



Grant Effectiveness Case Study: Texas

November 1, 2018



FEMA



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I. Overview

In 2018, the Federal Emergency Management Agency (FEMA) conducted a grant effectiveness case study in Texas to understand Texas' use of grant funds to increase its ability to respond to, recover from, and mitigate disaster impacts. Specifically, FEMA examined how Texas made investments using Federal, state, and local funds to address lessons learned from previous disasters by closing capability gaps and whether these investments resulted in improved preparedness ahead of Hurricane Harvey in 2017. FEMA also examined the processes that Texas and local jurisdictions use to prioritize and allocate FEMA grant investments. Additionally, FEMA solicited grant program feedback from Texas and local jurisdictions to make future improvements.

Overall, the case study found that FEMA grant-funded investments positively impacted the response to Hurricane Harvey. Many of the investments highlighted in this case study are the culmination of multiple years of careful planning and a combination of Federal, state, and local funds. In addition, collaboration across Federal, state and local entities enabled the sharing of technical expertise and specialized equipment across jurisdictional and geographic boundaries.

FEMA collected information for the case study by conducting structured interviews through phone calls and site visits during August and September 2018 with representatives from the organizations below. The investment information in this report was provided by state and local representatives in Texas.

- Texas Department of Public Safety, Texas Division of Emergency Management (TDEM)
- Texas Department of Public Safety, Office of Homeland Security (TOHS)
- Texas Office of the Governor (OOG), Homeland Security Grants Division (HSGD)
- Houston-Galveston Area Council
- Coastal Bend Council of Governments
- Golden Crescent Regional Planning Commission
- Southeast Texas Regional Planning Commission
- Aransas County
- Fort Bend County
- Harris County
- Montgomery County
- Jefferson County
- Houston Urban Area Security Initiative
- City of Beaumont
- City of Corpus Christi and Fire Department
- City of Houston
- City of Groves
- City of Ingleside, Fire Department, and Police Department
- City of Port Arthur
- City of Rockport and Police Department
- City of Victoria
- City of Vidor
- City of Woodsboro
- Texas Medical Center
- University of Texas Medical Branch
- SouthEast Texas Regional Advisory Council

II. Assessing Risks and Capabilities

To better understand how Texas assesses risk, FEMA examined Texas' Threat and Hazard Identification and Risk Assessment (THIRA) and Stakeholder Preparedness Review (SPR, formerly State Preparedness Report) processes. In accordance with FEMA grant guidance, Texas has completed and submitted a THIRA and SPR every year since 2012. Texas conducts a comprehensive statewide risk and capability analysis to ensure its THIRA and SPR reflect the various threats and hazards that affect the State.

Texas' 254 counties are organized into 24 regions, each of which has a Council of Government (COG) that facilitates regional planning for their counties, including determining State Homeland Security Program (SHSP) grant allocation strategies. After each of the 24 COGs completes its individual THIRA and SPR, TOHS uses those results to inform the statewide THIRA and SPR. In its 2017 THIRA, Texas identified 17 threats and hazards of greatest concern to Texas, including a hurricane scenario in which a Category 5 storm makes landfall near Galveston Island.

Texas is home to several large urban areas that are regularly eligible for Urban Area Security Initiative (UASI) funding, which requires each urban area to complete and submit an annual THIRA. The Houston UASI, encompassing five counties, has received UASI awards since 2003 and has submitted a THIRA every year since 2012. Houston also voluntarily completes an SPR each year in partnership with the Houston-Galveston Area Council. Houston engages an extensive network of subject-matter experts (SMEs) to ensure its THIRA and SPR accurately reflect the evolving threats facing the region. This effort encourages communication and engagement among stakeholders, resulting in detailed capability gap descriptions.

Presidents made 24 major disaster declarations in Texas between 2001 and Hurricane Harvey in 2017. Hurricanes and tropical storms pose frequent threats to Texas. The following chart highlights some of the more recent and destructive storms to hit Texas:

Figure 1: Texas is divided into 24 regions, each with its own Council of Governments.



Storm	Year	Fatalities	Damages	Impacts
Tropical Storm Allison	2001	22	\$5 billion	73,000 homes and businesses flooded in Houston.
Hurricane Rita	2005	55	\$12 billion	Two million evacuees; over one million people lost power.
Hurricane Ike	2008	47	\$30 billion	Storm surge of 15 to 20 feet.
Hurricane Harvey	2017	94 ⁱ	\$125 billion ⁱⁱ	Winds over 130 MPH with over 60 inches of rain in some localities; 42,000 people used shelters.

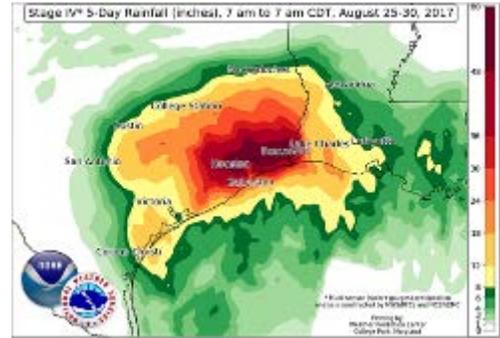
ⁱ (May 30, 2018). *Hurricane Harvey Response After-Action Report*. Texas Department of State Health Services.

ⁱⁱ <https://coast.noaa.gov/states/fast-facts/hurricane-costs.html>.

III. Hurricane Harvey Impacts and Use of Capability Investments

On August 25, 2017, Hurricane Harvey made landfall as a Category 4 hurricane in Texas. The storm brought sustained winds exceeding 130 miles per hour and resulted in over 60 inches of rain in some parts of the state, far surpassing the previous US record single-event rainfall of 48 inches.¹ In its after-action review of the incident, FEMA estimated that the storm directly impacted over 30 percent of Texas’ population, including those within the Houston-Galveston area and the Southeast Texas, Coastal Bend, and Golden Crescent regions. In total, the storm forced 780,000 individuals from their homes due to flooding. In the days after the storm, approximately 42,000 individuals sought shelter across 270 locations throughout Texas.² As of October 2018, response and recovery efforts and economic losses from Hurricane Harvey within Texas have cost approximately \$125 billion, making it the second costliest hurricane in US history.³

Figure 2: Hurricane Harvey brought record levels of rainfall on Texas.



Texas made hundreds of investments to improve preparedness and resiliency before Hurricane Harvey. This case study focused on a set of investments made in regions affected by Hurricane Harvey and across three major areas: response readiness, communications, and mitigation. Texas invests Federal, state, and local funds to close capability gaps identified in previous disasters and risk assessments. Multiple funding sources contributed to the investments discussed in this report:

- Federal grants:
 - State Homeland Security Program (SHSP)
 - Urban Area Security Initiative (UASI)
 - Operation Stonegarden (OPSG)
 - Emergency Management Performance Grant (EMPG)
 - Port Security Grant Program (PSGP)
 - Assistance to Firefighters Grant (AFG)
 - Regional Catastrophic Preparedness Grant Program (RCPGP)
 - Buffer Zone Protection Program (BZPP)
 - Hazard Mitigation Grant Program (HMGP)
 - Pre-Disaster Mitigation (PDM) Grant Program
 - Public Assistance (PA) Grant Program
 - Emergency Operations Center (EOC) Grant Program
 - Multi-Jurisdiction Improvised Explosive Device Security Planning (MJIEDSP)
 - Coastal Impact Assistance Program (CIAP)
- State agency funds
- Local funds from jurisdictions

“The biggest improvement Texas saw during Hurricane Harvey compared to past hurricanes was communication between Texas and locals. This was a result of interoperable communications investments and the extensive joint planning and exercising between Texas and local jurisdictions before the event.”

-Chuck Phinney, Texas State Coordinator for Preparedness

The descriptions below highlight select response readiness, communications, and mitigation investments and list their primary funding sources in brackets. [Appendix A](#) contains more detailed descriptions of these investments.

Response Readiness



- **Regional Disaster Finance Program (RDFP)** [State] In 2013, a fertilizer plant in the city of West exploded, impacting hundreds of structures. The State noticed that the complexity of tracking disaster finances and post-disaster grants could quickly overwhelm jurisdictions like West. This Texas-funded innovative program trains jurisdictions to address disaster-related financial topics such as how to track time and labor, overtime charges, and travel cost processing. Local jurisdictions reported better capabilities in handling Hurricane Harvey-related finances after completing the training.
- **Emergency Tracking Network (ETN)** [SHSP, EMPG, PA, State] – During Hurricane Rita, Texas encountered trouble tracking evacuees, and 73 fatalities occurred during the chaotic evacuation before the hurricane made landfall. ETN replaced six non-interoperable tracking systems, providing officials real-time monitoring of individual evacuees’ locations, shelter populations, and response vehicles. TDEM, in conjunction with local jurisdictions, used ETN to evacuate and shelter over 31,000 people during Hurricane Harvey. All individuals tracked in ETN were accounted for and returned home.
- **Full-Scale Evacuation Exercises** [EMPG] – TDEM conducts an annual series of multi-jurisdictional, hurricane-related exercises to validate Texas’ capabilities in the management of large-scale evacuations. The 2016 exercise covered air evacuation from the Rio Grande Valley. Stakeholders say that the 2016 exercises improved coordination among response partners, which directly strengthened air evacuation operations during Hurricane Harvey.
- **Swift Water Awareness Program** [EMPG, State] – After a sheriff’s officer drowned in a vehicle caught in flood waters from heavy rains in 2014, Texas implemented multiple training packages, including a course to train personnel on the basics of swift water dynamics, and provided trainees with an equipment bag to aid in swift water scenarios. A district coordinator used this training to survive being trapped in rapidly rising water during Hurricane Harvey.
- **Coastal Bend Annual Hurricane Conference** [SHSP, EMPG, MJIEDSP, State, Local] – The Coastal Bend Council of Governments hosts an annual hurricane conference—culminating in a table-top exercise—that brings together over a thousand Federal, state, local, private sector, and non-governmental organizations and enables emergency managers to build new relationships across jurisdictions. These strong relationships enabled responders across multiple entities to more effectively respond to the unexpected impacts of Hurricane Harvey.
- **Southeast Texas Community Response** [SHSP, EMPG, HMGP, Local] – Communities across Southeast Texas experienced the highest rainfall totals from Hurricane Harvey. These communities encountered significant challenges to their response operations due to unexpectedly high floodwaters. The cities of Vidor and Port Arthur used grant-funded radios, transmitters, and boats to ensure effective and continuous communication and response capabilities, enabling officials to conduct life-saving response operations without interruption.

