

Baltimore Urban Area Security Initiative (UASI) Regional Catastrophic Preparedness Grant Program (RCPGP) Case Study

Fiscal Years (FY) 2019 and 2020

December 2024



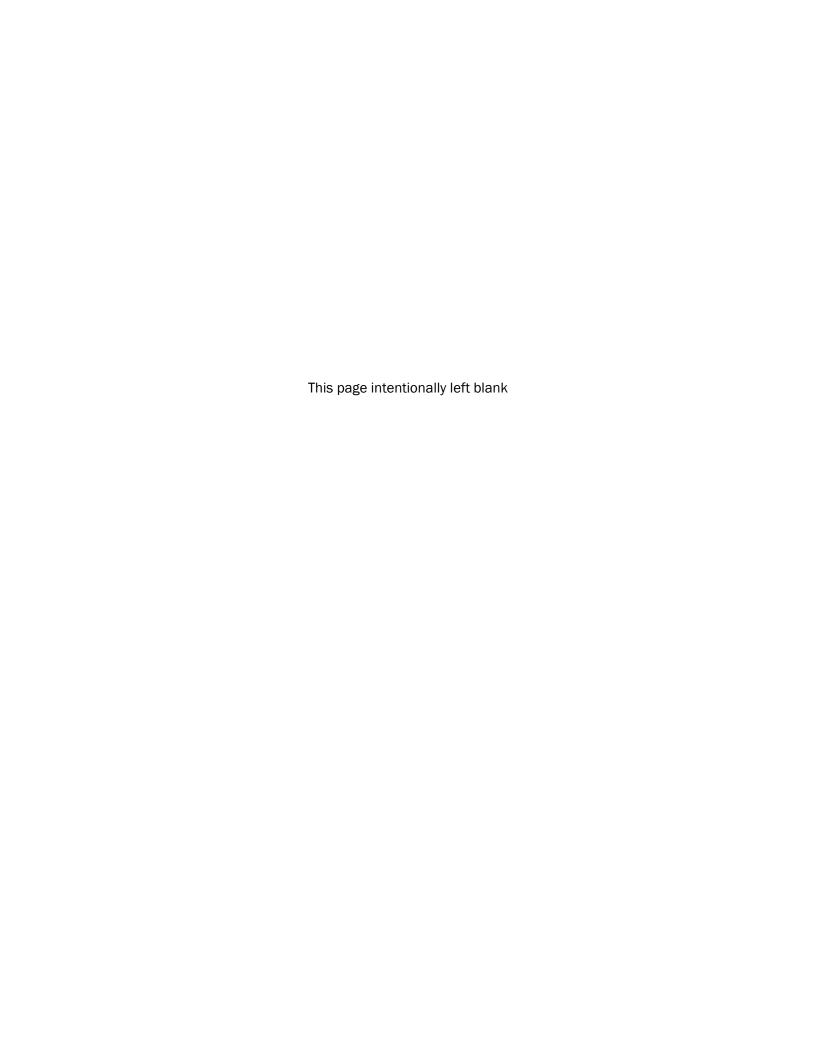


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1. Overview

In 2023, the Federal Emergency Management Agency (FEMA) conducted a grant effectiveness case study with the Baltimore Urban Area Security Initiative (UASI) to increase understanding of how this region used its Regional Catastrophic Preparedness Grant Program (RCPGP) award for fiscal years (FY) 2019 and 2020 to build state and local capacity to manage catastrophic incidents. FEMA conducted an on-site visit to Baltimore, Maryland, to meet with key stakeholders from the Baltimore UASI, including the Baltimore Metropolitan Council (BMC) and members of the RCPGP Task Force. The site visit 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:

- The BMC Emergency Management (EM) team acts as connective tissue between jurisdictions to help facilitate equitable administration of the UASI awards to jurisdictions throughout the Baltimore region.
- The RCPGP Task Force consists of representatives from each of the Baltimore UASI jurisdictions, which helps to break down silos, establishes partnerships at the local, state, and even national levels, and encourages sustainable collaboration between jurisdictions.
- Using grant funds, the BMC EM team created tools such as the Regional Catastrophic Food and Water Resilience Map with a just-in-time methodology and the Housing Formula, which helps planners calculate the number of housing units necessary for disaster housing in a jurisdiction. These tools empower jurisdictions to better assess their food, water, and housing gaps and capabilities.
- The RCPGP helps the Baltimore UASI region validate and build capabilities to thrive and grow during real-world incident responses, regardless of current budget capacity, by encouraging greater sharing of resources and information during incidents as well as sharing best practices and lessons learned after an incident.

