Chapter 7: Flood Response Information and Activities

The following chapter summarizes the flood response preparations in the Trinity Region using demographic, historical, projected, and statistical data from the previous chapters, and by documenting survey responses received from entities through the online data collection website. The Texas Water Development Board (TWDB) stated that the Regional Flood Planning Groups (RFPGs) "shall not perform analyses or other activities related to planning for disaster response or recovery activities." Therefore, this chapter documents the information obtained from entities regarding existing preparations for flood response activities, existing recovery efforts, and potential administrative or policy recommendations (included in more detail in Chapter 8) of this Trinity Regional Flood Plan.

Types of Flooding in the Trinity Region

There are five types of floods that impact the Trinity Region:

- Coastal floods
- Flash floods
- Pluvial floods
- Riverine floods
- Urban floods

Whenever a coastal process such as waves, tide, storm surge, or heavy rainfall from coastal storms creates a flood, it is referred to as coastal flooding. Coastal flooding tends to be the most extreme when the storm surge is high. Storm surge is an abnormal rise of water generated by a storm, over and above the predicted astronomical tides.

Flash floods are floods caused by heavy rainfall over a short period of time. The flood water can be very powerful, making it extremely dangerous. Flash flooding often occurs with little to no advance notice.

Pluvial floods happen when flooding is independent from an overflowing body of water, due to excessive rainfall. The most common example of this is when the drainage system is overwhelmed, and the excess water floods streets and surrounding properties. This may also be known as local flooding.

Riverine floods, or fluvial floods, occur when excess rainfall overtops the riverbank. This overtopping then spills water onto nearby land.

Urban flooding occurs when water flows into an urban region faster than it can be absorbed into the soil or moved to and stored in a lake or reservoir. The two most common types of

urban flooding include riverine and flash floods. The Trinity Region is prone to both types of floods.

When such flood events occur, it is imperative that plans are in place to combat the effects of the flooding to protect people and property.

The Four Phases of Emergency Management

As shown in ***Figure 7.1***, emergency management involves four phases (FEMA, 1998):

- **Flood Preparedness:** Actions, aside from mitigation, that are taken before flood events to prepare for flood response activities.
- **Flood Mitigation:** The implementation of both structural and non-structural solutions to reduce flood risk to protect against the loss of life and property.
- **Flood Response:** Actions taken during and in the immediate aftermath of a flood event.
- **Flood Recovery:** Actions taken after a flood event involving repairs or other actions necessary to return to pre-event conditions.

Figure 7.1: Four Phases of Emergency Management

When a severe rain event is projected to occur, steps are taken for preparedness. Disaster preparedness plans are in place, drills and exercises are performed, an essential supply list is created, and potential vulnerabilities are assessed. Examples of preparedness actions include installing disaster warning systems, purchasing radio communication equipment, or conducting emergency response training.

During the response phase, disaster plans are implemented, search and rescue activities may occur, and/or Low Water Crossing (LWC) signs may be erected. Response examples include

addressing immediate flood needs through actions such as placing temporary barriers or closing gates at LWCs, installing signage near overtopped roads, or using sandbags to divert water.

In the recovery phase, evaluation of flood damage occurs. Examples of recovery activities can include comprehensive debris management, rebuilding damaged structures, and utilities restoration.

The most important step of the four phases of emergency management is mitigation. Examples of mitigation actions include planning and zoning, floodplain protection, property acquisition and relocation, and public outreach projects. Hazard mitigation is defined by the Federal Emergency Management Agency (FEMA) as any sustained action taken to reduce or eliminate the lasting risk to life and property from hazard events. It is an ongoing process that occurs before, during, and after disasters and seeks to break the cycle of damage and restoration in hazardous areas (FEMA, n.d.). Flood mitigation is the primary focus of the regional flood planning process and plan development efforts regarding identifying and recommending FMEs, FMSs and FMPs by the RFPG. The plan may also include flood preparedness Flood Management Evaluations (FMEs), Flood Management Strategies (FMSs), and Flood Mitigation Projects (FMPs).

