Grant Effectiveness Case Study: Hawaii

October 2020

FEMA

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I. Overview

In October 2019, the Federal Emergency Management Agency (FEMA) conducted a grant effectiveness case study with the state of Hawaii to understand how state and local jurisdictions use preparedness grants to increase their emergency preparedness and counterterrorism capabilities. FEMA examined how Hawaii used grant funds to close capability gaps and the impact those investments had on the state's response to Hurricane Lane, severe flooding, and the Kilauea volcanic eruption and earthquakes, all of which occurred in 2018.

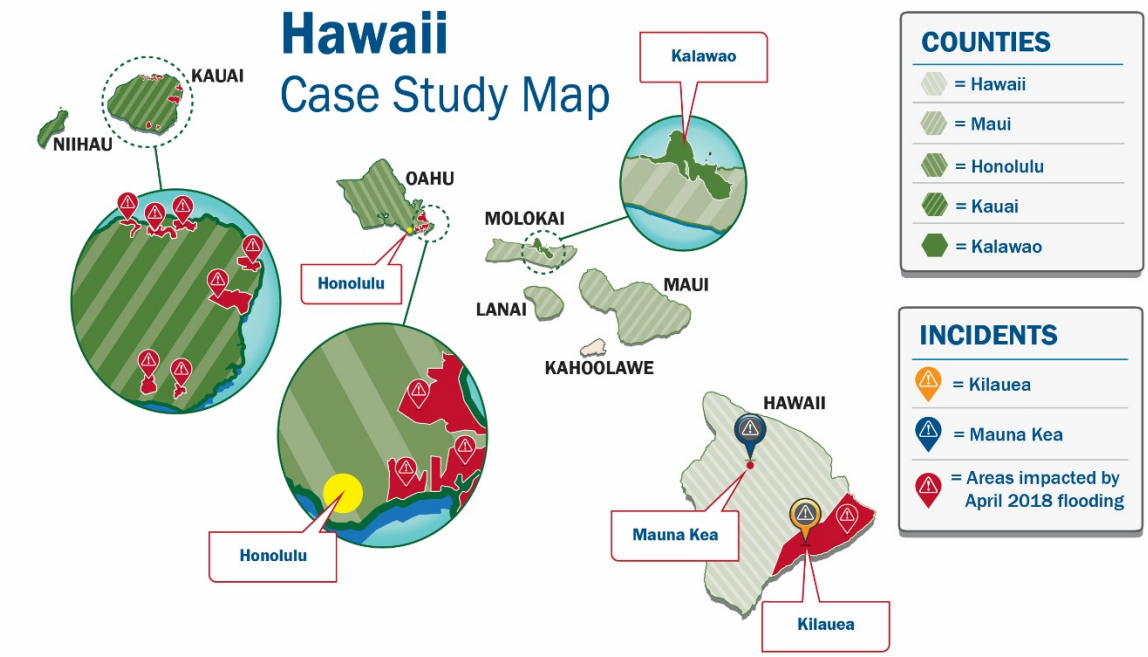
- During flooding incidents in April 2018, equipment purchased or upgraded through grant funds (e.g., helicopters, rescue boats, camera networks) was critical in ensuring the safety and effectiveness of rescue operations. This grant-funded equipment allowed emergency responders to detect objects or individuals over a large area of water and to continue operations during the nighttime with thermal imaging.
- During Hurricane Lane in August 2018, community self-reliance and emergency responder awareness—particularly in remote areas—were key to the state's preparation for disaster. Grant funds supported the training and equipping of Community Emergency Response Teams (CERT) and the use of cameras to monitor activity during and after the storm.
- The state responded to and closely monitored the development of lava flow from the Mount Kilauea volcanic eruption from May to September of 2018 by means of teams trained in all-hazards incident management and technological system upgrades. These capabilities, funded by FEMA preparedness grants, ensured the safety of residents by maintaining situational awareness and supporting a well-equipped response team for incident response.

Due to the geographic isolation of Hawaii, county emergency responders must mirror state-level capacity for incident preparedness and response. Grant funds help responders prepare for severe events that may require collaboration among multiple counties by increasing tactical capabilities and ensuring interoperability through standardized training and equipment.

This case study found that FEMA preparedness grants played a significant role in Hawaii's ability to prepare for, respond to, and mitigate the 2018 natural disasters. Additionally, Hawaii's investments in areas such as communications, cybersecurity, law enforcement prevention, and protective equipment has improved the community effectives for disaster preparedness and response. Emergency management agencies in each county have built a strong bond with law enforcement for the protection and prevention of adversarial threats.

To inform this case study, FEMA drew from information that Hawaii provided through various grant program requirements, including the Biannual Strategic Investment Report (BSIR). FEMA also conducted a site visit to four counties and several state agencies in Hawaii in October 2019 to observe the states prioritization and use of preparedness grant funds to address capability gaps. Staff from the FEMA National Preparedness Assessment Division (NPAD) and FEMA Region IX collected information with the participation of the following state and local agencies in Hawaii:

- Maui County, Emergency Management Agency
- Kauai County, Emergency Management Agency
- Hawaii County, Civil Defense Agency
- City and County of Honolulu
- Hawaii State Fusion Center
- Hawaii Department of Defense



II. About Hawaii

Hawaii is a state composed of 137 islands, seven of which are inhabited.[1] The state is organized into five counties: Hawaii, Honolulu, Kauai, Maui, and Kalawao, which serve as the only governmental bodies below the state level.[2] Each county in Hawaii is composed of one island with the exception of Maui County, which encompasses the islands of Maui, Molokai, and Lâna'I,[3]and Kauai County, which includes the island of Niihau.