This case study is part of a series that FEMA is conducting to 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 of the Baltimore UASI and its unique challenges. Next, the report outlines investment priorities to illustrate the Baltimore UASI's regional approach to preparedness. Finally, the report discusses specific RCPGP-funded projects and describes their benefits to Baltimore jurisdictions and their communities.

2. Background

The Baltimore UASI includes seven jurisdictions as highlighted in **Figure 1**, including two cities—Baltimore City and the City of Annapolis—and five counties—Anne Arundel, Baltimore, Carroll, Harford, and Howard. EM directors from each of the seven jurisdictions comprise Baltimore's Urban Area Working Group (UAWG).

The broader Baltimore region contains communities that vary in size, wealth, and geography. Jurisdictions range from the urban Baltimore City to the more rural Harford and Carroll counties, whereas Baltimore, Anne Arundel, and Howard counties have both urban and rural areas. Howard and Anne Arundel Counties are generally more affluent, and Baltimore City has more distinct wealth disparities and higher concentrations of poverty.



Figure 1: The Baltimore UASI Region

Five of the seven UASI communities are coastal, with communities across the region prone to flooding, storms, and the subsequent economic impacts of these natural disasters. The region is part of Maryland's larger coastal zone, which has thousands of miles of shoreline.¹

The Baltimore region's complex geography requires the UASI to take a unique approach to regional all-hazards preparedness, including specific preparations to address sea-level rise and coastal flood impacts. Additionally, diverse populations in the region demand a whole community approach to emergency preparedness for consistent messaging, equitable planning, and inclusive outreach.

The BMC, headquartered in Baltimore City, is a non-profit organization that works with elected officials in the Baltimore UASI region. The BMC serves as the region's council of governments (COG) and coordinates planning efforts in a range of policy areas including emergency management (EM). Since its inception in 2019, the BMC EM planning team has been pivotal in leading regional planning for emergency preparedness, coordinating within the UAWG, and strengthening state, local, and nongovernmental organization (NGO) relationships within the region. The BMC team administers the RCPGP grant on behalf of the UASI and reports to UAWG EM directors monthly to provide RCPGP project updates. The BMC board includes elected executives from each of the region's jurisdictions,

¹ Maryland Department of Natural Resources, Maryland's Coastal Zone: MD Coastal Zone | Chesapeake & Coastal Service (maryland.gov)

which helps to facilitate equitable RCPGP grant administration to jurisdictions based on staffing and resource capacities.

At the start of the RCPGP FY 2019 grant period of performance, the BMC established the RCPGP Task Force, which consists of representatives from each jurisdiction's EM office. The BMC and RCPGP Task Force meet at least twice a month to discuss progress updates and ongoing needs. The relationship between the BMC, elected officials, the Baltimore UAWG, and the RCPGP Task Force is illustrated in **Figure 2**:

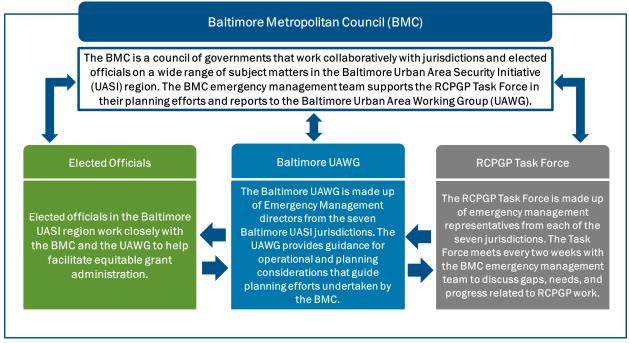


Figure 2: Baltimore UASI RCPGP Grant Stakeholders

Through the administration of the RCPGP grant, the BMC has fostered an environment that encourages regional collaboration and empowers a comprehensive regional EM approach. The FY 2019 and FY 2020 RCPGP funding has supported inter-jurisdictional and inter-departmental collaboration, reduced communication silos, and increased synergy in planning, preparedness, and response across the region. The BMC aims to continue building upon these relationships in future years.