“The Regional Disaster Finance Program that directly supports local communities to better manage disaster finances is a promising best practice for other states.”

– Randall D. Meshell, Federal Preparedness Coordinator FEMA Region VI



- **Arkema Chemical Plant Fire Response** [SHSP, UASI, BZPP, Local] – During Hurricane Harvey, flooding at the Arkema Chemical Plant caused trailers to leak dangerous chemicals. The Houston Police Department used a helicopter equipped with night vision video capabilities and data downlink software to reveal an unstable condition as chemicals began to react. This provided first responders real-time, detailed visual information that possibly saved the lives of sixteen responders who would have otherwise entered a dangerous situation.
- **Port Security** [PSGP] – Corpus Christi purchased radars, cameras, and boats to improve monitoring of port operations. After Hurricane Harvey, Port of Corpus Christi’s radars and cameras enabled port personnel to check for damage and unauthorized entry, allowing for a faster recovery that reduced port closure time. Additionally, these boats facilitated life-saving search and rescue operations, including the rescue of four individuals from a capsized tug boat.
- **Response Apparatus** [OPSG, PSGP, Local] – The cities of Rockport and Groves invested in specialized vehicles to improve their capabilities to respond during security incidents. Rockport’s Lenco BearCat Armored Vehicle, usually used for police tactical operations, was sufficiently strong to withstand the hazardous flooding and wind conditions from Hurricane Harvey. The vehicle permitted first responders to reach and support a flood-isolated shelter during Hurricane Harvey. Groves provided two industrial fire engines to support the City of Port Arthur with their search and rescue operations, as Hurricane Harvey had damaged Port Arthur’s equipment.
- **Houston Regional Catastrophic Preparedness Plans** [SHSP, UASI, RCPGP, Local] – The Houston UASI emphasized the importance of planning as an essential element prior to response operations. Houston invested preparedness grant funds to develop and update multi-jurisdictional preparedness plans. Responders believe all the prior planning work positively impacted their response efforts during Hurricane Harvey. Houston intends to continue making improvements to its plans and to strengthen regional coordination.

“Safely managing this highly volatile incident during Hurricane Harvey was only possible because we regularly exercise our local special response teams, creating a strong trust among responders and partner agencies.”

– Bob Royall, Harris County Fire Marshall’s Office; Arkema Operations Section Chief

Communications

- **Southeast Texas Alerting Network (STAN)** [PSGP, Local] – STAN was developed as a public-private partnership to improve emergency alert and warning systems in one of the country’s largest oil refinery areas, a capability gap identified during Hurricane Ike. STAN enables emergency managers to send official alert messages to the public and specific emergency manager groups and employees. During Hurricane Harvey, the rapid and unforeseen rise in floodwaters impeded evacuations in several Southeast Texas communities. Officials used STAN to effectively communicate critical safety and information messages to the public and responders.
- **Southeast Texas Regional Planning Commission (SETRPC) Radio System** [SHSP, PSGP, Local] – During Hurricane Rita, officials found their radio systems unreliable and detrimental to operations. As a result, SETRPC implemented an interoperable 800 megahertz (MHz) radio system. During Hurricane Harvey, local communities maintained clear and consistent communication as a result of these radio system improvements even though floodwaters physically isolated them.
- **Houston, Harris County, and Montgomery County Radio Systems** [UASI, PSGP, AFG, Local] – Due to previous day-to-day interoperability issues, which Hurricanes Rita and Ike compounded, the City of Houston, Harris County and Montgomery County built a fully



interoperable emergency management communication network. Montgomery County’s network was built independently of the Houston/Harris County network, but all three governments coordinated to ensure that networks were interoperable and continue to rely on one another for increased operational effectiveness. Previous networks required responders to carry multiple radios to communicate across jurisdictional lines; otherwise, responders were unable to communicate outside of their jurisdiction. Responders believe these upgraded operational communication capabilities saved countless lives during Hurricane Harvey.

- **Houston’s Emergency Operations Center (EOC) [UASI, Local]** – Hurricane Ike demonstrated the need for further coordination across all partner agencies in the Houston area. Over multiple years, Houston expanded its EOC space, resulting in more room for Federal and private-sector partners. Additional upgrades included new technological capabilities, such as display systems and a new video feed integration. These upgrades allowed for enhanced operational coordination between all partners during the response to Hurricane Harvey.
- **Fort Bend Alternate EOC [UASI, Local]** – Fort Bend County created a fully operational alternative EOC to provide backup capabilities for any EOC within the region that might lose capability during an incident. The alternate EOC allowed for additional staff during Hurricane Harvey to answer phone calls, significantly reducing wait times for callers. In addition to providing backup space for any jurisdiction, the facility can be used for non-emergency situations such as meetings and trainings.
- **Victoria EOC [SHSP, EMPG, EOC, CIAP, Local]** – During Hurricane Ike, the Victoria EOC was limited in its capacity to communicate and conduct emergency response missions. In response, the City of Victoria improved its capabilities by installing a communications room and upgrading radio systems. These upgrades enabled the Victoria EOC to serve as a central component during the jurisdiction’s response to Hurricane Harvey as first responders had reliable communications to conduct their operations.
- **Communications Apparatus [SHSP, BZPP, Local]** – The City of Ingleside identified a need to improve their mobile communications capabilities. To upgrade their communications systems, the city purchased communications vehicles and equipment for the fire and police departments. During Hurricane Harvey, this provided emergency responders with an interoperable regional communications system, making their operations more effective.

Mitigation

- **Tornado and Hurricane Community Safe Rooms [HMGP, PDM]** – Due to sheltering challenges during Hurricane Ike, Texas increased HMGP-funded investments in community safe rooms, which provide life safety protection from extreme wind events and can be stand-alone or built into existing community gathering sites. During Hurricane Harvey response operations, one community safe room served as a base camp for response crews, a staging area for equipment, and an incident command post where emergency managers reported to receive operational assignments. Responders credited the facility for shortening response operations by about a week because they could stage closer to their operations in the field.



- Texas Medical Center (TMC) and University of Texas Medical Branch (UTMB)** [SHSP, UASI, RCPGP, HMGP, PA, State, Local] – Tropical Storm Allison caused flooding that prolonged hospital closures and destroyed decades’ worth of TMC medical records. During Hurricane Ike UTMB flooded, closing it down for months. Both TMC and UTMB undertook an extensive set of mitigation activities to decrease the risk of flood damage, and TMC used its upgrades to provide continuous medical service to surrounding communities during Hurricane Harvey.

“Our mitigation improvements made since Tropical Storm Allison undoubtedly allowed the Texas Medical Center to better provide medical care and weather the storm during Hurricane Harvey.”

– Lori Upton, Southeast Texas Regional Advisory Council, Director of Regional Preparedness

IV. Grant Allocation Strategy

From FY 2008 to FY 2017, Texas received over \$2.3 billion in FEMA preparedness and mitigation grant funds. While SHSP and UASI grant investments primarily focus on sustaining or building terrorism preparedness and prevention capabilities, they may also simultaneously increase preparedness for multiple hazards, including technological and natural incidents like Hurricane Harvey.

Table 1: Texas Preparedness and Mitigation Grant Funds, FY 2008 – FY 2017

Grant Program	Award Amounts (in thousands)										
	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	Total
SHSP	\$65,440	\$60,181	\$57,124	\$28,562	\$15,821	\$18,650	\$21,448	\$21,498	\$21,498	\$21,481	\$331,703
EMPG	\$15,833	\$16,631	\$18,074	\$18,356	\$19,102	\$18,801	\$19,975	\$20,163	\$20,360	\$20,523	\$187,818
OPSG	\$13,040	\$29,505	\$17,550	\$17,771	\$15,689	\$19,422	\$23,124	\$20,000	\$20,100	\$19,730	\$195,931
UASI	\$71,857	\$73,403	\$81,101	\$66,550	\$39,479	\$38,559	\$40,500	\$39,500	\$38,995	\$38,995	\$528,939
PSGP	\$41,738	\$39,061	\$21,594	\$25,384	\$12,373	\$6,751	\$11,736	\$12,874	\$12,049	\$12,703	\$196,263
TSGP	\$1,621	\$3,056	\$176	\$298	\$18	\$159	\$98	\$390	\$1,218	\$379	\$7,413
Fire Grants	\$22,569	\$35,172	\$21,090	\$24,686	\$20,185	\$14,487	\$11,378	\$20,051	\$14,350	\$23,763	\$207,731
HMGP	\$2,448	\$10,073	\$420,064	\$2,510	\$26,790	\$3,253	\$1,520	\$26,082	\$25,735	\$164,532	\$683,007
Total	\$234,546	\$267,082	\$636,773	\$184,117	\$149,457	\$120,082	\$129,779	\$160,558	\$154,305	\$302,106	\$2,338,805

State Homeland Security Grant Program (SHSP)

As permitted by FEMA guidance, Texas allocates 80 percent of its SHSP grant funding to local COGs and retains 20 percent for statewide projects and administrative costs. COGs rely on homeland security advisory groups, made up of emergency management professionals from local jurisdictions within their region, to determine preparedness grant priorities. Each COG solicits project proposals from jurisdictions within its area of the state and, pending regional priorities, submits local and regional projects to the OOG/HSGD, which serves as the State Administrative Agency (SAA). HSGD reviews all projects and regional priorities, then groups common projects into broad investment areas for the State’s federal application. Concurrent to this process, SMEs from other state agencies review the projects and provide qualitative feedback on each proposed project. While each COG employs distinct processes and evaluation criteria to prioritize which projects they recommend for funding, HSGD requires that all project proposals reference the THIRA and SPR developed annually by each COG and that COGs use a risk-informed methodology in their prioritization process. HSGD emphasizes that, due to the size of the state and the variety, frequency, and complexity of threats faced, each COG has broad autonomy to select



the projects they find most beneficial to preparedness within their own region. [Appendix B](#) contains more details on the allocation processes for the COGs that FEMA visited throughout this case study.