- The Hawaiian Islands are the most geographically isolated land masses in the world. Hawaii's geographic separation from the rest of the United States requires a high level of emergency management self-sufficiency, which influences the State's and counties' investment decisions. In addition, counties are isolated from each other and require considerable effort, logistics, and time to share emergency resources. For this reason, individual counties attempt to be largely self-sufficient.
- Hawaii's mountainous terrain poses additional accessibility challenges to reach and service some parts of the state.[4]
- As an island state, supplies are brought in by freight ships from the mainland to the Port of Honolulu, the only deep-water port in the state. Shipments are offloaded and brought to central warehouses before they are moved to the neighbor islands. As a result, Hawaii's supply chain is dependent on the successful operation of the Port of Honolulu.[5] The state advises citizens to maintain 14 days' worth of emergency supplies to account for potential supply chain delays in the event of a disaster.[6] For comparison, most other areas in the country advise households to keep 72 hours' worth of supplies on hand for emergencies.[7]

Threats and Hazards

Hawaii experiences a variety of threats and hazards that individually pose significant danger to the safety of Hawaii's residents and infrastructure. Beyond these threats, Hawaii has also experienced multiple natural disasters simultaneously, which further stresses the demand for emergency services.

Hurricanes

Hurricanes and other tropical storms pose a regular risk to Hawaii and can cause major damage.

- In 1992, Hurricane Iniki struck the island of Kauai and parts of Oahu as a Category 4 storm, causing approximately $2.5 billion in damage and shifting conventional understanding of the threat that hurricanes pose to the state.[8]
- In 2018, two major storms hit Hawaii: Hurricane Olivia, which made landfall as a tropical storm,[9] and the more destructive Hurricane Lane, which occurred on the heels of the Kilauea volcanic eruption and ongoing wildfires. Although Hurricane Lane did not directly hit the Hawaiian Islands, the storm brought 52 inches of rain over a four-day period and caused widespread flooding.[10] The storm caused over $42.5 million in damage[11] and one direct death.[12]

Tsunamis

Hawaii's position in the Pacific Ocean puts it at risk for tsunamis caused by earthquakes in Alaska or South America. A tsunami's gigantic waves can travel inland and potentially cause severe flooding. They can strike quickly, injure, and kill people, and cause catastrophic damage to infrastructure such as buildings, transportation systems, power lines, communications systems, and the water supply.

- In 1946, a 7.8 magnitude earthquake struck the Aleutian Islands off the coast of Alaska. The event created a tsunami that reached Hilo, Hawaii, within five hours. Waves reached 25 feet and decimated the town's waterfront area. A total of 165 people died, including children at a school in Laupahoehoe Point.[13]
- In 1960, an earthquake off the coast of Chile generated a 35-foot tsunami that struck Hilo Bay, Hawaii. The tsunami struck with only 15 hours of warning, destroyed or damaged more than 500 properties, and killed 61 people. The tsunami caused more than $75 million in damage.[14]

Volcanic Eruption

There are six active volcanoes in Hawaii, all located on the islands of Hawaii and Maui. The volcanoes experience varying levels of activity. Mauna Kea's most recent eruption took place between 4,500 and 6,000 years ago, whereas Kilauea has erupted almost continually since 1983.[15] The damage caused by a volcanic eruption can be overwhelming. Lava flows can devastate infrastructure and completely change landscapes, and volcanic ash and gases can create significant health issues for nearby people.

- On May 3, 2018, a 5.0 magnitude earthquake near Hawaii's Big Island marked the beginning of a volcanic event at Kilauea on the island of Hawaii. Soon after the earthquake, volcanic gas and steam began escaping from cracks in the earth and were soon accompanied by lava flow.[16] Over the next three months, the area experienced lava fountains, lava flows, and volcanic gas that destroyed homes and threatened the health and safety of residents. The eruptions subsided in August, by which point 700 homes had been destroyed.[17] The eruption occurred at the same time as the 2018 hurricanes and flooding, which required a multi-disaster response from the State and counties.

Flooding

With its extensive coastline and low-lying areas, Hawaii is particularly vulnerable to the effects of sea-level rise and extreme weather, which can cause flooding.[18] Hawaii's mountainous terrain further exacerbates flooding risk during heavy rainfall events by producing runoff and swift water traveling downhill.[19]

- On October 30, 2004, a low-pressure system in Manoa Valley caused flash floods after the Manoa Stream overflowed.[20] The consequent damage was an estimated $85 million. The University of Hawaii and 120 homes in surrounding residential areas sustained significant damage.[21]
- In April 2018, a low-pressure system brought torrential rainfall and flooding to communities on the eastern end of the island of Oahu.[22]
- During the same system that affected Oahu in April 2018, the island of Kauai experienced rainfall amounts that surpassed the local 24-hour record of 29 inches.[23] Flooding triggered more than a dozen landslides, damaging the Kuhio Highway and isolating some communities for weeks.[24] In the aftermath of the system, local officials reported 477 air evacuations and 43,000 pounds of food and water delivered to stranded residents with the assistance of military aircraft. Combined with the damage in eastern Oahu, about 532 homes were affected by flooding from this single storm, and public property damage was an estimated $20 million.[25]

Human-Related Engagement

Like other U.S. states, Hawaii must prepare for a wide range of human-related engagement.