The Baltimore UASI received \$937,700 in RCPGP funds in FY 2019 to build capability in the Logistics and Supply Chain Management core capability and \$843,988 in FY 2020 to build its capability in the Housing core capability. **Figure 3** illustrates sample Baltimore UASI RCPGP-funded projects in FYs 2019 and 2020.

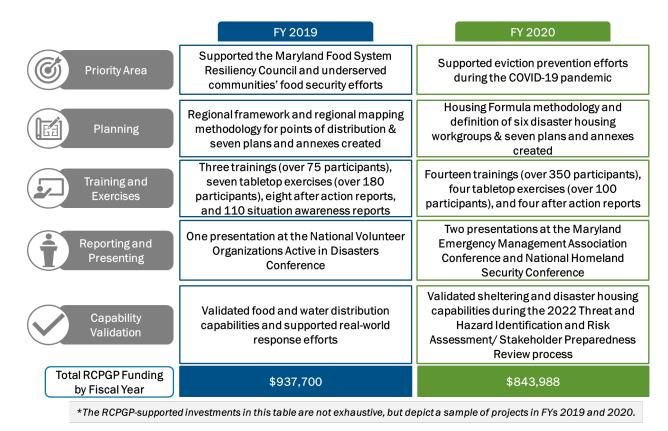


Figure 2. Example RCPGP Funded Efforts for FY 2019 (Logistics and Supply Chain Management) and FY 2020 (Housing)

The next sections describe the Baltimore UASI's approach to regional preparedness and provide insight into RCPGP-funded preparedness efforts at the jurisdiction level.

3. Regional Strategies and Priorities

The BMC establishes a regional strategy for emergency and catastrophic incident response and recovery by empowering individual jurisdictions to build their own preparedness capabilities with the support of regional staff and resources. Because some jurisdictions may not have the staff, time, or resources to measure and close their own capability gaps independently, BMC staff works to meet

each jurisdiction's needs by developing resources, coordinating training, conducting research, and assessing capabilities through exercises. When individual jurisdictions hire new EM planners, they join the RCPGP Task Force and immediately gain access to an established network of other EM planners and local knowledge of regional resources.

Collectively, through measuring and building

"When you work with each jurisdiction, you meet them where they're at... and figure out what the best way to engage with them is."

-Blake Fisher, Senior Emergency Planner, Baltimore Metropolitan Council

individual capability at the jurisdictional level, the region is in a better position to coordinate planning

efforts between jurisdictions and to deploy necessary resources and capabilities to regional response and recovery efforts.

3.1. Regional Strategy

As a COG, the BMC is able to learn from each jurisdiction and can develop a broader regional preparedness strategy. Using this regional lens, the BMC shares ideas and information with neighboring jurisdictions at the emergency planner level to build planning capabilities while mitigating any potential points of conflict. Prior to FY 2019, some regional stakeholders felt that UASI grants were not distributed to all Baltimore jurisdictions adequately. The FY 2019 RCPGP grant was the first grant that the Baltimore UAWG assigned to the BMC.

Under this structure, the regional council worked to ensure that all jurisdictions were represented appropriately in regional preparedness planning by including an active representative from each jurisdiction in the RCPGP Task Force. Additionally, the BMC's EM team has working relationships with a network of other planners within the COG, such as those working on housing, transportation, and environmental issues. The BMC team uses these relationships to help connect jurisdictions with services and information they may be able to benefit from. This approach has helped increase access to information and partnerships for individual jurisdictions.

The RCPGP Task Force includes at least one local government EM planner from each jurisdiction. The BMC and UAWG formed the task force to help ensure that RCPGP-funded products and relationships are sustained past the grant's period of performance. Although the BMC staff positions supporting the needs of the Task Force are funded by RCPGP investments, the Task Force itself is not and can therefore continue the work and relationships that have been strengthened through the RCPGP program after the grant's period of

"Grants come and go, which meant that we didn't want the products that we developed and the relationships we built to go away when we went away."