Texas uses a competitive process to inform the selection of SHSP preparedness projects funded through the share retained by the State. Once HSGD receives project applications, a team of reviewers assign each project quantitative scores based on the reasonableness and necessity of the proposed project budget and how well it aligns with state priorities, addresses a terrorism-related threat, and protects statewide preparedness capabilities.⁴ SMEs from other state agencies also provide qualitative feedback on the applications as appropriate. After evaluating each request and considering both the qualitative and quantitative evaluations, HSGD makes final awards to the selected projects.

Urban Area Security Initiative (UASI)

95 percent of UASI awards in Texas go to the Urban Areas, while Texas retains five percent for management and administration of the awards as allowed by FEMA grant guidance. Each UASI has an Urban Area Working Group (UAWG) that prioritizes grant investments. Similar to SHSP funding, Texas has the final approval on all UASI funding decisions, though Texas follows each UAWG’s investment recommendations as closely as possible. For example, once the Houston UASI receives investment proposals from jurisdictions it sends each proposal to a reviewing committee for initial screening. During initial reviews, Houston stakeholders assess how well each proposal aligns with the regional homeland security strategy, addresses regional risk, and addresses a significant capability gap in addition to overall measures of reasonableness. Houston’s UAWG Executive Committee qualitatively reviews each proposal to assess how well it buys down regional risk and makes a final allocation by consensus. Houston then submits this list of investments to HSGD for approval.

Emergency Management Performance Grant (EMPG)

EMPG is a federally funded program to assist states and local governments with all-hazards emergency preparedness. TDEM manages the EMPG program in Texas. 119 jurisdictions in Texas were awarded EMPG funding in FY 2017, approximately 116 were awarded EMPG funds in previous years. In addition to FEMA requirements listed in the Notice of Funding Opportunity (NOFO), TDEM requires that all EMPG recipients:

1. Submit a work plan and two semiannual cumulative progress reports;
2. Develop and maintain all legal documents to establish an emergency management program;
3. Conduct public education of hazard awareness activities for local citizens or prepare and distribute emergency-related public information materials;
4. Develop, maintain, and review emergency management planning documents;
5. Conduct two discussion-based exercises and one operations-based exercise—one full-scale exercise every three years;
6. EMPG funded personnel must complete certain courses and other ongoing professional development;
7. Provide emergency management training for other personnel—elected and local officials including their staff and other support agencies; and
8. Improve emergency management organizational development by participating in workshops, seminars, conferences, and professional organizations.

In 2011, TDEM created an EMPG working group composed of 24 members who meet quarterly to develop and create a transparent and equitable funding formula for grant award distribution and to review and revise programmatic priorities for EMPG in Texas. TDEM allocates between \$5.6 to \$5.9 million of Texas’ total EMPG award to local recipients, who typically use all their EMPG allocation to pay for staff salaries and benefits. Approximately 72 percent of Texas’ EMPG award remains at the state level and



funds salaries and operational costs to support investments. For example, TDEM has EMPG-funded staff that travel statewide to provide preparedness-related planning, training, and exercises to jurisdictions. While the original intent for this initiative was to assist jurisdictions in meeting the EMPG training and exercise requirements, TDEM also opens these trainings to other non-EMPG recipients. Additionally, EMPG-funded staff at TDEM assist applying jurisdictions by developing preparedness profiles for each jurisdiction to track progress in meeting EMPG requirements and providing in-person technical assistance for jurisdictions who fail to meet the requirements. The EMPG program fully or partially supports hundreds of state, local, tribal or territory emergency management personnel each year. Most recently, EMPG funds supported 379 personnel in FY 2017 and 431 personnel in FY 2016.⁵

Hazard Mitigation Assistance (HMA) Grants

TDEM's Mitigation Section allocates HMGP funding to ensure that applicants can reduce the risk of loss of life and property from future disasters.ⁱⁱⁱ HMGP is one of the HMA grant programs that FEMA offers. Allocation of HMGP funds begins after a presidentially declared disaster when TDEM activates its hazard mitigation plan and Texas notifies potential applicants in the affected area. TDEM holds public information meetings and distributes applications and grant guidance to potential applicants, who then submit a notice of intent describing their projects. TDEM reviews each notice of intent and provides feedback prior to accepting full applications from eligible applicants. TDEM reviews the applications with the Texas State Hazard Mitigation Team (SHMT) and evaluates eligibility in relation to FEMA guidelines and how well they achieve the stated goals of the Texas Hazard Mitigation Plan. In conjunction with the State Hazard Mitigation Team (SHMT), TDEM establishes priorities for the use of hazard mitigation assistance (HMA) grants provided through FEMA. These guiding principles are detailed in the 2018 Texas State Hazard Mitigation Plan. The members of the SHMT are involved in the review of mitigation project applications in which they provide subject matter expertise and make recommendations to the State Hazard Mitigation Officer (SHMO) for project funding and prioritization. The SHMO incorporates the information from the SHMT into the review and recommendation of projects to the Governor's Authorized Representative.

For additional information regarding HMGP and other HMA grant programs, please refer to the 2015 edition of FEMA's Hazard Mitigation Assistance Guidance.

V. Grant Recipient Program Feedback

Throughout the case study, FEMA solicited feedback from TDEM, OOG/HSGD, and local jurisdictions on grant programs. FEMA considered each suggestion in relation to the goals of the FY18-22 FEMA Strategic Plan. Suggestions addressed the effectiveness of FEMA funding procedures and its impact to Texas' grants allocation process.

Goal 1: Build a Culture of Preparedness

- Reconsider the elements informing the risk assessment methodology for grant programs so more jurisdictions may increase preparedness through FEMA funding sources. Feedback highlighted concerns that terrorist attacks pose a risk to a range of jurisdictions, including smaller cities with a significant share of the State's, or the Nation's, critical infrastructure. Additional consideration

ⁱⁱⁱ The Pre-Disaster Mitigation (PDM) grant program and Flood Mitigation Assistance (FMA) grant program comprise the other components of HMA. TDEM and the Texas Water Development Board (TWDB) respectively administer these programs.



of elements such as points of entry, high-risk chemical facilities, and other key factors would reinforce holistic preparedness investments in more diverse yet relatively susceptible jurisdictions.

Goal 2: Ready the Nation for Catastrophic Disasters

- Provide federal grant opportunities to support all-hazards preparedness investments, including (but not limited to) terrorism-focused investments. Local grant applicants feel inhibited in how to address their varied capability gaps and sustainment needs when faced with grant programs limited to specific types of preparedness. Existing grant fund sources explicitly state the scope of acceptable grant applications. For example, HSGP requirements related to general purpose or dual-use equipment^{iv} restrict support for all-hazards preparedness investments.
- Revive programs like the RCPGP, which required multiple jurisdictions to work collaboratively across disciplines to address a range of scenarios including both natural and man-made events. Interviewees indicated significant benefits associated with the collaborative, broad scope of this funding opportunity.
- Review FEMA’s grant allocation risk methodologies to support states that have non-contiguous land masses that may have limited accessibility during disasters.

Goal 3: Reduce the Complexity of FEMA

- Solicit input from state and local stakeholders during the development and rollout of the new Grants Management Modernization platform. Stakeholders emphasize that proactively soliciting input leads to a more applicant-friendly grant process.
- Provide advance notice when there will be entirely new grant requirements outlined in the NOFO such as the new requirement in HSGP to have a specific investment for cybersecurity. The State conducts the Request for Application, submission, and prioritization processes prior to the release of the NOFO, and when unanticipated changes are made, local partners must re-evaluate or re-draft prioritizations following that document’s publication. Advance notice would decrease the administrative burden on local and state partners, especially in larger and more complex states.

^{iv} FY 2018 HSGP NOFO, pg. 20: “HSGP allows expenditures on general purpose equipment if it aligns to and supports one or more core capabilities identified in the Goal and has a nexus to terrorism preparedness;” and FY 2018 HSGP NOFO, pg. 61: “For both SHSP and UASI, many activities which support the achievement of target capabilities related to terrorism preparedness may simultaneously support enhanced preparedness for other hazards unrelated to acts of terrorism. However, all SHSP and UASI funded projects must assist recipients and sub recipients in achieving target capabilities related to preventing, preparing for, protecting against, or responding to acts of terrorism.”



VI. Conclusion

FEMA conducted this case study in order to:

- Understand how Texas improved capability gaps identified in previous disasters in preparing for, responding to, and recovering from Hurricane Harvey;
- Determine the role of FEMA grants in making the improvements that helped during Hurricane Harvey; and
- Identify best-practices Texas implemented to share with other states and jurisdictions.

Conversations with local stakeholders show that Texas was better prepared for and better able to respond to Hurricane Harvey than previous disasters because of how Texas state and local agencies invested in identified gaps using Federal, state, and local funds. FEMA will use the results from this and other case studies to enhance preparedness programs, develop tailored technical assistance, and better communicate the impacts of preparedness and mitigation grant programs to Federal stakeholders including Congress, state governments, local jurisdictions, and tribal governments.