- A 2018 Government Accountability Office (GAO) report on long-range emerging threats includes cyber threat examples such as nation-state malign use of cyberspace capabilities, the growing ineffectiveness of security approaches such as encryption, and the targeting of infrastructure with a particular emphasis on the energy sector, communications, health care systems, and transportation systems. All of these are applicable to Hawaii's cyber environment and are addressed at the state and county level with investments in the Hawaii State Fusion Center, Maui's Cyber Security Operations Center, and other offices.
- In recent years, Native Hawaiian activists protested the construction of telescopes on sacred sites on the island of Maui and at Mauna Kea on Hawaii.[26] Although protests are not necessarily threats or hazards, the response may involve the same equipment or capabilities that are supported by investments for other large events. In July 2019, the governor of Hawaii declared an emergency and deployed unarmed National Guard troops to help deliver construction equipment and close off areas of the mountain.[27]

III. Funding History

From 2009 through 2019, Hawaii received more than $96 million in preparedness funding through the State Homeland Security Program (SHSP), the Urban Area Security Initiative (UASI), and Emergency Management Performance Grant (EPMG).

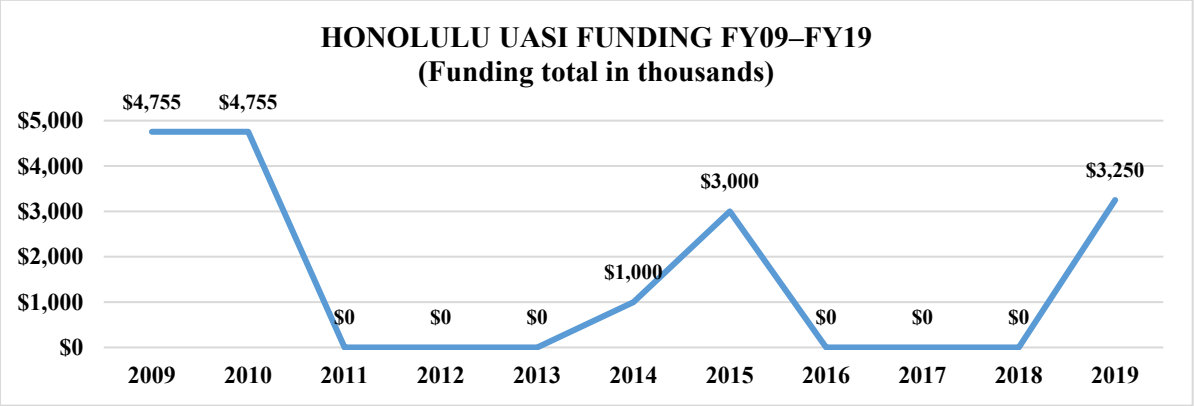
Table 1: Hawaii Preparedness Grant Funds, Fiscal Year (FY) 2009–FY 2019

Award Amounts (thousands)												
Grant Program	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	Total
SHSP	$6,525	$6,534	$5,137	$2,801	$3,458	$3,732	$3,735	$3,735	$3,752	$3,980	$4,077	**$43,731**
UASI	$4,755	$4,755	$0	$0	$0	$1,000	$3,000	$0	$0	$1,500	$3,250	**$18,260**
EMPG	$3,065	$3,300	$3,288	$3,433	$3,366	$3,546	$3,549	$3,549	$3,543	$3,535	$3,527	**$34,174**
Total	**$14,344**	**$14,589**	**$8,425**	**$6,234**	**$6,824**	**$8,278**	**$10,284**	**$7,284**	**$7,295**	**$9,015**	**$7,327**	**$96,165**

SHSP and UASI fall under the Homeland Security Grant Program (HSGP). SHSP funding levels dropped in 2012, coinciding with an overall decrease in appropriated HSGP funding. Now, funding remains relatively stable. Hawaii received an average of $4,300,000 in SHSP funds each year between FY 2009 and FY 2019.

In contrast, UASI funding levels have fluctuated to a larger degree over time. Honolulu—Hawaii's only UASI recipient to date—has received funding in five of the last 11 years. Figure 1 illustrates the variation in UASI funding since 2009.

Figure 1



The State also receives EMPG funding, which is more consistent compared to HSGP funding. During the past 10 years, Hawaii has received between $3 million and $3.6 million in EMPG funding per year, with fluctuations no greater than $235,000 from year to year.

IV. Grant Allocation Strategy and Process

Strategic Planning

All of Hawaii's HSGP investment decisions begin with the goals and priorities set forth in the state's strategic plan. Hawaii's Office of Homeland Security looks to the previous year's strategies, goals, objectives, and justifications, as well as the state's most recent Threat and Hazard Identification and Risk

Assessment (THIRA) to identify the most pressing risks and to develop a plan. A working group is established to develop any strategy updates. Once drafted, the Office of Homeland Security and The Adjutant General (TAG)/State Administrative Agency (SAA) review the plan before publication.

SHSP

Before FEMA releases its HSGP Notice of Funding Opportunity (NOFO) each year, the TAG identifies priorities for the upcoming HSGP investment proposals. Every January, the Hawaii Department of Defense (HIDOD) OHS brings together 50–60 state, county, and private sector representatives for the Annual Grants Meeting to kick off the grant proposal process. If a Federal budget has not been approved by this time, applicants prepare investment proposals to discuss with other departments without knowing what funding levels or priorities the NOFO will assign. The State encourages agencies to develop these investment plans and proposals on an ongoing basis and to design projects that build capabilities and meet the needs of multiple agencies. During the meeting, departments collaborate to further develop individual proposals and to coordinate across proposals to ensure investments align across the state.