Flood Preparedness, Response, and Recovery in the Trinity Region

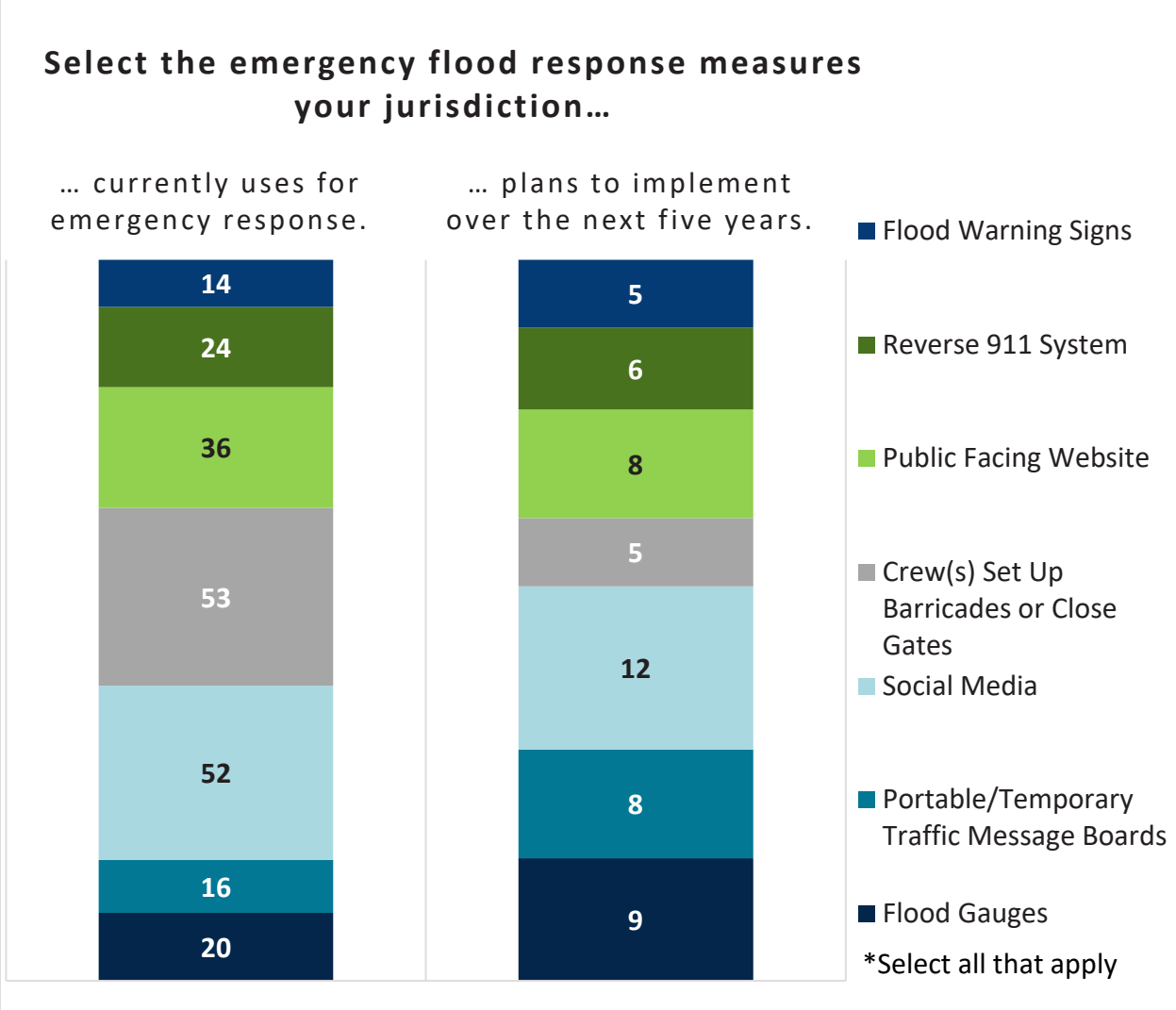
Some cities and counties have Hazard Mitigation Plans (HMPs) that support the preparedness, response, recovery, and mitigation phases. Currently, only 70% of county HMPs in the Trinity Region are approved by FEMA, although some may be in the process of being updated for FEMA approval.

