the region's unique challenges.

As one example of these partnerships, Boston OEM launched the Roundtables to Resilience Series in August 2021 to bring together emergency management professionals from around the country to discuss post-disaster housing. Subject matter experts led discussions on a variety of housing issues, experiences, and best practices and presented topics including post-disaster housing recovery and funding sources for innovative housing designs. This series brought together practitioners and planners from emergency management and other disciplines to share real-world experiences and to facilitate open discussion, networking, and collaboration. As of the close of the grant, Boston hosted eight sessions with an audience of more than 120 people across 21 states, expanding the region's

network of shared expertise. Boston OEM is continuing the series for its FY 2022 RCPGP grant and shifting the focus to community resilience and public information and warning. **Figure 3** illustrates the broad network of MBHSR partnerships built through the RCPGP grant.



**Figure 3. RCPGP Partnership Network**

Boston OEM took a novel approach in reaching out to academic institutions for information sharing and partnership building. This public-academic partnership led to the development and sharing of cutting-edge housing research and served as the foundation to develop the post-disaster housing plan template and the Post-Disaster Housing Summit. By building a relationship with a higher education institution like MIT, Boston OEM took advantage of the resources and information-sharing opportunities that academic institutions can provide to the public sector, and they plan to continue to leverage these types of partnerships in future preparedness efforts. Other local emergency management departments would likely also benefit from engaging with academic institutions in their communities, as higher education institutions can be accessible to the public and are often open to opportunities to engage with real-world practitioners.

**Partnership Highlight: MIT URL**

Boston OEM partnered with the MIT URL to user-test the URL’s Disaster Housing Pre-Planning Toolkit, a three-part workshop series with the goal of empowering a jurisdiction to assess its current post-disaster housing needs and capacity, create a planning working group, and develop a post-disaster housing resilience and recovery plan. This partnership benefited both parties as it allowed for increased information sharing between the academic sector and emergency management practitioners.

Through these workshops, the URL received feedback from participating jurisdictions used to improve the Toolkit, while participating jurisdictions received new knowledge on post-disaster housing planning informed by cutting-edge academic research. The MIT URL toolkit increased awareness and knowledge of post-disaster housing planning information within the MBHSR and may lead to more accurate and up-to-date post-disaster housing plans in the region in the future.

### **3.2. Interjurisdictional Collaboration Strategies**

The RCPGP planning team took an interjurisdictional approach to regional investments, resulting in the creation of tools and allocation of resources to meet the varying needs of different jurisdictions. To accomplish this, the planning team created space for MBHSR jurisdictions to advocate for investments that would best support their individual communities while accounting for the different levels of engagement and capacity of each community. For example, Cambridge favored using the RCPGP award to create concise plans and resource lists and advocated for products such as the Post-Disaster Housing Plan Template, to allow for customization by each jurisdiction. RCPGP support also facilitated the creation of a companion guidance document to aid the region’s emergency managers in developing post-disaster housing plans. The Post-Disaster Housing Plan Template and companion guidance document are described in the **Key RCPGP Investments** Section below.

By using the RCPGP award to create customizable planning templates and identify gaps in current post-disaster housing capability, the region identified and addressed jurisdiction-specific needs and knowledge gaps. When making investment decisions, the RCPGP planning team used this information to ensure that the analyses and products could inform and be applied to every jurisdiction in the region. Throughout this process, Boston accounted for the varying levels of engagement that jurisdictions could offer and ensured that all jurisdictions were able to participate in some capacity. Some jurisdictions in the MBHSR have dedicated emergency management staff while in others emergency management responsibilities lie with public safety personnel. The RCPGP planning team overcame this challenge by regularly asking for input or participation in planning or implementation activities. As an example, nearly all jurisdictions attended the Post-Disaster Housing Summit organized by the RCPGP planning team at the end of the period of performance, while other jurisdictions were involved in different aspects of planning. This commitment to interjurisdictional engagement ensured that RCPGP investments were valuable to all MBHSR jurisdictions.

## 4. Key RCPGP Investments

The following sections provide more detail on four key RCPGP investments and their impact: (1) Regional Housing Stock Analyses, (2) Housing Policy Recommendations, (3) Post-Disaster Housing Plan Template and User Guide, and (4) Post-Disaster Housing Summit.