Following the Annual Grants Meeting, agencies have 30–45 days to fully develop and submit their proposals to the Grants Management Office. The State encourages collaboration and the use of cross-agency working groups to move projects forward. The State also provides an investment worksheet for communities to use to outline projects, and the worksheet includes a request to link the THIRA and the Stakeholder Preparedness Review (SPR) to proposed investments. Once submitted, the OHS reviews the proposals, compares and aligns the proposed projects, and makes recommendations for agencies to revise their proposals regardless of the number of investments and projects. The OHS will request a prioritization of projects, which is reviewed with the TAG. Once the funding level is known, the investments can be developed. The development and refinement of the projects and investments becomes the foundation for the distribution of funds. The process requires open collaboration and coordination with each applicant to ensure that the state and county leaders are involved in the process. The OHS hosts the review sessions for the TAG and each applicant for final investment/project review and funding distribution. If realignment is required due to budgets and/or priorities, these changes are made as a result of this meeting. The TAG conducts one final review before submission.

The SAA serves as the pass-through entity for Federal funds and disburses funds based on priorities and the agreed distribution of funding to each of the subrecipients. Recipients have a two-year period of performance for each HSGP-funded project, which is one year less than the HSGP NOFO allows. Hawaii does this to encourage the subrecipients to obligate all funds in a timely fashion. The State grants extensions on a case-by-case basis.

UASI

The City and County of Honolulu look to previous years' priorities and their strategic plan to determine how to invest UASI funds. Once Honolulu has identified its priorities, the consolidated city–county confirms its priorities with the TAG, who then approves all final investment decisions. The SAA passes 100% of the UASI funds to Honolulu, although the NOFO allows for the SAA to retain up to 5% for administrative purposes.

V. HSGP Investments and Capability Impacts

Agencies across Hawaii, including state agencies and counties, have invested HSGP funds to build and sustain critical capabilities in preparation for the varied disasters faced by the state. Many of these investments proved to be lifesaving during recent incidents such as the 2018 flooding and the Kilauea volcanic eruption. The descriptions below provide a brief overview of these investments, their impacts on recent disasters in Hawaii, and the role of HSGP. The primary funding source for each investment is noted in brackets.

Human-Related Engagement

Crowd Management Training and Equipment [SHSP]

The Maui Police Department (MPD) determined the need to invest in crowd management equipment and training after several large events and protests on the island. The county identified the long-range acoustic device (LRAD), a communications device that allows law enforcement to speak clearly to large crowds over a great distance, as essential equipment to support its crowd management efforts. Maui used $24,000 of FY 2015 SHSP funds to purchase two LRADs for the purpose of communicating with crowds during times of disasters and unrest. Since the 2016 protests, Maui has used the Texas A&M Engineering Extension Service, a Department of Homeland Security Consortium, to train approximately 20 officers to receive Federal crowd management training. Maui officials noted the importance of a standardized, Federal training to ensure that personnel across the state respond to and document incidents the same way.

Picture 1: Maui police officers at Mauna Kea.

The State also used $20,767 in FY 2017 HSGP funds to purchase a highway call box used by Maui officials to analyze footage from a camera network that provides live feeds to the Emergency Operations Center (EOC) and allows law enforcement to monitor at-risk areas during weather events. The call box also supports stranded vehicles on Maui roads. Maui will use $114,000 in FY 2019 HSGP funds to purchase 15 internet protocol (IP) mobile cameras that can be installed within 24-48 hours around the county, which will also provide live feeds to the EOC. Law enforcement historically looked to Twitter for information about activity within a crowd and to learn of any disturbance that requires a police response, which is not as reliable as direct monitoring. During Hurricane Lane in 2018, Maui police used an IP camera prototype to monitor activity across the island.

Counterterrorism Equipment [SHSP, UASI]

The Honolulu Police Department (HPD) made several key investments in counterterrorism equipment using HSGP funds. Each of these investments addressed a gap in Honolulu's capabilities and has improved the island's overall preparedness to respond to terrorist incidents, allowing responders to collaborate across counties by improving tactical capabilities and interoperability. In 2014, Honolulu used $65,000 of FY 2014 HSGP funds to purchase 125 ballistic vests for patrol officers and $58,128 of FY 2014 HSGP–UASI funds to purchase explosive ordnance disposal X-ray equipment. In 2019, HPD responded to an incident in which grenades were left in the trunk of a car, and the officers used the X-ray equipment to assess and neutralize the situation without injury. In 2015, the HPD used $950,000 of HSGP funds to update its helicopter camera system with thermography for daytime and nighttime detection. In 2017, Honolulu experienced significant flooding, and HPD used the helicopter camera system to assess the damage and to inform response operations.

> *"Having these capabilities now has really kind of flipped the table... We are able to handle things on our island now… a lot of the detection equipment stuff have been provided to us through this grant program. We are prepared, thank you."*
>
> *–Gary Hudson, Battalion Chief, Kauai Fire Department*

Picture 2: HPD officer wearing ballistic vest.

Picture 3: Modular vehicle barriers.

Picture 4: MX-10 camera system mounted to the underside of an HPD helicopter.

HPD has also invested a significant amount of HSGP funds in building site-securing capabilities. In 2018, HPD used $50,000 of combined SHSP and UASI funds for personal radiation detection devices, and in 2019, HPD used $190,000 of UASI funds to purchase modular vehicle barriers and another $580,000 to purchase an armored vehicle. The modular vehicle barriers provide protection against vehicle terrorism during community events. Officials noted that a second armored vehicle would expedite evacuations in situations when ballistic protection is necessary. HPD also invested $20,000 of FY 2015 HSGP funds to update radio equipment to be Project 25 (P25) compliant, the industry standard for responder communications equipment. This upgrade has allowed for interoperability with other departments such as Department of Emergency Services Emergency Medical Services (EMS) and Ocean Safety. HPD uses the radios to communicate during standard patrols, evacuations, large events, protests, and incident response.