-Jeramie Calandro, Baltimore UASI Program Manager

performance has ended. The BMC oversees and works with the RCPGP Task Force to assess the needs and priorities of individual jurisdictions. The Task Force members are responsible for developing plans and exercises at the jurisdictional level. The BMC supports these efforts and helps to incorporate this work into larger regional plans and exercises. The BMC planners serve as an extension of each jurisdiction during the period of performance, while the agency continues the collaboration into the future. The BMC planners supporting the RCPGP Task Force report monthly to the Baltimore UAWG on Task Force work and other RCPGP updates.

3.2. Investment Strategy

In FY 2019, emergency managers adapted their typical planning approaches to meet the needs of the COVID-19 pandemic. For example, when assessing gaps and capabilities in Logistics and Supply Chain Management, Baltimore UASI regional jurisdictions usually start by conducting individual

assessments before writing plans. However, in FY 2019, jurisdictions worked together to execute the COVID-19 response first, then wrote Logistics and Supply Chain Management plans based on their experiences.

The region benefited from having two full-time regional RCPGP-funded staff during the COVID-19 response period, as jurisdictional staff were often at capacity with day-to-day response operations. While members of the RCPGP Task Force were occupied with COVID-19 response efforts in their individual jurisdictions, the BMC EM team monitored and assessed the region for gaps in real-time, writing them into the food and water plans that they then developed.

RCPGP Task Force

At the beginning of the pandemic, the BMC quickly identified food needs in the region based on RCPGP Task Force meetings. The RCPGP Task Force's structure enabled the region to track the food distributed during the COVID-19 response. The collaboration allowed timely metric tracking as the jurisdictions collectively distributed over 36 million meals to Baltimore-region residents.

This effort laid the groundwork for the BMC to develop the Regional Catastrophic Food and Water Resilience Map (see Section 4.2). The BMC connected with various farmers' markets in the region and directly helped move resources based on each jurisdiction's needs. The BMC also had a prior partnership with wholesale food distributor C&S Wholesale Grocers, which it leveraged during its COVID-19 response to better understand the regional food and water supply chain. The knowledge gained from this relationship helped regional situational awareness during incident response. After its initial COVID-19 response, the BMC coordinated training to address some gaps in knowledge and capability identified during real-time response.

In FY 2020, the BMC studied its capacity in the Housing capability by conducting a preparedness assessment based on jurisdictional staff's familiarity with disaster housing and existing plans. The team then developed a timeline to address the gaps along the way to creating a regional framework to help facilitate collaboration. Before the FY 2020 award, all jurisdictions already had mass care sheltering plans in place, but they did not have intermediate-term or long-term housing plans. To bridge identified knowledge gaps, the RCPGP Task Force formed a jurisdictional disaster housing taskforce and provided training. The training series, conducted by the National Center for Disaster Preparedness Columbia Climate School at Columbia University, helped to facilitate a better understanding of the nuances of disaster housing management.

The BMC continues to build comprehensive housing capability throughout the region. Thus far, local jurisdictions have created or improved upon existing plans for sheltering and are preparing for mass-care sheltering exercises. The BMC team is also developing frameworks for intermediate-term and long-term housing. Once all frameworks have been created, individual jurisdictions will write their own plans and conduct exercises for intermediate-term and long-term housing.

3.3. Relationship-Building

The BMC emphasizes the importance of regional communication and collaboration between jurisdictions, exemplified in Figure 4. The BMC hosts RCPGP Task Force meetings every two weeks to build and strengthen relationships among local jurisdictions. Before the 2019 RCPGP award, staff with the jurisdictions reported feeling siloed from one another. These staff now communicate regularly through virtual and in-person means, sharing experiences, lessons learned, and even resources. Additionally, the BMC functions as a liaison between jurisdictions and external partners, such as state agencies, institutions in the private and nonprofit sectors such as wholesale grocers, and EM agencies in other cities and states. With the regional strategy in place and strong channels of communication built through the RCPGP Task Force, the BMC was able to be more responsive to needs and facilitate resource sharing between jurisdictions during the COVID-19 pandemic.