### 4.1. Regional Housing Stock Analysis

Boston OEM used \$145,985 in RCPGP FY 2019 funds to conduct a regional housing stock analysis. To undertake this work, the RCPGP planning team interviewed stakeholders representing a variety of disciplines and departments and conducted peer community outreach with other RCPGP recipients and potential housing solution partners such as city housing, planning, and advocacy departments, home-sharing services, prefabricated or modular housing manufacturers and architects, and facility managers of public property. These efforts resulted in a comprehensive understanding of how post-disaster housing decisions might vary in each jurisdiction based on their individual geography, building codes, and vulnerable populations.

Boston OEM had previously conducted a land suitability analysis internally focused on Boston. Building from this land suitability analysis, the Tetra Tech and DREAM Collaborative teams conducted literature reviews and interviews with participating MBHSR jurisdictions. During the interview sessions, the teams sought to identify known existing housing stock that could be utilized or retrofitted following a disaster, existing or planned policies that could be implemented to expedite post-disaster housing renovations and rebuilding, and expected opportunities for partnership across the region to house displaced residents.

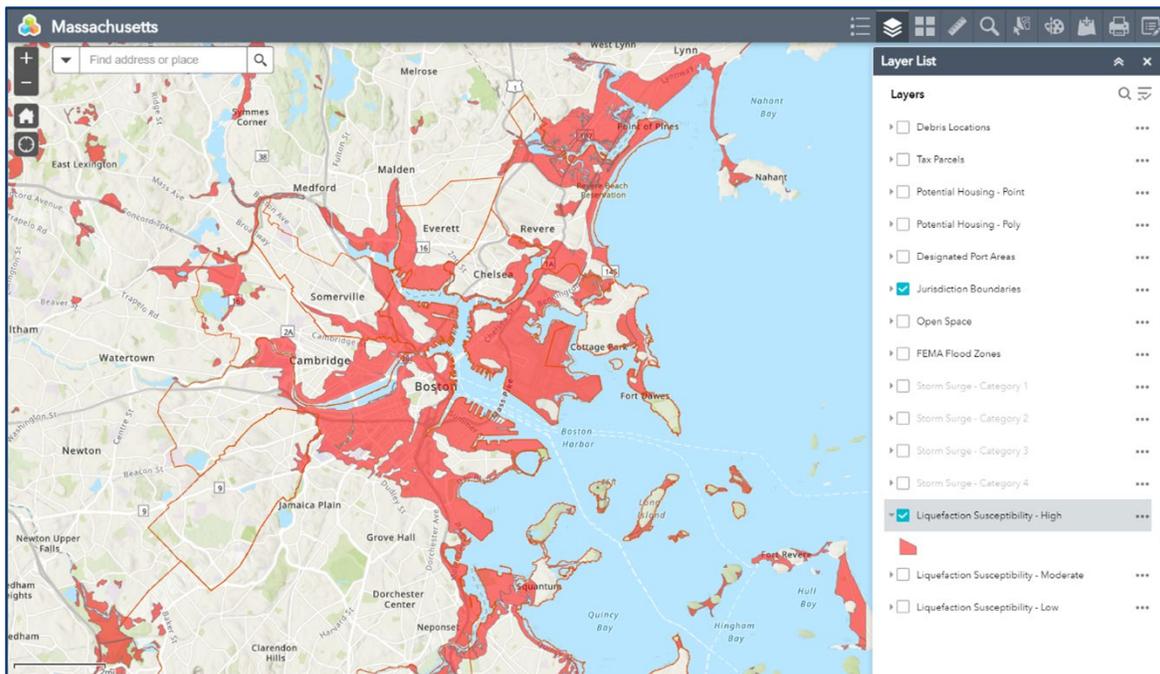
In addition to engaging each MBHSR jurisdiction, the teams participated in calls with the NYC Office of Emergency Management, NYC Office of Housing Recovery, and AirBNB.org to discuss potential partnerships and best practices that Boston OEM could leverage following a widespread disaster impacting the city and wider MBHSR area. This information was compiled into a Housing Stock Inventory Analysis. The final Housing Stock Inventory Analysis Report consisted of nine MBHSR Community Profiles and identified existing housing stock options, such as dorms, retirement communities, and parking lots, which could be used for interim (weeks to months) and long-term (months to years) housing solutions following a disaster. For this analysis, Boston OEM specifically examined the potential impacts of a Category 3 hurricane and a magnitude 6 earthquake, two hazards that have the potential to displace many residents. Boston OEM cross referenced this data with the Centers for Disease Control and Prevention's Social Vulnerability Index to determine how these hazards would affect the most vulnerable populations in the region.