Picture 5: Radio equipment.

Threat Team Oahu [SHSP]

The Hawaii Department of Defense instituted Threat Team Oahu to support law enforcement by forming a multi-stakeholder group to prevent incidents of targeted violence that pose a risk to the community but do not rise to the level of terrorism. The team consists of representatives from a variety of groups, including law enforcement, hospitals, the Hawaii State Department of Health, and others. The team convenes experts in psychology to help assess human threats and to develop a plan for intervention. For instance, in 2018, the Threat Team Consultation Group ensured that an individual who had sent threatening emails and messages to his college professors received necessary mental health and legal support following his arrest. In 2019, the Threat Team collaborated with the Hawaii State Fusion Center, the Federal Bureau of Investigation (FBI), the State Department of Health and Education, HPD, and other community and mental health partners to support K–12 and higher education. The Threat Team considered 2019 a successful year, and as the program matures, it intends to be more successful with the integration of health, mental health, and social expertise.

Hawaii State Supreme Court Security Upgrades [SHSP]

The Hawaii State Judiciary recently expanded security measures for the State Supreme Court building. Officials in Hawaii noted that as courthouses are increasingly targeted for active shooter incidents, the State Supreme Court building is at risk for an incident. Additionally, the building is a cultural landmark in the State, which further elevates the building's risk for attack. The state judiciary used $275,000 of FY 2019 HSGP funds to purchase ShotSpotter technology to use in the State Supreme Court's main building. This technology detects and locates gunshots and alerts law enforcement immediately. Additionally, the State judiciary invested over $200,000 of HSGP funds to upgrade the camera surveillance and notification systems in court buildings with the goal of providing immediate alerts to law enforcement, building personnel, and the public in the event of an emergency.

Cybersecurity [SHSP, UASI]

> *"If it wasn't for these grant funds, we wouldn't have a network and we wouldn't be leveraging modern technology."*
>
> *–Jules Ung, Director, Department of Information Technology, Hawaii County*

Cybersecurity within the state and county is a high priority. Both SHSP and UASI funding is being used to support cybersecurity in planning, systems, networks, and other areas to strengthen protective measures. The Hawaii Department of Defense oversees and operates the Hawaii State Fusion Center (HSFC), which is part of the National Network of Fusion Centers. In this role, the HSFC serves as a hub for collecting and sharing intelligence information with Federal and state partners. The HSFC also operates the Cyberhood Watch program, which strengthens cybersecurity by identifying cyber threats and facilitating the sharing of cyber intelligence between the State, the FBI, and other partners. Through the Cyberhood program, the HSFC gathers cyber threat information and meets weekly with analysts from the Hawaii Office of Enterprise Technology Services and other key partners to share pertinent cybersecurity intelligence. Annually, Hawaii invests $150,000 of SHSP funds to support the HSFC in Honolulu. Grant funds also support HSFC personnel with the Hawaii High-Intensity Drug Trafficking Area (HIDTA) program, which provides office space for the center.

The HSFC invested in improving the state's cyber capabilities by offering protection to domains and IP addresses belonging to Hawaii's critical infrastructure and key resource partners. The HSFC convenes stakeholders, including state agencies, the FBI, and the chief security officers of the state's major utility, shipping, energy, and water companies to share information related to cybersecurity and threats. HSGP grant dollars fund the salaries of personnel who support these meetings and other cybersecurity efforts.

Maui invested $300,000 of FY 2017 SHSP funds in the creation of the Cyber Security Operation Center, which engages in proactive screening of relevant networks and performs forensic analysis of cyber threats. Maui also invested $20,700 of FY 2017 SHSP funds in email threat detection and tools to manage user access privileges centrally. The county reports that these investments have led to more secure communication among county officials, including emergency management. The investments have also significantly reduced the threat posed by malicious email attacks. Hawaii County's cyber engagement is similarly robust. In 2014, Hawaii County used $95,000 of SHSP funds to upgrade its Voice over IP system, and in 2015, it invested an additional $200,000 in an email filtering system. The consolidation and upgrade of the county email servers—supported with $63,930 of FY 2013 SHSP funds—has ensured additional email security. The county also used $130,000 of FY 2014 SHSP funds to deploy a geographic information system (GIS) server that has allowed graphical data reporting and deployment of data sets countywide.

Hawaii County has invested heavily in its information technology (IT) infrastructure, which enables a more robust cybersecurity posture. Between 2004 and 2014, the county used $1.98 million of SHSP funds in the Department of Information Technology across eight different projects. These projects included several phases to upgrade the county's network and multiprotocol label switching security to allow for network segregation and encryption. An update to the ArcGIS server improved issue monitoring, interoperability between departments and agencies, and public access to relevant data sets.

Bomb Squad [SHPH/UASI]

In 2014, Maui officials received reports of a suspicious bag with protruding wires and a suspected bomb. At the time, Maui did not have bomb squad capabilities, and the state's only bomb squad was in Honolulu, so Maui requested service from an Army explosive ordnance disposal team. This incident highlighted to officials in Maui and across the state that additional bomb squad capabilities were required.

Picture 6: Honolulu Bomb Squad bomb robot.