Appendix A: Project Narratives

This appendix presents detailed descriptions of select investments—funded by Federal, state, and local funding sources—that Texas completed to increase hurricane-related preparedness capabilities. The appendix presents investments across three categories: Response Readiness, Communications, and Mitigation.

Response Readiness

Regional Disaster Finance Program (RDFP) [State]

In 2014, a fertilizer plant explosion devastated the city of West, Texas, killing 15 people and damaging over 500 structures.⁶ West did not have the capability to manage the complex web of post-disaster financial issues after the incident. To prevent communities from experiencing the same issue again, TDEM established the RDFP in May 2014 to help local jurisdictions better financially prepare for disasters, promote financial responsibility, and equip jurisdictions with the required tools to track, calculate, and justify the costs of an emergency.^{7,8}

RDFP works by offering specialized finance training courses, such as Disaster Accounting 101, to individual jurisdictions at no cost to the jurisdiction other than providing a venue. The course is divided into five flexible modules that can be taken over a period of time depending on jurisdictional needs and timelines. Format for the modules includes face-to-face instruction and outside work assignments. Trainings let jurisdictions address a range of disaster-related financial topics, such as how to track time and labor, address overtime charges, and process travel costs. In addition to the pre-designed courses, TDEM also provides tailored classes or programs to address jurisdiction-specific needs on a case-by-case basis. By the end of the course, jurisdictions will have:

1. Reviewed the accounting system;
2. Identified gaps in their jurisdiction’s policies and procedures;
3. Established financial standard operating procedures (SOPs) for use in future disasters; and
4. Exercised their financial SOPs.

RDFP’s annual budget is \$963,567 in state funds as of FY 2017 and the program supports 10 staff—nine stationed in Texas’ Public Safety Regions and one at TDEM headquarters. In addition to preparing jurisdictions for better disaster-related financial management, TDEM can deploy staff to EOCs during disasters. Jurisdictions that received training before Hurricane Harvey’s landfall reported being much more prepared to handle the financial challenges related to the storm than they had been in the past. In the wake of Hurricane Harvey, more jurisdictions have contacted TDEM and expressed interest in the RDFP as more jurisdictions have become aware of the benefits of the program. Additionally, TDEM has identified additional areas where jurisdictions may benefit from additional training, such as debris contract monitoring. Pending additional funding, TDEM hopes to offer specific modules on these additional topics and organize COG-wide trainings through the RDFP.

Emergency Tracking Network (ETN) [SHSP, EMPG, PA, State]

TDEM officials struggled to keep track of citizens during Hurricane Katrina. Later, 73 people perished during a chaotic evacuation before Hurricane Rita even reached Texas.⁹ The tracking programs that TDEM had been using to assist evacuation and sheltering operations at the time were ineffective and not interoperable with other systems, resulting in disorganized operations that left individuals separated from their families.

In response to this gap in evacuation capability, TDEM invested \$352,082 in FY 2010 SHSP funds, \$570,771 in FY 2014-2015 EMPG funds and \$396,720 in FY 2017-FY 2018 PA funds and State disaster funds to develop ETN to more accurately account for individuals and state assets involved in these operations. ETN accomplished this by consolidating six different existing tracking products into a more comprehensive, interoperable system. ETN can track entities including evacuated populations, state assets used in evacuation—including buses, vans, and planes—and active sheltering facilities. TDEM provides a wristband to individuals evacuated or sheltered by Texas state responders. Individuals receive this wristband during evacuation or when they arrive in person at any State-supported shelter. TDEM also uses this system to monitor the status of evacuation vehicles and current shelter populations in real-time. ETN lets TDEM track the last facility at which each individual checked in, allowing for easy and effective communication to these individuals when it is safe to return to their community.

Figure 3: Emergency Tracking Network tracked buses transporting evacuees.



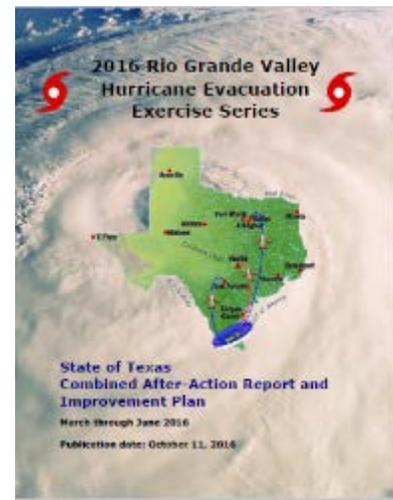
ETN also has the capability to group individuals together, enabling TDEM to track each member of a family along with their pets or other personal items like luggage. TDEM in conjunction with local jurisdictions used ETN to evacuate and shelter over 31,000 people during Hurricane Harvey. All of those individuals tracked in ETN were accounted for and returned home. In one instance, two TDEM staff members assisted two Alzheimer's patients in evacuating their home and sheltering in a State-supported shelter. When the two individuals accidentally separated from one another, TDEM used ETN to identify which shelter each had last checked into and used that information to reunite the individuals.

All State-led facilities and operations utilized ETN during Hurricane Harvey, but TDEM could not integrate shelters such as churches, nonprofit-led efforts, or pop-up shelters into ETN. TDEM expressed an interest to build the capability to incorporate these types of shelters into ETN. In total, TDEM effectively processed about half of the total number of individuals that required evacuation and/or sheltering because of Hurricane Harvey.

Full-Scale Evacuation Exercises [EMPG]

Each year, TDEM conducts a series of hurricane exercises to test Texas' ability to manage large-scale evacuations. These exercise series, typically consisting of several workshops that culminate in a full-scale exercise, regularly engage over 1,000 Federal, state, local, private, and non-profit partners. In 2016, TDEM conducted the Rio Grande Valley Hurricane Exercise Series using \$359,401 in FY 2015 EMPG funding. The series spanned five workshops from March through May 2016 and one full-scale exercise from June 2-9, 2016. This exercise series focused on determining Texas' ability to evacuate citizens from isolated impacted regions with aircraft. Evacuees encompassed both members of the general population and populations with access and functional needs.

Figure 4: Texas exercised aircraft evacuation in 2016 and used that capability during Hurricane Harvey in 2017.



In the after-action report (AAR) for this exercise series, TDEM emphasized the strong collaboration and communication across participating jurisdictions as assets conducted air evacuations.

Additionally, TDEM also noted in the AAR that, while helpful, ETN posed some logistical issues and identified this as an area for improvement.

During Hurricane Harvey, heavy flooding severely limited road access and hindered evacuation operations. As a result, TDEM resorted to using air evacuations to support populations from communities that became geographically isolated by rising flood waters. Ultimately, TDEM used Air National Guard air assets to evacuate approximately 2,500 people from the cities of Beaumont and Galveston. Similar to the strengths highlighted in the 2016 AAR, TDEM’s operations benefited greatly from the cooperation and coordination between outside mutual aid agencies. TDEM emphasized the importance of regional collaboration in this operation. The capabilities built and relationships strengthened through the 2016 exercise series directly benefited the air evacuation operation a year later during Hurricane Harvey. Additionally, identified areas for improvement allowed TDEM to improve the ETN, contributing to TDEM’s ability to successfully use the network during Hurricane Harvey.

Swift Water Awareness Program [EMPG, State]

TDEM has invested in expanding law enforcement readiness for swift water rescue scenarios. In 2014, a Travis County deputy died after she accidentally drove into a flooded area to respond to a call and her vehicle was washed off the road. TDEM recognized that any officer could find themselves trapped in rising water, so Texas implemented a Swift Water Awareness Program with \$499,647 in FY 2017 State funds and \$661,000 in FY 2016 EMPG funds. Texas used State funds to hire a swift water manager to train staff on water awareness using TDEM’s independently designed course. Through the training, the swift water manager walks students through a two-hour course on the basics of swift water dynamics, and then students practice in the water to understand how to navigate swift water safely until rescue teams arrive. Upon completion of the course, TDEM provides students with an equipment bag including a rope bag, seatbelt cutter, life vest, and helmet. TDEM also independently designed an advanced-level swift water rescue course to teach students how to conduct rescue operations in a qualified team. This course puts students in the water and requires them to conduct a simulated rescue. FY 2016 EMPG funding supported purchasing two zodiac swift water rescue boats (\$30,000) and comprehensive team training packages for swift water, boat, and helicopter rescue; water survival; helicopter hoist rescue operations; specialized teams; and field responder safety.

Figure 5: Students practice skills during Swift Water Awareness Program course.



During Hurricane Harvey, one district coordinator found himself driving through rapidly rising water. Thanks to his water rescue training, he was able to put on his life vest and move behind his vehicle. He credits the swift water training with saving his life. Today, every trooper trained through the DPS Academy must complete the water rescue awareness course to finish the academy. All Texas Rangers and SWAT team members must also complete this basic awareness course.

Costal Bend Annual Hurricane Conference [SHSP, EMPG, MJIEDSP, State, Local]

Each year, the Coastal Bend Council of Governments Emergency Management Association (CBEMA) hosts an annual Coastal Bend Hurricane Conference and Exercise in cooperation with multiple Federal, state, local, private, and non-profit partners. CBEMA identifies two primary objectives of the event: to share new best practices in hurricane preparation and response, and to communicate lessons learned from recent major events. Additionally, there is an exercise portion of the conference that allows participants to vet their plans in a collaborative environment. In FY 2018, CBEMA primarily used approximately \$70,000 in local funds, attendance fees, and industry donations; around \$25,000 in Department of Homeland Security (DHS) Multi-Jurisdiction Improvised Explosive Device Security Planning Program (MJIEDSP) funds; and \$6,120 in FY 2018 SHSP funds to support the conference, supplemented by additional amounts of State and EMPG funding.