Figure 3. Real-world incident collaboration between Baltimore County Homeland Security and Emergency Management and Carroll County Department of Public Safety

The BMC has also developed relationships across the country with other RCPGP grant recipients, some of which are summarized below:

- San Francisco's toolkit provided examples for point of distribution planning and supply chain analysis that Baltimore can consider when developing its own plans and frameworks.
- Houston's disaster housing recovery subject matter experts (SME) shared lessons learned from Hurricane Harvey, including how to execute a comprehensive food and water supply chain tracking tool using a Geographic Information System (GIS) platform. They helped Baltimore planners to establish a similar tool that integrates community lifelines and supply chains.
- Boston facilitated jurisdictional planning meetings and allowed Baltimore planners to observe and participate. RCPGP planners used these engagements as informal training and informationsharing opportunities.
- Boston also hosted the 2023 Metro Boston Post-Disaster Housing Summit, which Baltimore planners attended to gain best practices and lessons learned on post-disaster housing and develop sections of Baltimore's respective plans.

3.4. Regional Collaboration in Real-World Incidents

The benefits of the strong relationships formed across the Baltimore UASI region are best seen in collaboration during and after real-world incidents. Although each jurisdiction faces different challenges in building its housing capability, inter-jurisdictional communication has allowed the region to collaborate and prepare for challenges more holistically.

As jurisdictional staff began writing or updating their housing plans during RCPGP implementation, they openly shared their lessons learned from previous incidents. For example, representatives from Howard County shared lessons learned from the Ellicott City flood of 2018, which led to a memorandum of understanding between the County and its Housing Commission to use available units during the phases of disaster housing.

2022 E. Coli Water Contamination Incident

In 2022, Baltimore City's Department of Public Works identified E. coli contamination in three water samples in West Baltimore, an area of the city that has a long history of racial inequity, economic vulnerability, social instability, and extreme residential segregation. During the response, Baltimore City and Baltimore County used lessons learned from the COVID-19 food distribution activities and their Geographic Information Systems (GIS) mapping resources to make planning decisions that were inclusive of their underserved communities and reflected the socio-economic characteristics of their communities. Although the incident only spanned across Baltimore City, Baltimore County, and Howard County, the Carroll County emergency management staff also helped during the response and assisted with resource management.

The incident also strengthened lines of communication between Baltimore City's Department of EM and the Department of Public Works. Previously, the two departments worked in silos without much collaboration. The City of Baltimore had planned to deploy stored water tanks as a source of potable water delivery at points of distribution. However, during the incident, the City of Baltimore learned that there is a 48-hour decontamination period for the equipment to ensure it passes drinkability standards. This waiting period is a significant barrier for immediate response to a no-notice incident, like the E. coli contamination. These water tanks are better suited for non-human consumption, long-term water distribution, or for incidents with at least a 48-hour lead time. Having non-public works personnel clearly understand the capability to deploy water tanks is critical in planning for no-notice events. The jurisdictions involved in the E. coli response shared this information with the larger region and all jurisdictions were then able to include that lesson learned in their food and water plans. This information sharing is a direct result of the relationships that the BMC and the jurisdictions have built through the RCPGP Task Force.

4. Key RCPGP Investments

The following sections highlight five key RCPGP investments that the BMC and the Task Force made with funding from FYs 2019 and 2020 RCPGP awards: (1) the BMC's full-time staff; (2) the Regional Catastrophic Food and Water Resilience Map; (3) the Housing Formula; (4) conference attendance and outreach; and (5) a two-part regional training series hosted by the BMC.

4.1. BMC Full-Time Staff

The BMC used FYs 2019 and 2020 RCPGP award funds to support the hiring of two full-time emergency planners. Their hiring has improved regional collaboration and coordination through relationship-building and information-sharing. These two staff members also plan and execute the

investments discussed below with input from and in coordination with the RCPGP Task Force, in addition to developing plans, training, and local and region-wide exercises for the jurisdictions.

4.2. Regional Catastrophic Food and Water Resilience Map

The BMC used FY 2019 RCPGP funds to assess gaps and build capability in the Logistics and Supply Chain Management core capability by developing plans for food and water points of distribution. As this effort overlapped with COVID-19 pandemic response, jurisdictions evaluated and built capability in the context of a real-time emergency. The BMC used a just-in-time methodology when developing plans for food and water points of distribution amid the pandemic. The just-in-time methodology provided ground rules for regional collaboration to ensure that response and recovery strategies for different jurisdictions were not in conflict. The BMC used pre-identified leading indicators and data sets featured in the FEMA and Argonne National Labs Community Resilience Indicator Analysis to serve as a building point for the regional food and water tool. The existing relationships formed in the UAWG also allowed for greater cohesiveness during this response effort.