Beginning in early 2016, the Honolulu Division of the FBI met with the four Chiefs and Deputy Chiefs of the Maui, Hawaii, Kauai, and Honolulu Police Departments, regarding the formation of a second bomb squad for the State of Hawaii. The State obligated FY 2016 SHSP funds to develop the bomb squad. The initial cost for the team and equipment, including bomb vehicles, bomb robots, X-ray equipment, and explosive storages, to serve the counties of Hawaii, Kauai, and Maui was $1.5 million. All six team members were trained in Huntsville, Alabama. In June 2020, the Hawaii Interisland Bomb Squad (HIBS) was officially accredited by the FBI Hazardous Devices School and met the equipment/training requirements set forth by the National Bomb Squad Commanders Advisory Board.

The City and County of Honolulu also has a certified Type II bomb squad. Type II squads have similar personnel and training characteristics as the higher-rated Type I squads; however, Type II squads have fewer device requirements. The Honolulu Bomb Squad used $93,100 of FY 2019 UASI funds to purchase a new bomb robot that allows personnel to access and assess suspected explosives remotely. Local officials in Honolulu credit HSGP investments with their ability to achieve and sustain their Type II status.

Cross-Cutting and Other Investments

Emergency Vehicles [SHSP]

In FY 2004, Kauai used $591,482 of SHSP funds to purchase an incident command and communications vehicle, a mobile and easily deployable hub for coordination during an incident. In FY 2011, Kauai used $211,005 of SHSP funds to purchase a tactical armored vehicle for special operations units. Law enforcement uses the vehicle as a barricade, for support when serving search warrants, and as a tool to safely extract victims from warm or hot zones during active shooter incidents. Local officials called the equipment a critical asset for special response teams and said it will be essential as the county looks to build out a rescue task force involving the police and fire departments. Kauai also used $128,412 of FY 2003 and 2004 SHSP funds to purchase eight enclosed trailers that the Kauai Police Department (KPD) and the Kauai Fire Department (KFD) use to transport essential items during emergencies and large events.

Training and Personnel Development [SHSP, UASI]

Picture 7: Tactical rescue training.

The City and County of Honolulu prioritizes training and personnel development despite being isolated from the expertise and resources available on the U.S. mainland. This challenge is unique to Hawaii because it generates additional training costs for either sending trainees to the mainland or flying experts out to Hawaii to conduct trainings. Extra expenses apply to training within the state as well, as air travel is the only mode of transportation intrastate. Since 2017, Honolulu has invested in a variety of trainings, including technical rescue training for the fire department (FY 2017 SHSP, $50,000), rigging for rescue training (FY 2017 SHSP, $10,971), Rescue Systems 3 training for structural collapse technicians (FY 2017 SHSP, $10,000), bike unit training (FY 2018 SHSP, $30,000), rail training and exercise support (FY 2018 SHSP, $100,000), a mayor's conference security camera training and exercise (FY 2018 UASI, $100,000), and all-hazard incident management training (FY 2017 SHSP, $96,000; FY 2018 SHSP, $120,000). To make training more accessible in the future, Honolulu officials hope to invest in developing their own cadre of instructors who can provide necessary expertise on the island. Honolulu officials stated that HSGP grant funds are particularly important for ensuring the department can access the training and expertise it needs. Kauai will be developing its own Public Safety training facility with FY 2019 ($350,000) and FY 2020 ($450,000) funds with support from county resources. The center is anticipated to be ready in early 2022.

Picture 8: Training inside the HFD AmbuBus.

AmbuBus [SHSP, UASI]

In 2013, the Honolulu Fire Department (HFD) received a bus from Oahu Transit Services to turn into a medical transport vehicle. HFD used $65,450 of FY 2011 HSGP funds to purchase two AmbuBus kits to retrofit the bus. The kits transformed the bus to fit 12 supine or 24 seated passengers and includes stretchers and other necessary medical equipment. HFD uses the bus for trainings and to respond to possible mass injury incidents. HFD plans to use future grant dollars to further expand the department's mass incident preparedness capabilities (e.g., training bus drivers, warning sirens for navigation through traffic).

Natural Disasters

All-Hazard Incident Management Team (AHIMT) [SHSP]

Counties across the state are currently building the capabilities of their AHIMTs, and HSGP funding has been instrumental in training type-rated teams in each county. The AHIMTs provide mutual aid to each other during incidents, such as the April 2018 flooding and the Kilauea lava flows. The Type 3 Incident Management Team in Maui is the largest in the state and has been deployed in response to three volcano eruptions, the California wildfires, and Hurricane Lane. Maui also used the AHIMT during the Statewide Hurricane and Maui Fair Exercises. During Hurricane Lane in 2018, the AHIMT provided operations and logistics support in the EOC. Honolulu and Kauai counties each provide support to their local emergency response agencies through AHIMT training and shadowing in the mainland and other jurisdictions. Honolulu invested $75,000 of FY 2019 UASI funds in developing response capabilities through AHIMT training.

Interoperable Communications [SHSP, UASI]

Between FY 2003 and FY 2019 the state of Hawaii invested multiple millions of dollars in FEMA and other Federal funds (funding included Public Safety Interoperability Communications, Homeland Security, and Port Security grant programs) to enhance communications by establishing a strong interoperable communications system, allowing the state and counties to work in unison and provide coordinated support in emergency situations. Additionally, the state invested its own funds to augment existing equipment in the State Radio Cache (SRC) inventory.