Figure 6: Participants at the 2018 Hurricane Conference gather to discuss hurricane preparedness best practices.



One of the most important outcomes of the conference is that EOC personnel can meet and interact with counterparts they might not otherwise meet in person. The atmosphere is learning-focused, and there is a close adherence to a no-fault environment. It provides an opportunity for all personnel involved in the operation of EOCs across the region to interact and network with outside Federal and state EOC operators, sharing experience and best practices. Such in-person contact is a critical component of building collaborative and effective cross-organization relationships.

Figure 7: Participants at the 2018 Hurricane Conference review Hurricane Harvey's landfall.



Coastal Bend officials highlighted the long-standing collaboration that has resulted from this annual conference as an invaluable resource during the response to and recovery from Hurricane Harvey. By attending the conference in the past and having the ability to build connections, local emergency managers were better equipped to conceptualize, design, and execute complex multi-jurisdictional response and recovery operations during Hurricane Harvey.

Southeast Texas Community Response [SHSP, EMPG, HMGP, Local]

As Hurricane Harvey approached Texas, rainfall forecasts more than doubled for many communities. These unexpected rainfall totals and heavy flooding ultimately isolated many communities across Southeast Texas, leaving responders with only locally available resources to support response efforts. Before the storm, jurisdictions throughout this area had made extensive investments using Federal, state, and local funds that aided response and recovery missions, providing communities with local and regional resources like rescue boats, radios, and high-profile communications equipment. As demonstrated by the cities of Vidor and Port Arthur, communities that invested in local response capabilities before the storm were better equipped to independently address Hurricane Harvey's impacts.

Heavy rainfalls of over 60 inches in the City of Vidor significantly handicapped response and recovery efforts, notably incapacitating their dispatch capabilities and making it difficult for officials to travel to command centers. Effectively addressing these impacts required extensive planning and communications

efforts. To overcome this challenge, emergency management officials quickly established a fully-functioning dispatch center in their EOC using radios and transmitters they purchased using \$1.47 million in FY 2015 EMPG funds. Additionally, Vidor invested \$133,204 in FY 2009 HMGP funds to purchase additional backup generators and strengthen the structure of their city hall, where the city established its EOC and dispatch center during the storm. Impacts from the storm did not disrupt facility operations because of these investments. Vidor had also used these EMPG funds to hire an emergency management coordinator, expanding Vidor’s capability to develop and execute comprehensive disaster plans. Officials in Vidor consistently characterized these EMPG investments as critical to strengthening preparedness efforts in the city. Collectively, these investments helped Vidor respond to Hurricane Harvey under circumstances where the city could not rely on external support.

“Thanks to the Emergency Management Performance Grant our communities had updated plans, a designated Emergency Management Coordinator, and trained personnel to support a complex response operation when we became isolated by floodwaters during Hurricane Harvey.”

– Captain Aleta Cappen, City of Vidor Police Department

The City of Port Arthur similarly used grant investments to effectively manage challenges during response operations. Port Arthur is one of the largest producers of chemicals in the country and houses the largest oil refinery in the United States. As such, emergency managers in the city prioritized hazardous materials (HazMat) emergency response capabilities by investing \$58,419 in 2009 SHSP funds to purchase monitoring equipment and HazMat protection equipment, better equipping responders to address hazardous material leaks. During Hurricane Harvey, heavy flooding triggered fires across several oil refineries in the area. Port Arthur officials responded to these flood-triggered fires with the support of the monitoring equipment and HazMat resources. Port Arthur responders effectively contained the fires and prevented substantial environmental impacts from potential oil spills or explosions. Additionally, Port Arthur used \$68,062 in FY 2010 SHSP funds to purchase air boats for emergency operations. These SHSP-funded resources enabled responders to conduct rescue missions in otherwise inaccessible areas.

Arkema Chemical Plant Fire Response [SHSP, UASI, BZPP, Local]

The Houston region’s systematic improvements in communications capabilities are well-highlighted in its response to the Arkema Chemical Plant, a high-profile incident during the flooding in the aftermath of Hurricane Harvey. Located just to the east of Houston, in the town of Crosby, the Arkema Chemical Plant is a chemical processing facility that stores large quantities of volatile organic peroxides. These compounds require low-temperature refrigerated storage to keep them stable. If not kept stable, temperature sensitive organic peroxides can rapidly decompose and combust. As Hurricane Harvey drenched the area with heavy rainfall and intense flooding, the rising water incapacitated the plant’s power, including all backup generators and critical refrigeration infrastructure.¹⁰ As a safety precaution, plant personnel moved the most volatile of the compounds into nine separate diesel-fueled refrigerated trailers located on higher ground inside the main facility. The trailers’ refrigeration systems, which housed approximately 350,000 pounds of material, began running low on fuel and eventually stopped working. Rising high water further compromised the trailers, resulting in limited release and combustion of the compounds with the potential for a catastrophic release.¹¹ The potential for a cascading event warranted a complex

Figure 8: Responders used grant-funded HazMat suits and equipment at the Arkema Facility.





multi-jurisdictional response and management effort to protect the lives, property, and environmental well-being of the surrounding communities.

Approximately 100 individuals from Federal, state, local, private, and academic partners assisted in incident operations. Specialty teams such as bomb squads, HazMat teams, and other special operation teams assisted in incident response. To coordinate operations, Unified Command relied on the joint Harris County-Houston radio network, funneled specifically through the Crosby tower site near the scene. This site, which was damaged by Hurricane Harvey and quickly repaired in the days preceding the chemical plant incident, was integral for communication during response operations. Network engineers and response officials stressed that without the capabilities that this communication network provided through the Crosby tower site, communication would have been nearly impossible for response operators. Additionally, responders used a Harris County response boat funded by \$48,750 in FY 2006 BZPP funds to remove the 11 ride-out personnel that remained inside the plant. Responders also used one Houston Police helicopter, which was purchased with local funds. Incident managers used this helicopter to monitor the trailers as response teams planned the response operation. The helicopter was equipped with grant-funded night vision and downlink software, funded with \$575,000 in UASI funds, allowed for real-time monitoring of ground conditions.

Officials developed and implemented an incident response plan and pulled together the necessary teams and resources within four hours. Because of ground contamination and flammability concerns, responders could not use robots or drones for entry. Rather, response officials had to send responders wearing grant-funded HazMat suits into the plant to deploy initiation devices for a controlled combustion of the chemicals inside the six remaining trailers that had not already burned. Due to imminent danger, officials had to move quickly to stabilize the scene. Previous investments in preparedness, planning, teams, equipment, and training made this rapid process feasible. Without these vital investments, a quick response would not have been possible as local responders would have had to wait for outside resources to respond.

Just as the operation was to be executed, real-time video feeds from the helicopter revealed that chemicals in one trailer had begun to react, creating an unstable and life-threatening situation for the responders about to enter the site. Using the video capability, Unified Command decided to delay the operation until conditions were once again stabilized. This critical capability helped Unified Command conduct a rapid risk assessment, preventing the team from entering a deadly environment and potentially saving the lives of 16 responders.

Operations officials from this incident emphasized the parallels between this incident and terrorism-related incidents, both of which evolve and deteriorate rapidly, requiring continuous adaptation in high-risk hazardous conditions. Access to the special response teams and technology that Houston and Harris County had already invested in, trained, and exercised permitted the development of a plan and its execution within four hours. Aerial resources increased situational awareness and allowed decision makers on the ground to adapt quickly and efficiently in a dynamic threat environment, ultimately saving lives. Without the prevention and protection capabilities—funded by SHSP, and UASI, and local funds—the responders on this incident would not have been properly equipped, trained, or exercised to safely manage this incident.

UASI-funded resources at Arkema included: two HazMat teams, two bomb squads, a weather station, a Mobile Command Center, decontamination equipment, one law enforcement aviation team, two fire departments, and two FirstNet provider communication trailers. While grant funds paid for equipping, training, and exercising these specialized teams, local funds paid for the salaries and benefits of team members, reflecting an important relationship between local and Federal funds. Response operations degraded or destroyed some equipment, including HazMat suits and decontamination supplies, and \$20,000 in remote detonator receivers, all of which Houston will need to replace.



Houston and Harris County have three Type I Bomb Squads and eight Type I HazMat teams, which train together quarterly. Officials highlighted this UASI-funded training as an integral part of establishing trust and strong working relationships between the personnel that carried out this operation. These strong working relationships and the robust capabilities within the Houston UASI allowed for another Houston Bomb Squad team to travel 90 miles away to simultaneously conduct a controlled explosion of Jersey barrier walls on Interstate-10, safely releasing rising water that was contributing to flooding in the City of Beaumont.

Port Security [PSGP]

The Port of Corpus Christi is one of the largest and busiest industrial shipping ports in the world. Over \$22.7 billion in traded goods passed through the port in 2017. Officials estimated that a major disruption to the port—including a terrorist attack or catastrophic natural event—would cause wide-spread ripple effects on the entire US economy. Recognizing the port’s global importance and the growing need for the port’s security and resilience, Corpus Christi made extensive investments in new equipment and technology around the port site using both local and Federal funds. Corpus Christi received \$615,000 in FY 2017 PSGP funding, much of which directly benefited Hurricane Harvey response and recovery. During Harvey, incident managers activated PSGP-funded radars and cameras, funneled through the EOC, to monitor the port for damage or unauthorized entry. This real-time assessment allowed operators to begin planning recovery efforts by tracking damage in real-time, reducing the time necessary to re-open the busy port. Additionally, PSGP-funded boats enabled port staff to rescue personnel from a tug boat that capsized during an attempt to reposition a drill ship that was unmoored by the storm. These PSGP-funded boats also enabled staff to deploy to Port Aransas when all other access routes were blocked by the storm. Doing so allowed Port Aransas staff to deploy into the field and conduct life-saving search and rescue operations.