Mitigation actions from HMPs can include the following types of actions:

- Buyout/acquisition/elevation projects
- Drainage control and maintenance
- Education and awareness for citizens
- Equipment procurement for response
- Erosion control measures
- Flood insurance education
- Flood study/assessment
- Infrastructure improvement
- Installation/procurement of generators
- Natural planning improvement
- Outreach and community engagement
- Technology improvement
- Urban planning and maintenance

As discussed in ***Chapter 1***, the Trinity RFPG performed a data collection outreach effort in 2021 that included survey questions applicable to multiple chapters within this plan. The survey responses received from entities in the Trinity Region indicated that several types of actions listed were in place or being implemented in the next five years including flood warning signs, a Reverse 911 system, a public facing website, crews to set up barricades or close gates, social media, portable and/or temporary traffic message boards, and flood gauges. ***Figure 7.2*** summarizes the responses to the survey to which participants were able to select all the options that apply to their entity.

Figure 7.2: Flood Response Measures



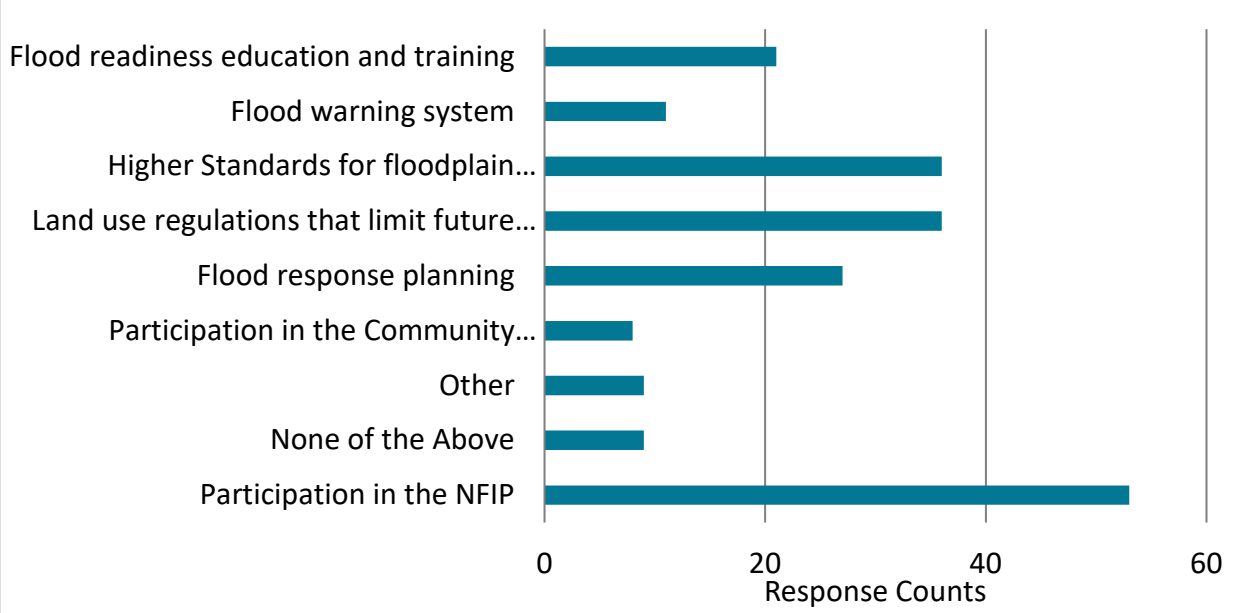
Source: Trinity Region data collection survey results as of September 16, 2021

Once the response measures are in place, recovery can begin. Depending on the duration and extent of the event, various recovery actions may be needed. In the recovery process it is key to have clear communication with relevant entities to communicate needs and with citizens to communicate risks. It is also essential to have trained professionals who can respond to and recover from disasters efficiently and effectively. Debris management and utility maintenance and/or restoration through public works are necessary and time sensitive services. If flooding occurs within a structure, communication with the local floodplain administrator may be required to obtain permits before beginning repairs.