Honolulu, Hawaii County, and Kauai have all made investments in interoperable communications, improving the ability of emergency responders to communicate seamlessly in the field. Communications upgrades across these counties include the purchase of Project 25[i] (P25) compliant radio equipment in Honolulu and backup generators in Hawaii County. In 2007, Hawaii County invested in generators for radio stations after a large earthquake in Kiholo Bay disrupted the power grid and prevented radio stations from transmitting messages to the public. The county also purchased transfer switches with the generators to safely provide power in places such as shelters during a power grid failure. These upgrades prevent interoperable radio communications from being interrupted by power and/or infrastructure damage due to disaster conditions and allow secure communications through encryption.

In Kauai, the impact of Hurricane Iniki in 1992 highlighted the need to improve interoperable communications for the safety of residents and visitors during a natural disaster. Officials invested $4,200,000 of SHSP funds since FY 2003 to enhance communications efforts. The county invested in various upgrades to its seven-channel radio system, bringing radio equipment into P25 compliance. Specifically, in 2013, the county used $311,783 to purchase a P25 prime site interface. Kauai County also improved communication in dead zones after investing grant funds in multiple tower and standalone repeaters and upgrading to digital systems. The funding for interoperable communications originally started with the 2007 Public Safety Advisory Committee (PSAC) grant; however, funding has since shifted to HSGP grant funding. The KPD repeatedly identified the communications system as one of Kauai County's most valuable investments, especially during a disaster, because it allows uninterrupted coordination for response and recovery efforts.

Community Emergency Response Team (CERT) [SHSP]

CERTs in Hawaii support emergency managers and first responders in preparing communities for incidents and in response. HSGP funds support CERTs through the purchase of CERT equipment and regular training. Hawaii County received $18,320 of HSGP funds in FY 2016 for its CERTs. There are 21 active teams, with 727 active volunteers, and the program is growing. HSGP covers personal protective equipment (PPE), search and rescue equipment, and medical supplies for treatment in triage areas. Although Hawaii County no longer receives HSGP funding for its CERT personnel, it provides local funds to support training and PPE for CERTs. Training includes learning software to assess damage and to conduct situational reporting, which supports real-time information distribution following incidents in which resources are stretched. CERTs fulfill essential roles in emergency management when first responders are unable to access communities that have been isolated after an incident. For example, during the Kilauea lava flow in 2018, CERTs dedicated over 5,000 hours to damage assessment and assisting residents, including door-to-door notifications and escorting residents to evacuation areas. Volunteer data collection has also allowed the county to maintain real-time GIS maps for both response and public information purposes.

[i] P25 is a set of interoperability standards for communication equipment.

Maui received $40,000 of HSGP funds in FY 2019 to support the CERT program, members of which work alongside the Hawaii Hazards Awareness and Resilience Program (HHARP) community groups. HHARP holds education and outreach sessions on hazard mitigation, preparedness, and response and recovery for natural hazard events to build community resilience and self-reliance.[28]

Picture 9: Kauai's search and rescue helicopter.

Search and Rescue [SHSP]
Each year, Kauai emergency personnel mount an average of 260 search and rescue missions annually to respond to reports of lost hikers, divers, and boaters, using critical HSGP-funded equipment. In FY 2010, Kauai County used $600,000 of HSGP funds, along with funds from other sources, to purchase a search and rescue helicopter for $2.1 million. During the April 2018 flooding, Kauai emergency personnel used the helicopter to evacuate 477 people from the island, and in late 2019, the helicopter supported search and rescue operations following the crash of a sightseeing tour helicopter. Kauai also purchased four all-terrain vehicles (ATV) with $42,626 of FY 2004 and 2007 SHSP funds to rescue stranded residents and to transport other equipment, such as boats and jet skis. During the 2018 floods, flood waters rendered certain areas of the island inaccessible to emergency responders. KPD had strategically placed ATVs in containers around the county, so they would be readily available in high-risk areas. To respond to water-based search and rescue operations, Kauai emergency personnel relies on its 26-foot rescue patrol boat and trailer, which the county purchased with $191,842 of FY 2003 SHSP funds. Kauai County also used $47,816 of FY 2005 SHSP funds to purchase a side-scan sonar device for the boat to help detect objects in the water. This device was used to check harbors for debris following the 2018 floods.

Picture 10: ATVs used during Kauai County's response to the historic flooding in 2018.

Mass Fatality Management and Equipment [SHSP]

In a 2010 plane crash planning exercise, Hawaii County officials recognized a gap in their mass fatality management capabilities. Hawaii County used $267,288 of FY 2010 SHSP funds to purchase mass fatality kits that included boxes, tents, lights, floodlights, and other supplies. The county also used $229,500 of FY 2018 SHSP funds to purchase heating, ventilation, and air conditioning (HVAC) systems to use with the tents. Although Hawaii County has not yet used this equipment to respond to a mass fatality incident, responders used the mass fatality tents, HVAC systems, and other supplies to temporarily establish a headquarters operations center for its security force during the 2018 Kilauea volcanic eruption.

Picture 11: Kauai County's rescue patrol boat.

Picture 12: Mass fatality tents and boxes with mass fatality supplies.

Emergency Operations Center (EOC) Upgrades [SHSP, UASI]

EOCs serve as physical hubs for command and coordination during an emergency or event, and they host trainings that prepare local personnel for incident response. Each county manages and operates its own EOC, with both Maui and Kauai counties having an alternative EOC to serve as a backup to their primary site. Hawaii County also has a second EOC in the Kona area. SHSP funds have allowed the counties to strengthen EOC capabilities and their depth of function. In two examples, Maui County used $150,000 of FY 2018 SHSP funds to expand its EOC's physical capacity and enhance emergency communication capabilities, and Honolulu upgraded its operations center using $722,817 of FY 15 UASI funds.