To identify gaps in resource distribution, the BMC coordinated GIS personnel at each of the respective jurisdictions to develop a Regional Catastrophic Food and Water Resilience Map, highlighted in **Figure 5**. This process integrated feedback from SMEs that would set up the regional tool in future real-world incidents to establish a baseline methodology for future operational coordination. To locate new points of distribution to fill those gaps, one of the full-time BMC EM planners conducted site visits around the Baltimore UASI region engaging with food industry stakeholders and non-governmental stakeholders supporting COVID-19 response efforts. This outreach included organizations of many sizes, from neighborhood farmers' markets to wholesale food distributors.

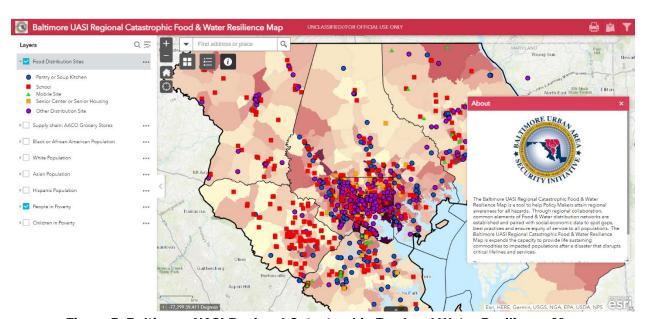


Figure 5. Baltimore UASI Regional Catastrophic Food and Water Resilience Map

While each jurisdiction had Community Points of Distribution (CPODs) before COVID-19 response, major gaps existed within the region, especially along jurisdictional boundaries. To visualize CPODs and promote a regional response to gap reduction, BMC staff created a map of CPODs throughout the region, providing current data to inform both the COVID-19 response as well as the region's food and water plans. Although the map primarily served as a gap analysis tool for both the BMC team and individual jurisdictions to conduct grant work, the RCPGP Task Force repeatedly referred to the map to monitor regional food distribution throughout the COVID-19 response. The high-level situational awareness helped the BMC team facilitate the Regional Catastrophic Food and Water Resilience Map gap analysis tool so that the region's jurisdictions could better work to ensure all community members received resources during the pandemic. Without BMC staff, the region would not have had the capacity to create this map and assess its food and water resource distribution.

This process has laid the foundation for adding new data layers to the Regional Catastrophic Food and Water Resilience Map. For example, Baltimore has since integrated disaster housing capabilities data captured during the RCPGP FY 2020 grant work. RCPGP Task Force points of contact also used the map to assess the location of food and water CPODs along jurisdictional boundaries to minimize gaps in access regardless of where the resident called home. Further, jurisdictions referred to the tool to minimize gaps during scaled-back COVID-19 food distribution once restrictions loosened and economic situations returned to a normal status.

4.3. Housing Formula

When the BMC planners began working on housing capability using the FY 2020 grant, they quickly learned that housing departments and EM departments use different terminologies and units. For example, housing departments typically counted housing units, whereas EM departments typically counted the number of people in need of housing. To address this challenge, RCPGP-funded BMC staff created the Housing Formula, helping planners to identify the number of housing units needed for a certain number of people, or the number of people who could be housed by a certain number of housing units. This was the first step toward assessing the region's housing gap consistently to build capability.

The Housing Formula shown in **Figure 6** enables jurisdictional EM departments and housing departments to have productive conversations about housing gaps and capabilities:

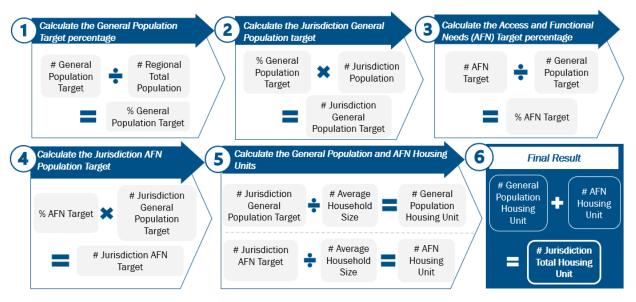


Figure 4. BMC Housing Formula

The Housing Formula can help jurisdictions to accurately assess their gaps, consult with their respective housing departments, and ultimately develop housing plans that reflect current housing capabilities. The Housing Formula will also help BMC planners and local jurisdictions to establish a regional housing framework that more accurately accounts for disaster housing gaps. Moreover, the formula is simplistic enough to apply to jurisdictions across the nation and used supplementally with tools such as FEMA's Resilience Analysis and Planning Tool.