As a result of this analysis, Boston is considering several post-disaster housing solutions, including home-sharing services, prefabricated or modular housing, and retrofitting existing buildings for housing. While a cost-benefit analysis is necessary to determine the best solution to implement, this housing stock analysis was the first step in determining optimal locations for post-disaster housing.

### **Regional Housing Stock Analysis Interactive Map**

Boston OEM used data collected from the regional housing stock analysis to develop an interactive map of the region, pictured in **Figure 4**. Users can select layers to visualize data such as coastal flood inundation modeling, storm surges, and liquefaction susceptibility levels. Boston OEM has also added social, climate, and energy vulnerability layers to the interactive map.

This interactive map has the potential to be used by every jurisdiction in the MBHSR for post-disaster housing planning and operations because the RCPGP planning team prioritized collecting jurisdiction-specific information and data. When this tool is distributed to the larger region, every jurisdiction will have access to their own data as well as greater visibility into neighboring communities' needs and capabilities. Ultimately, the tool can enable more coordinated regional post-disaster housing planning in the MBHSR and will support future use of Geographic Information Systems (GIS) in regional emergency management planning. This tool is currently being used for the Boston's FY 2022 RCPGP award, which is focused on building Community Resilience and Public Information and Warning core capabilities.



**Figure 4. Regional Housing Stock Analysis Interactive Map**

## **4.2. Housing Policy Recommendations**

Boston OEM used \$55,000 in RCPGP FY 2019 funds to develop housing policy recommendations for the MBHSR. Building from the information collected from the interviews and extensive local experience, DREAM Collaborative, a local urban planning firm that partnered with Tetra Tech, developed a compendium of 50 housing policy recommendations for the region. These recommendations included suggested policy actions that individual communities, the region, and the

Commonwealth could take to address the need for a longer-term safe, resilient housing supply through a multi-pronged approach.

These recommendations accounted for general housing growth in the region while also addressing specific challenges faced by each jurisdiction. Through this project, the RCPGP planning team gained an increased understanding of the geographic and political challenges specific to the MBHSR and was then able to incorporate that understanding into regional housing assessments and plans.

These policy recommendations were organized into six categories:

1. **Planning:** Identification of geographic areas in the region that could handle new housing development and specific sites that could be adapted for housing; for example, preparation of master plans.
2. **Zoning:** Recommendations to adjust zoning regulations to foster more housing development; for example, allow for “missing middle buildings” such as brownstones and walk-ups.
3. **Permits and Codes:** Recommendations to reduce regulatory barriers to development approvals, shorten processing times, and clarify permit requirements; for example, education and outreach from Inspectional Services Department on how to apply for permitting.
4. **Community-Based:** Guidance on how to use alternate trusted channels of communication, existing relationships, and local expertise to establish trust and begin long-term dialog around disaster response and housing; for example, neighborhood resilience hubs.
5. **Supply:** Recommendations for increasing the supply of additional post-disaster housing from unconventional sources (such as land banks and vacant structures); for example, interim prefab housing units.
6. **Regional:** Strategies for collaboration with other municipalities in metro Boston and across the state to assess likely geographic patterns in disaster impact; for example, taking advantage of residents’ ties to other communities.

These recommendations were presented at the Post-Disaster Housing Summit, and the RCPGP planning team provided the complete list of recommendations to MBHSR jurisdictions. By developing this list of policy options, the RCPGP planning team provided resources for individual jurisdictions to select and implement policy solutions that work best for their specific needs.

### 4.3. Post-Disaster Housing Plan Template and User Guide

Boston OEM, in collaboration with Tetra Tech, used \$79,811 of RCPGP FY 2019 funds to develop a post-disaster housing plan template and user guide for the MBHSR. The template includes: (1) a profile of an individual community and its local and regional hazards, (2) a concept of operations that outlines steps to prepare, activate, and support long-term post-disaster housing solutions, (3) roles and responsibilities of local and state agencies involved in post-disaster housing operations, (4) a schedule for reviewing and updating the post-disaster housing plan; and (5) appendices of available

housing assistance programs, a decision-making checklist, and suggested design criteria and requirements for safe, environmentally compliant, and durable housing options.

The post-disaster housing plan template is accompanied by a development guide that walks a planner through the process of identifying a planning team, collecting information for plan development, and guidance for information needed to input content. The supplemental guide also provides suggested content and considerations for each plan section to help planners who may not have previously developed emergency management or housing-focused plans. Further, this template and user guide were designed to be accessible and customizable, as requested by MBHSR representatives during the planning process.