Response Apparatuses [OPSG, PSGP, Local]

Rockport built response capability by investing \$165,442 in FY 2010 OPSG funds to purchase a Lenco BearCat armored vehicle in 2011. The BearCat, which is bulletproof and designed to transport a 10-member police tactical unit, serves as a regional asset that Rockport shares with surrounding communities. During Hurricane Harvey, Rockport used the vehicle to transport Urban Search and Rescue (US&R) teams and deliver critical food supplies to isolated communities during challenging wind and rain conditions in which other vehicles were unable to operate. Additionally, responders used the BearCat to rescue a family whose roof had collapsed during the storm. Without the vehicle, it would have been nearly impossible to get this family to safety. Rockport also purchased two additional patrol cars in 2016 with \$101,269 of FY 2014 and FY 2015 OPSG funding. Similarly, the City of Groves invested \$904,500 in FY 2011 PSGP funds and \$301,500 in local funds to purchase two industrial fire engines. During Hurricane Harvey, Port Arthur officials used these vehicles to conduct search and rescue missions in heavily flooded or otherwise inaccessible neighborhoods when the storm damaged their response apparatuses.

Houston Regional Catastrophic Preparedness Plans [SHSP, UASI, RCPGP, Local]

Before FEMA discontinued the grant program following FY 2011, the Greater Houston Region invested Regional Catastrophic Preparedness Grant Program (RCPGP) funding into improving its capabilities to respond to catastrophic disasters. Houston credits RCPGP with enabling partners in Southeast Texas to build a collaborative planning process and bringing in individuals with relevant experience—such as SMEs and field operators—to reality-check plans during the drafting phase. The RCPGP-funded plans are multi-jurisdictional, with some plans covering between 13 – 16 counties, while other plans cover as many as 30. In keeping with the whole community orientation of the plans, each plan involves an element of vertical integration, outlining roles and responsibilities of relevant Federal, state, and regional entities where appropriate.



Hurricane Harvey revealed some planning areas that could be improved, such as non-traditional shelter coordination, donation management, volunteer management, and housing. Plans had been predicated on regional support availability, and since Hurricane Harvey severely impacted Houston and surrounding counties, effective resource sharing across the region was not possible. In the future, Houston also intends to clarify mutual aid resource management, particularly with outside law enforcement, in existing plans and procedures. To date, Houston has supported maintenance and updates to its plans with a small portion of its annual SHSP award. Further, some plans have been exercised and updated with UASI and local support.

Communications

Southeast Texas Alerting Network (STAN) [PSGP, Local]

During Hurricane Ike, officials throughout SETRPC relied on non-centralized methods to communicate critical messages and warnings to the public. SETRPC had no established electronic communication system to consistently deliver critical messages. In response, SETRPC used \$911,140 in FY 2012 and FY 2014 PSGP funds to develop STAN.

STAN is a public-private partnership that enables emergency managers to send official alert messages to all citizens or to specific, targeted cohorts such as a particular group of emergency managers. STAN is an opt-in system where citizens register to receive public information updates via text message or phone call. In FY 2014, industry partners provided a 25 percent match to assist in developing the system. As the City of Beaumont is home to one of the largest oil refinery operations in the country, Exxon-Mobil partners with SETRPC to support STAN because of the large number of petroleum employees that might need emergency alert notices. Private industry partners, including Exxon-Mobil, can also use STAN to send messages to their employees and advise them of any specific workplace-related information and warnings.

STAN served two critical functions during Hurricane Harvey: dispelling social media misinformation and alerting residents mid-disaster as weather information changed. As the disaster unfolded, some social media posts provided incorrect information. For example, one post falsely stated that the City of Groves would soon cut off water service. Officials used STAN to send out official and accurate information to mitigate the spread of false information. During Hurricane Harvey, the National Weather Service frequently updated predictive models as storm severity became more certain and forecasted rainfall levels continued to rise rapidly, from initial forecasts of 12 – 24 inches to later forecasts of approximately 22 – 44 inches. Eventually, predicted rainfall was so high that officials needed to order new evacuations, though there was no time to use normal evacuation notification venues. SETRPC officials activated STAN and successfully used the network to alert citizens of the new flood dangers. By successfully using this system to address a no-notice incident—the sudden and dramatic increase in forecasted rainfall totals—SETRPC demonstrated that STAN is an effective tool for use in other no-notice incidents, including acts of terrorism or other human-caused incidents.

Southeast Texas Regional Planning Commission (SETRPC) Radio System [SHSP, PSGP, Local]

Before the implementation of the Regional Radio System, SETRPC had multiple non-interoperable communication pathways for emergency responders. One of the lessons from the 2005 response to Hurricane Rita was that communication needed to be clear and reliable. Additionally, SETRPC needed to make additional investments in equipment to increase interoperability and reduce coordination barriers. Between FY 2000 and FY 2003, SETRPC made an initial \$6 million investment of local funds to begin working towards communication interoperability. From FY 2005 to FY 2018, SETRPC invested approximately \$37 million in PSGP and SHSP funds and \$1.8 million in other Federal funds to fully build the infrastructure for the regional radio system.

The regional radio system for SETRPC allowed for uninterrupted emergency communication throughout Hurricane Harvey. The unprecedented flooding for the region disrupted landline communications, 911, and public cell service. The flooding transformed towns into virtual islands, further limiting jurisdictions' abilities to communicate and distribute resources. Moreover, flooding cut SETRPC jurisdictions off from the rest of the state as highways flooded. The regional radio system was the only form of unimpeded communication among jurisdictions during the storm and allowed for communication with state and Federal partners to continue.

Specifically, the city of Nederland used the radio system to successfully communicate among responders, enabling them to perform water rescues for the first time ever. Several jurisdictions, including Nederland, Groves, and Vidor, indicated they would have suffered from inconsistent or nonexistent communication during the storm had the regional radio system not been in place.

SETRPC prioritized efforts to make the entire region P25 compliant, effectively making all radios completely interoperable with one another. As of August 2018, all jurisdictions within the SETRPC are P25 compliant.

Houston, Harris County, and Montgomery County Radio Systems [UASI, PSGP, AFG, Local]

After 9/11, first responders across the nation recognized a need to develop better interoperability among communication systems. In the Houston region, those systems were further tested by numerous natural and man-made disasters, prompting the region to identify widespread capability gaps in interoperable communications capabilities. These identified gaps have propelled robust efforts to improve the Houston Urban Area's communications interoperability. Notably, the Houston-Harris County Joint Radio Facility project resulted in the two jurisdictions sharing facilities and resources in the operation and maintenance of a common regional radio communications system. The city and county invest \$6.8 million annually in local funds to staff the facility; additionally, \$3.2 million in UASI funding is invested annually to maintain and enhance the systems. The radio shop houses network infrastructure for both jurisdictions' radio systems. The networks serve all 13 counties of the Houston-Galveston Area, which includes the Houston UASI, and have the capability to share services with neighboring counties. Further, the networks are interoperable across local, state, and Federal agency networks.

“The floods from Harvey turned our cities into islands. The only way we were able to achieve operational coordination between the cities and counties was through our communications. Had it not been for the interoperable communications made possible by both portables and mobile data terminals purchased with DHS funding, we would not have been able to coordinate within the region at all.”

– Chief Dale Jackson, City of Groves Fire Department

Figure 9: A cell tower near Beaumont floods during Hurricane Harvey.



Harris County also made substantial improvements to its Long Term Evolution (LTE) communications systems. Since FY 2010, Harris County has invested \$27 million total—\$16 million in PSGP and \$11 million in local funds—to build a broadband communications system that primarily covers Harris County. During Hurricane Harvey, Harris County’s broadband system was used by multiple local, state, and Federal responding agencies across the affected areas to help reduce the amount of voice traffic generated on the public safety regional Land Mobile Radio System. It also increased operational efficiency by giving the responders the ability to send data-centric updates to the field. Harris County continues to implement lessons learned from unplanned disasters like Hurricane Harvey and planned events like Super Bowl LI. The region’s innovation has impacted national paradigm shifts towards increased incorporation of data into operational plans.

In addition, Montgomery County has invested \$30.5 million total—\$27 million in local FY 2009 – 2011 funds, \$1.5 million in FY 2004 and FY 2007 UASI funds, and \$2 million in FY 2010 AFG funds—to replace the county’s disparate, aging, and outdated radio systems with one interoperable 700/800 P25 system that ties into the Houston Harris County regional radio system. Because the system is tied into the region’s P25 LAN Mobile Radio system, county officials were able to communicate efficiently across county boundaries with other responding agencies to coordinate a region-wide response. Before having the 800 MHz system, any teams operating outside of Montgomery County would have been operating without communications, and teams inside the county would have needed to carry multiple radios to communicate across response components. County officials stressed the importance of this new 800 MHz system during Hurricane Harvey response and recovery operations, noting that having all operating agencies on the same system significantly improved communication and efficiency of response compared to disaster operations just a year prior. Currently, the county is investing an additional \$20 million of its own funding to upgrade equipment—including radios—and implement new security protocols.

These communications investments provided several benefits during Hurricane Harvey response. Redundancies built into the networks enabled network engineers to manage three distinct damaged towers without causing any network disruptions or outages. Further, the joint Houston-Harris County facility provided and programmed approximately 300 radios to outside police agencies—such as the San Antonio Police Department—assisting in response efforts through mutual aid agreements with jurisdictions whose own equipment did not have the same interoperable capability. In total, these networks supported approximately 9,800 additional radios to sustain the increased network traffic from local jurisdictions and mutual aid partners both from within and outside of Texas. This increased capability improved the efficiency of disaster response efforts. Local officials consistently noted the stark improvement in ease and efficiency of communication from past tropical event operations—including Tropical Storm Allison, Hurricane Katrina, and Hurricane Ike—to those during Hurricane Harvey.