4.4. Engagement and Outreach

Approximately 650 individuals participated in conference presentations, exercises, and structured training opportunities during the RCPGP grant performance period. As one example of the partnerships forged at these events, the BMC met and collaborated with new partners at the National Low Income Housing Coalition and the State of Maryland Department of Housing and Community Development.

Additionally, the flexible RCPGP award structure enabled less formal training opportunities and discussions with SMEs from jurisdictions and organizations across the country.



Figure 5. Conference attendance supported by the RCPGP award

This regular conference attendance has enabled the BMC to share lessons learned related to disaster housing throughout the RCPGP period of performance.

4.5. Two-Part Equity in Emergency Management Training Series

In 2022, the BMC used \$6,075 in FY 2019 RCPGP award funds to host a two-part training series: (1) Whole Community Public-Private Partnership, and (2) Diversity Equity and Inclusion (DEI) Emergency Goals. The BMC hired educators from Frederick Community College to conduct these trainings for members of the BMC, the RCPGP Task Force, and the Baltimore UAWG. In total, these trainings educated 75 people in the region. This helped jurisdictions to gain a better understanding of these topic areas and identified opportunities to adjust emergency plans and response procedures based on lessons learned in these trainings. The RCPGP Task Force members took what they learned from these trainings back to their jurisdictions, applied the new knowledge to their emergency plans, and shared the opportunities Figurity with a wider network.



Figure 6. Participants in Equity in Emergency Management Series

COVID-19 Response Helps Identify Needs for Equity Training

During the COVID-19 pandemic, Howard County included Community Organizations Active in Disasters in community feeding efforts, which allowed the county to benefit from the organization's existing partnerships with small businesses. The RCPGP Task Force quickly recognized the value of this and other public-private partnerships, leading to BMC facilitating formal training on building public-private partnerships after its initial pandemic response.

Additionally, during the COVID-19 response, some jurisdictions identified challenges in ensuring that food and water distribution was inclusive, equitable, and accounted for all vulnerable populations in the region. In response, the BMC hosted the DEI Emergency Goals training after the pandemic.

5. Conclusion

This case study highlights the Baltimore UASI's experience implementing the FYs 2019 and 2020 RCPGP awards at regional and local levels to better prepare for catastrophic incidents. The BMC, as a separate regional entity, acted as connective tissue between the RCPGP Task Force and the seven jurisdictions and maintains this role today. With its bottom-up approach to developing a regional strategy, the BMC tailors support and resources to each of the jurisdictions to empower each jurisdiction to build and sustain its preparedness capabilities and relationships across the region. Without the FY 2019 and FY 2020 RCPGP awards made to the Baltimore UASI, the BMC would not have the same capacity to serve the region because it would not have the staff directly funded by these RCPGP awards.

Before the FY 2019 RCPGP award, EM teams with jurisdictions in the Baltimore UASI region operated in silos more often around food, water, and disaster housing planning. After the FY 2019 and FY 2020 awards, the jurisdictions in the region have increased communication with one another. The BMC and the RCPGP Task Force have worked to grow these regional relationships between jurisdictions, as well as with private partners in the communities. The COVID-19 pandemic, although a distinct challenge for the region, led to new conversations among jurisdictions and stakeholders in the Baltimore UASI and fueled a sense of collaboration encouraged by the BMC. With the formation of the RCPGP Task Force, the jurisdictions now openly share challenges, lessons learned, and even resources to a significantly greater extent than before the formation of the Task Force.

FY 2019 and FY 2020 RCPGP funds supported efforts such as the Regional Catastrophic Food and Water Resilience Map, the Housing Formula, and a two-part training series for the region. By providing research, resources, and connections, the BMC has enhanced the region's ability to prepare for and respond to emergencies and catastrophic incidents collaboratively in the future. RCPGP-funded work created a strong foundation that jurisdictions can continue to build upon, including the deliverables developed by BMC EM planners and the strengthened relationships between jurisdictions and other stakeholders. The continued support of the RCPGP award has enabled a whole community perspective on regional preparedness goals and planning.