#### 4.4. Post-Disaster Housing Summit



**Figure 5. Post-Disaster Housing Summit Panel Discussion**

In August 2023, the RCPGP planning team organized a Post-Disaster Housing Summit co-hosted by Boston OEM and MIT. In addition to the \$65,170 of RCPGP FY 2019 award funds invested in the Post-Disaster Housing Summit, Boston OEM spent \$33,295 on its partnership with MIT which covered MIT's costs for the three housing planning workshops as well as their contributions to the summit. The summit consisted of presentations, panel discussions on housing considerations for vulnerable populations and resilient design, and a regional workshop focused on what

Boston OEM had achieved through RCPGP, including the housing stock analysis, policy recommendations, and the post-disaster housing plan template.

The Summit brought together over 100 in-person and virtual attendees, including MBHSR stakeholders and professionals from 13 different states and various disciplines. Within the MBHSR, representatives from Boston, Brookline, Cambridge, Chelsea, Quincy, Somerville, and Winthrop attended the summit. Participants had backgrounds in emergency management, housing, planning and development, public health, and various advocacy issues. The MIT URL was a key partner in planning and organizing the summit. The URL reported that organizing and attending this summit enabled the URL to share outcomes from the post-disaster housing toolkit and workshops and other post-disaster housing solutions, including a temp-perm housing prototype. The URL also reported meeting potential partners for their Disaster Housing Pre-Planning Toolkit from other states and FEMA regions.



**Figure 6. Post-Disaster Housing Summit Regional Workshop**

By organizing this summit, the Boston OEM and the MIT URL provided an opportunity for regional information sharing and space for engaging with a broad range of housing stakeholders. This coordination, led by MBHSR, allowed stakeholders to begin thinking about post-disaster housing on a larger, regional level. Furthermore, the Summit empowered jurisdictions to take the first steps towards planning for interim housing by facilitating difficult, but honest, conversations and providing them with the knowledge and tools to begin. The Summit introduced jurisdictions to different stakeholders in the housing space and initiated potential future collaborations and partnerships in the region, as well as encouraged positive relationships between the MBHSR jurisdictions as they planned for continued collaboration in the future. These new and future partnerships have the potential to help the MBHSR improve and increase its expertise as it continues to build post-disaster housing capability throughout the region.

## 5. Conclusion

This case study highlights the City of Boston's experience with using and implementing FY 2019 RCPGP awards at regional and local levels to better prepare the region for catastrophic incidents. Before the FY 2019 RCPGP award, jurisdictions within the MBHSR region had not conducted an in-depth analysis of their housing stock, and they operated in silos when addressing post-disaster housing capability issues. During the period of performance, dedicated RCPGP planning staff used their resources to develop partnerships with a variety of entities, including academic institutions and private organizations, and to develop analyses and products that could be applied throughout the region. The Boston OEM used FY 2019 RCPGP funds to support efforts such as the Regional Housing Stock Analysis, housing policy recommendations, a post-disaster housing plan template, and the Post-Disaster Housing Summit.

*"It's always just great to be building these collaborations now so that when something does happen, we know who to contact."*

*-Delaney Morris, Senior Climate & Coastal Resilience Infrastructure Delivery Project Manager, Boston*

Given the challenging nature of planning for post-disaster housing and the fact that Boston was the first RCPGP recipient to address FEMA's Housing core capability, their efforts provide a model and lessons learned for future RCPGP recipients. Their progress also reflects the importance of engaging a broad range of public- and private-sector stakeholders and prioritizing regional relationship-building. To sustain the capability built with the RCPGP grant funds, the Boston OEM RCPGP planning team continues to collaborate with regional partners to explore future initiatives to support their collective work. For example, they might develop formal agreements with new partners met during FY 2019 RCPGP implementation for solutions such as pre-established arrangements for home-sharing services and prefabricated and/or modular housing manufacturers. They are also exploring mutual agreements to use City of Boston and the Commonwealth of Massachusetts property for post-disaster housing. Boston OEM is also considering creating emergency waivers to expedite permitting and short-term rental licenses, both of which are ideas inspired by policy recommendations developed using the RCPGP award.

The FY 2019 RCPGP grant has streamlined the Boston region's ability to prepare for and respond to emergencies and catastrophic incidents. While geographic and political challenges to addressing the housing crisis and building post-disaster housing capability still exist in the MBHSR, the support of the RCPGP award has demonstrably enhanced regional collaboration and has allowed the City of Boston to develop comprehensive planning and to explore post-disaster housing solutions.