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

After-action reviews of Hurricane Ike consistently demonstrated a need to better incorporate all necessary response partner agencies into critical decision-making processes. This identified capability gap served as the primary impetus behind re-construction and upgrades to **Houston’s EOC**. This project entailed a physical expansion and diversification of the EOC space and a substantial investment into improving the technology EOC staff use during activations. Between FY 2015 and FY 2017, Houston used \$618,615 in UASI funds and \$250,000 in local funding to expand the existing EOC space. This renovation resulted in

Figure 10: A radio technician accesses a tower site to conduct emergency repairs during Hurricane Harvey.



a 77 percent increase in staff capacity—from 44 to 78 staff—permitting the presence of additional Federal and private-sector partners in the EOC during critical phases of response and recovery operations. EOC staff consistently reported that this expansion was critical in enabling better representation of and communication between all relevant partners.

Additionally, Houston invested \$495,695 in FY 2015 – FY 2017 UASI funds to improve the facility’s technological capabilities. These upgrades included a new video feed integration and display systems that allowed operators to display and navigate between up to 32 distinct video feeds, increasing EOC situational awareness. The EOC has established reciprocity agreements with several private or municipal owners to share video feed during critical situations. In one instance, EOC staff used this remote monitoring capability to communicate to the incident commander of an incident involving an overturned plane with active explosives on board at a local airport. Once alerted, the EOC and incident commander maintained oversight of the scene remotely via video feed, letting the aircraft burn through its fuel and self-extinguish without endangering the incident commander or other responders by approaching the scene.

Figure 11: An integrated 32-screen video display system helped Houston EOC staff during Hurricane Harvey.



Similarly, the Houston UASI has invested \$717,100—\$498,800 in FY 2011 and FY 2015 UASI funds and \$218,300 in FY 2011 – FY 2018 local funds—to build a new **Fort Bend County Alternate EOC**, recognizing that the county’s primary EOC was aging and potentially prone to interruption during severe weather. The alternate facility, housed in the basement of a pre-existing county IT building, is designed to support a full-scale EOC activation if the primary EOC is rendered inoperable. The multi-room complex, containing a central operation center, a video-capable leadership conference room, and a large-scale plotter, has benefited partners across the entire Houston-Galveston Area Council region as the facility is also available to neighboring jurisdictions for use in both emergency and non-emergency functions. Jurisdictions have used the facility to host exercises and trainings, including assessments of the Catastrophic Medical Operations Center (CMOC). During Hurricane Harvey, 26 county staff members operated phone lines in the facility to address a massive influx of calls from the public.

The City of Victoria also identified a critical need to upgrade the communications capabilities of their EOC in the aftermath of Hurricane Ike. During Hurricane Ike, the **Victoria EOC** had limited capability to communicate and conduct emergency response missions, prompting the city to increase the resilience of the facility and improve its communications capabilities. In FY 2011 and FY 2012, officials upgraded the Victoria EOC through critical infrastructure improvements using \$1,926,178 in total funds: \$167,955 of FY 2011 – FY 2012 SHSP funds; \$1 million in FY 2011 – FY 2012 FEMA EOC grant funds; \$500,923 in FY 2011 – FY 2012 Coastal Impact Assistance Program (CIAP) Grant funds; \$7,300 of FY 2011 – FY 2012 DOW Community Grant Funds; and \$250,000 of FY 2011 – FY 2012 local funds. These upgrades included the installment of an FBI-certified communications room equipped with five television monitors, a secure radio system, and additional grant-funded radio systems that visiting emergency managers used to relay information back to their first responders during Hurricane Harvey. The facility contains an emergency response room that seats approximately 50 staff members and is equipped with telephones and interoperable communication systems to coordinate response and recovery operations. During Hurricane Harvey, emergency response officials operated out of the facility for eight days uninterrupted.

Additionally, Victoria used \$532,405 in FY 2007 – FY 2018 EMPG funds to hire three emergency management staff members to support the EOC. According to response officials, these extensive upgrades enabled the EOC to stay updated with the most current communication equipment, making the Victoria EOC a central piece of the jurisdiction’s emergency response system to Hurricane Harvey.



Communications Apparatus [SHSP, BZPP, Local]

The City of Ingleside places a strong emphasis on ensuring that first responders have the necessary resources at their disposal to safely operate, including updated equipment and vehicles. In response, Ingleside spent \$12,000 in local funds and \$9,287 in FY 2009 SHSP funds to purchase a communications vehicle with two mobile repeaters for the fire department in 2010. The city then used \$12,940 in FY 2011 SHSP funding to purchase radios for the vehicle in 2013. This vehicle's systems are interoperable with all regional communications systems, and TV displays on the inside give staff increased situational awareness. During Hurricane Harvey, the truck served as a hub for local responders. Emergency managers experiencing communication problems used the truck as a meeting area and borrowed radios from the truck before returning to the field. Ingleside also used the truck to maintain mobile repeater systems when the storm disabled communications systems, letting officials maintain response communications for four days. Ingleside also purchased communications equipment (two P25 800 MHz radios, one video camera, and a cross band repeater) in 2008 for its locally funded police vehicle using \$40,400 in FY 2008 BZPP funds. This vehicle provides officials with video capabilities to track on-going events; the capability to link multiple, disparate radio systems to streamline communication; and the capability to dispatch resources. Ingleside has also used this vehicle to respond to wildfires and bank robberies, as well as for several community events.

Mitigation

Tornado and Hurricane Community Safe Rooms [HMGP, PDM]

In response to evacuation and sheltering challenges during Hurricane Ike, TDEM increased state investment in community safe rooms aligning to FEMA and International Code Council (ICC) standards.¹² TDEM implements state-specific requirements through the Texas Community Safe Room Program. FEMA provides funding for community safe rooms through its HMGP and Pre-Disaster Mitigation (PDM) programs. Local jurisdictions can apply to Texas for Federal and state funding to build a safe room and must provide a 25 percent match to federal funds. Since FY 2004, TDEM has invested \$109.97 million in Federal, state, and local funds—including \$108.03 million in HMGP funds^v and \$1.94 million in FY 2011 PDM funds—to develop these community safe rooms.

Each safe room must adhere to FEMA's established construction guidelines, which consider potential wind speeds, windborne debris impacts, flooding potential, fire protection, and means of egress.¹³ Typically, communities conduct a risk assessment to determine the best location to construct a safe room. Depending on local and state code, buildings that include 911 call stations, EOCs, fire stations, police stations, or K-12 school buildings with a capacity of 50 or more occupants and that are located in a 250 miles per hour tornado storm shelter design wind zone must construct a community safe room adhering to ICC design guidelines to withstand tornados.

^v HMGP funds for Texas Hurricane Dolly (DR-1780) and Texas Hurricane Ike (DR-1791) in CY 2008, Texas Wildfires (DR-4029) in CY 2011, Texas Explosion (DR-4136) in CY 2013, Texas Severe Storms, Tornadoes, Straight-line Winds, and Flooding (DR-4223) in CY 2015, and Texas Severe Winter Storms, Tornadoes, Straight-line Winds, and Flooding (DR-4255) in CY 2016.

Community safe rooms can be built into existing community facilities, such as a gym or cafeteria in a public school, or as stand-alone structures. Jurisdictions have full discretion on how they use the space when not activated for an emergency. Community safe rooms provide life safety protection from extreme wind events for citizens and typically house whoever is nearby and allowed to enter for tornados. Community safe rooms can house first responders, specialized response and recovery teams such as US&R teams, and other incident-essential personnel during hurricanes that are not no-notice. Statewide, regional, or local preparedness investments often fund these personnel, reflecting a successful blend of not only preparedness and mitigation funds, but also of Federal, state, and locally funded efforts.

The community safe room in the City of Woodsboro served as a critical asset to Hurricane Harvey response and recovery operations. In FY 2008, Woodsboro invested \$2.18 million—\$1,746,717 of HMGP funds and \$436,679 of local funds—to construct their multi-use safe room. Typically serving as a sports complex during day-to-day functions, Woodsboro’s safe room functioned as a base camp for response crews, a staging area for equipment, and an incident command post where emergency managers reported to receive operational assignments during Hurricane Harvey. State police, local fire and emergency medical services (EMS), and mutual aid EMS from as far away as Dallas/Fort Worth all established bases in the safe room. Response officials emphasized the importance of the Woodsboro facility, noting that Texas Task Force 1 would not have been able to operate in the region without the secure facility the safe room provided. Additionally, officials estimated that had the safe room not served as a staging site, the response mission would have taken about a week longer and put at greater risk the lives and property of the surrounding communities. Other communities, such as the City of Victoria, also characterized their community safe rooms as critical to response operations.

Figure 12: City of Woodsboro Safe Room was used by responders to support nearby response operations during Hurricane Harvey.



Texas Medical Center (TMC) [SHSP, UASI, RCPGP, HMGP]

During Tropical Storm Allison in 2001, the Texas Medical Center sustained substantial flood damage and experienced major disruptions in communications, limiting the center’s ability to safely coordinate patient transfer. TMC facilities also suffered \$2 billion in damages and lost decades of medical records and experiments during the storm.¹⁴ In response, TMC embarked on a series of mitigation and preparedness investments to enhance the center’s resiliency during future disasters. Between FY 2001 – FY 2011, TMC used \$60.6 million in HMGP funds^{VI} to support investments in three broad categories:

1. Improving communications capabilities;
2. Brick-and-mortar mitigation efforts including but not limited to: flood control, or utility and infrastructure protection; and
3. Improving coordination among system hospitals.