> *"We are not in our own silos. We're not doing our own thing. We're all working together."*
>
> *–Herman Andaya, Administrator, Maui Emergency Management Agency*

Picture 13: Kauai County's main EOC during activation.

Additionally, the county used $350,000 of FY 2019 SHSP funds to purchase a new generator to supply backup power in the event of an outage at the EOC. In another example, Kauai County invested $305,165 of FY 2018 and 2019 SHSP funds after the 2018 flooding to upgrade its audio and visual capabilities with a more robust visual display to increase situational awareness during activation. The KFD operates the county's alternate EOC, which was enhanced using $48,335 of FY 2008 HSGP funds. Hawaii County used $70,0000 of FY 2016 HSGP funds to purchase the necessary equipment for the Kona EOC to mimic its counterpart across the island in Hilo and to allow the two EOCs to communicate easily. During the 2018 Kilauea volcanic eruption, Hawaii County activated the alternative EOC and maintained full operation continuously for four months (139 days).

VI. Grant Recipient Program Feedback

Throughout the case study, FEMA solicited feedback from state and local stakeholders on the FEMA grant programs and possible Federal-level improvements to support grant recipients. Local officials in Hawaii provided program feedback on the following topics:

Incorporate community input in THIRA: Local stakeholders recommended establishing THIRA reporting at the county level. Interviewees stated that not every county has input into all 32 capabilities, and it would be easier if counties could report based on their own focus capabilities.

Local stakeholders also noted that the new methodology of requesting quantitative values for qualitative capabilities created difficulties and confusion in completing the community input form. Subject matter experts (SME) have been reluctant to provide numbers due to concern that FEMA could hold the city and county accountable for potentially inaccurate data. Honolulu also suggested breaking down the form by capability targets and allowing year-round access to the input tool, so they can fill out information whenever time permits.

Align reporting requirements: Local stakeholders suggested an expansion of the Investment Justifications (IJ) so that states and urban areas can report more than 10 individual investments. Interviewees explained that given the current limitations, determining which projects to highlight was difficult and required extensive deliberation among stakeholders.

Align reporting systems: Each grant reporting requirement uses a different system or process for completion. Officials suggested that FEMA should align and integrate all reporting systems for simpler

submission. For example, the performance progress reports (PPR) require a cumbersome PDF upload. Instead, FEMA should consider a central reporting tool for all grant-related requirements.

Preparedness grant funding consistency: In general, UASI recipients must submit IJs within 60 days of the NOFO release. Recipients may be discouraged from planning proposals in advance to meet the deadline if eligibility for funding is uncertain. Honolulu city and county noted difficulties in planning for funding allocations due to the unpredictability of UASI grants. For instance, Honolulu city and county received UASI funds in 2015 and 2018, but not in 2016 and 2017. Interviewees stated that awareness of the city and county's funding future would allow enough time to review priorities, strategic plans, and project investments before making final funding decisions.

Cost of training and travel: Because of the Hawaiian Islands' geographic isolation, the high cost of training and travel can be a barrier to maintaining capabilities. Interviewees suggested that grant funds would be helpful in covering overtime and travel costs for training. For example, Honolulu city and county could bring in search and rescue teams from the contiguous United States to drill with their own team. Additionally, funding for deployment opportunities would increase Honolulu's special teams' type rating.

Grant requirements: Interviewees in Hawaii expressed concern about a possible new requirement for an HSGP match, which has not yet been confirmed. They stated that such a requirement would cause a strain in resources. Because each county has a different approval cycle, the state would have to absorb the financial burden so that each county can continue to receive grants. Additionally, current limitations in state funding have forced Hawaii to rely heavily on HSGP funding to support emergency management functions. Because the emergency management funding comes from property taxes, counties with low population density over a large area of land must provide far-reaching services on a small tax base. Tax revenue further decreased after recent damage from the 2018 Kilauea volcanic eruption destroyed more than 700 properties on the island of Hawaii. Interviewees suggested that not having a match requirement is a strength of the HSGP.

VII. Conclusion

Hawaiian culture is built on the pillar of Laulima, which means "many hands working together." To be transparent and open and to help each county achieve its capability, working together is imperative, much like the whole community approach to emergency management. Through the sharing of resources and expertise across the State, Hawaii's HSGP reflects the pillar of Laulima and the whole community approach.

The natural disasters that struck the Hawaiian Islands throughout 2018 tested the State's preparedness capabilities and informed its future strategic priorities. The State's diligent trainings and other strategic investments have allowed officials to respond to the flooding, lava flows, and other challenges with swift action. The findings from this case study show that HSGP funding has played a critical role in readying Hawaii to face these incidents and that it continues to propel the State's emergency management efforts.

FEMA funding has allowed each county to invest in its own capabilities and to become self-sufficient, which is a necessary step given that, due to the isolated geography of the counties, backup from within the state and especially from out of state takes time to arrive. Examples of self-sufficiency from this case study include bomb squad assets, HAZMAT, and firefighting assets. While building these individual capabilities, the counties have also prioritized collaboration and coordination with one another when possible, such as in the case of training together for efficiency and team unity.

FEMA will use the results from this and other case studies to enhance preparedness programs, to develop tailored technical assistance, and to better communicate the impacts of preparedness and mitigation grant

programs to Federal stakeholders, including local jurisdictions, state and tribal governments, and Congress.

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