Most notably, the SouthEast Texas Regional Advisory Council (SETRAC) established a CMOC to address the medical coordination gap and ensure the resiliency of multi-jurisdictional healthcare infrastructure during catastrophic events such as Tropical Storm Allison and Hurricane Harvey.¹⁵ After Hurricane Katrina, the City of Houston welcomed over 250,000 displaced evacuees from Louisiana and

^{VI} HMGP funds for Texas Severe Storms and Flooding (DR-1379) in CY 2001, Texas Hurricane Ike (DR-1791) in CY 2008, and Texas Wildfires (DR-4029) in CY 2011.

surrounding affected areas. This influx of evacuees further highlighted a need first identified in the aftermath of Tropical Storm Allison for consistent cross-hospital communication and coordination. System hospitals consistently needed to manually coordinate patient transfers via phone call, and hospitals would often fight for the same EMS assets on a first-come-first-serve basis. The CMOC provides a centralized system that allows for efficient patient transfer and management of EMS resources.

CMOC, funded by \$196,530 in FY 2015 UASI funds and \$135,970 in FY 2017 SHSP funds, covers 187 hospitals, over 900 nursing homes, and about 250 EMS agencies throughout 25 counties in southeast Texas. Additionally, RCPGP funds were used to develop regional plans for the CMOC and to support exercises. In total, SETRAC’s CMOC ensures continuous medical care for over nine million people across 277 jurisdictions. Furthermore, capabilities built through the CMOC let TMC provide real-time updates to any active EOC in southeast Texas—including the State Operations Center—through a WebEOC medical dashboard. SETRAC’s robust mitigation investments, in conjunction with preparedness efforts, enabled the center to function through Hurricane Harvey without a major disruption to patient care. Members of SETRAC’s CMOC have also traveled the country to share best practices with other jurisdictions, helping them create similar structures in their own communities.

TMC also engaged in several brick-and-mortar investments to increase the resilience of the facility by improving its ability to mitigate flooding. During Tropical Storm Allison, floodwater inundated the TMC Houston campus’ underground tunnel system. All but one facility—the Texas Children’s Hospital (TCH)—did not have submarine doors to prevent water inflow to the tunnel entrance. When TCH closed its doors, it forced water to flood other facilities through the other open tunnel entrances. At the time, flood plans did not account for this outcome. Other facility basements flooded when the TCH doors closed because they did not have submarine doors, causing most of the TMC facilities to lose electrical power. Floodwaters damaged critical electrical equipment, including the backup generators, and rendered most of the complex without power.

To prevent this from happening again, TMC invested \$6 million in FY 2001 HMGP funds to install automatic submarine doors and floodgates on all tunnel system entrances. TMC also engaged in mitigation action planning and developed agreements and protocol for closing doors. These doors now close automatically if floodwaters rise to 14 feet, preventing any ingress into the system’s basement. In addition, TMC made several investments in utility protective measures, including elevated utilities, storm water culverts, floodwalls around critical power infrastructure, installing disconnect switches to allow the removal of a flooded institution from the grid to prevent a system-wide failure, and redundant electricity options. As a result of these investments, TMC facilities operated with no major disruption to service during Hurricane Harvey.

Figure 13: Floodgate protected Texas Medical Center during Hurricane Harvey.



University of Texas Medical Branch (UTMB) [HMGP, PA, State, Local]

UTMB, a member organization of TMC, is a vital resource to the medical community, providing over six million people with health care, medical education, and medical research. UTMB’s Galveston campus is home to one of only three Level 1 trauma centers in the Houston-Galveston region, a critical asset during large-scale incidents and petrochemical and oil rig accidents. The facility is one of few across the nation that has the capability to handle highly infectious diseases like Ebola through its Biosafety Level 4 Containment Facility.

During Hurricane Ike, UTMB Galveston sustained substantial damage due to the historic 13-foot storm surge, including catastrophic damage to the campus’ utility infrastructure and major disruptions to, and destruction of, vital medical research. As a result, the facility has planned, designed, and executed 712 mitigation-related investments since 2008 to ensure the facility’s uninterrupted ability to provide life-saving medical care. Between FY 2008 – FY 2011, UTMB invested \$1.14 billion across all mitigation projects with 42.5 percent coming from PA funds, 3.6 percent from HMGP funds, 6.0 percent from insurance funds, and 47.7 percent from a combination of state, local, and borrowed funds. FEMA’s mitigation grants covered costs to build a 16-foot flood wall. For reference, a 100-year flooding event is estimated at 12-foot surge and a 500-year event at 18 feet. UTMB paid to raise the flood wall and elevate critical assets beyond the 500-year event, adding between 4 – 20 feet.¹⁶

UTMB mitigation efforts also included a complete restructuring of the facility’s water piping system. During Hurricane Ike, floodwaters caused an underground steam pipe to burst, incapacitating the entire facility for nearly five months and the trauma center for 11 months. During this time, UTMB Galveston could not provide medical care, conduct critical research, or operate its education facilities. Rebuilding and elevating the piping system above 500-year flood levels has enabled UTMB to be better prepared and more resilient in future instances of mass flooding or storm surge.¹⁷

In addition to the elevation of the water piping system, UTMB Galveston also embarked on several other elevation-related investments. Each investment sought to raise pre-existing critical infrastructure across the campus beyond the 500-year event to 20 feet and raised the standard elevation for any future infrastructure to 25 feet.¹⁸ Examples of other elevation investments include the elevation of domestic water pumps, electrical equipment, and an electrical switchgear, which are critical for transferring from normal power to emergency power.

During Hurricane Harvey, UTMB did not experience flooding as severe as Hurricane Ike flooding. As such, the storm did not fully stress UTMB’s various mitigation improvements, but UTMB still served as a key medical facility throughout Hurricane Harvey. UTMB provided critical care during the incident, taking on patients from other regional hospitals that had lost their capability to provide life-saving medical care. For example, Harvey’s impacts forced the City of Beaumont to close its hospitals after they lost water. UTMB was the closest facility that could accept four neonatal intensive care unit infants that were evacuated from Beaumont, effectively saving the infants’ lives.

Figure 14: New emergency potable and chilled water lines in basement at UTMB.





Appendix B: COG SHSP Funding Allocation Process

HSGD uses a formula based on threat, vulnerability, and consequence to strategically determine regional allocations of the 80% share of available SHSP funds. Modeled after the SHSP and UASI Risk Assessment used by FEMA to determine State and UASI risk profiles and allocations, HSGD's formula includes factors such as population, critical infrastructure, and border miles. Summaries of the SHSP prioritization processes for the COGs FEMA visited throughout this case study are included below. These processes, along with other supporting information such as the COG's and/or the State's THIRA/SPR, assist HSGD in determining which projects will be funded with the region's allocation. HSGD determines final funding approvals for all projects, though HSGD seeks to follow each COG's prioritizations as closely as possible.

Houston-Galveston Area Council (H-GAC)

The Regional Homeland Security Coordinating Council (RHSCC) coordinates the prioritization and allocation process for SHSP funds in H-GAC. Each of the 13 counties within the region and the City of Houston submits a list of investments that they prioritize according to capability gaps identified in the regional THIRA/SPR, Texas Homeland Security Strategic Plan - Implementation Plan, and other assessments. The RHSCC convenes and discusses the slate of investments utilizing a formalized scoring methodology based upon current priorities, risk, and other factors. The score sheet is updated by the RHSCC annually. The RHSCC uses this discussion to make prioritization and requested allocation decisions, then submits a proposed list of investments to the H-GAC Board of Directors for final approval. Once approved, the list of selected investments is submitted to HSGD for approval.

Coastal Bend Council of Governments (CBCOG)

Each year, the CBCOG Homeland Security Advisory Committee (HSAC) calls upon SMEs to identify capability gaps by reviewing the regional THIRA/SPR, surveys, and other reports. From this, the HSAC establishes top regional priorities. In 2018, these priorities covered planning, interoperable communications, and emergency operations centers.¹⁹ Applicants for grant funding self-assess their investment using a set of criteria that the HSAC establishes as a basis for evaluation and selection.²⁰ Using investment proposals and self-assessments, an HSAC working group reviews proposals to determine if the investment addresses an HSAC-prioritized gap, can be completed in stages, and meets a local, regional, or state need, in addition to basic eligibility and funding availability considerations. Once the working group finishes its review, HSAC forwards the recommended investments to CBCOG general membership for approval and submits final recommendations to the Texas HSAC.²¹ The Texas HSAC then submits the final slate of selected investments to HSGD for approval.

Golden Crescent Regional Planning Commission (GCRPC)

GCRPC's Regional Homeland Security Advisory Committee (RHSAC) manages the COG's SHSP prioritization and allocation process. The RHSAC considers applications based on the previous year's approved process and conducts its selection process exclusively at an open-forum RHSAC meeting, to which all applicants are invited to speak about their proposal. RHSAC uses an informal risk methodology that depends on previous disaster history and current priorities. The RHSAC ranks and approves investments after the open-forum meeting, recommending top-priority investments for funding first, followed by lower-ranked investments until all allocated funds are depleted. The RHSAC then submits the final slate of selected investments to HSGD for approval.



Southeast Texas Regional Planning Commission (SETRPC)

SETRPC’s Emergency Management Planning Advisory Committee (EMPAC) leads a collaborative effort with all jurisdictions within the region to prioritize and allocate SHSP investments. The EMPAC solicits proposals from jurisdictions, focusing on investments that have region-wide benefit. Each proposal must incorporate a capability gap identified in the regional THIRA/SPR, the regional Critical Infrastructure and Key Resources List, or the Texas Homeland Security Strategic Plan - Implementation Plan. Once SETRPC receives all proposals, the EMPAC convenes all jurisdictions where investments are prioritized by unanimous consensus among all jurisdictions. SETRPC’s Executive Committee then submits the final slate of selected investments to HSGD for approval.



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- ²⁰ CBCOG Scoring Document
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