The Texas Flood website, www.texasflood.org, is a collaboration between TWDB, Texas Department of Emergency Management (TDEM), and the General Land Office (GLO) to provide information and resources after a flood event. The website provides helpful information and resources for both communities and individuals seeking post event financial assistance.

Additional measures indicated by the survey responses include measures taken by jurisdictions include promoting the participation in the National Flood Insurance Program (NFIP), focusing on higher standards for floodplain management, and utilizing land use regulations that limit future flood risk. ***Figure 7.3*** summarizes participant responses to these resiliency measures (multiple responses could be selected).

Figure 7.3: Measures to Promote Resilience



Source: Trinity Region data collection survey results as of September 16, 2021

As noted in ***Chapter 1, Table 1.9,*** 45 respondents indicated participation in the NFIP was key to promoting resilience, 32 respondents indicated land use regulations that limit future flood risk were important, and 32 respondents stated taking measures to promote higher standards for floodplain management were key.

Many of the mitigation and preparation actions are done in conjunction with the relevant entities who put these actions into practice.

Relevant Entities in the Trinity Region

The purpose of flood risk management is to help prevent or reduce flood risk by using either structural or non-structural means or a combination of the two. Responsibility for flood risk management is shared between federal, state, and local government agencies; private-sector entities; and the general public. In ***Chapter 1***, the various communities contacted to provide data via the survey included: agricultural agencies, cities, counties, Councils of Government (COGs), districts such as Municipal Utility Districts (MUDs) and Special Utility Districts (SUDs), and state and federal agencies. The various contributing entities and partners are discussed here.

Local Entities

Cities, or municipalities, generally take responsibility for parks and recreation services, police and fire departments, housing services, emergency medical services, municipal courts, public transportation services, and public works (streets, sewers, snow removal, signage, and so forth) services. The Trinity Region includes all or portions of 287 municipalities.

In the aftermath of a flood event, cities and counties coordinate to provide recovery services for residents including but not limited to debris clean up, vital resource distribution, medical care, short-term shelter, buyout programs for flooded properties, and local infrastructure improvements to mitigate future risk in long-term implementation. Cities and counties can provide increased resiliency through the successful implementation of mitigation projects to reduce the impact of floods.

The major responsibilities of the 38 county governments in the Trinity Region include providing public safety and justice; holding elections at every level of government; maintaining Texans' most important records; building and maintaining roads, bridges, and in some cases, county airports; providing emergency management services; providing health and safety services; collecting property taxes for the county and sometimes for other taxing entities; issuing vehicle registrations and transfers; and registering voters.

The preparedness role for a city or county can involve creating an emergency preparedness plan for their entities, educating and training community members on flooding, encouraging people and businesses to purchase flood insurance, and setting up emergency communication

lines. In the flood response phase, the entities are to implement the disaster preparedness plan, monitor high water at high-risk locations, alert the community to unsafe conditions, conduct road closures, perform search and rescue missions, update Geographic Information System (GIS) mapping as needed, and contact the federal government for disaster relief. When it is time to implement the recovery phase, each entity should update old or damaged infrastructure, work with the federal government to assess damages, communicate with volunteers and local leaders, and utilize free advisory services that can aid in the recovery process.

Regional Entities

Agricultural extension agents (or "ag extension agents") are employed by land-grant universities and work for the citizens of that particular state by serving as an expert or teacher on the topic of agriculture. Ag extension agents can provide valuable information on preparation and recovery from flood events specific to agricultural entities. The Trinity Region has a significant agricultural footprint that makes working closely with ag extension agents crucial in preparing for disasters, learning about types of disasters, and accessing disaster recovery information.

The nine COGs located within the region are voluntary associations that represent member local governments, mainly cities and counties, and seek to provide cooperative planning, coordination, and technical assistance on issues of mutual concern that cross jurisdictional lines. COGs typically aid in the preparedness phase and can serve as a resource for flood data, flood planning, and flood management. COGs can also be recipients of federal and state grants and have their own response programs. The North Central Texas Council of Governments (NCTCOG) within the Trinity Region includes the Public Works Emergency Response Team (PWERT). This team provides aid during an emergency or disaster when local public works departments are overwhelmed and request assistance.

During recovery from a flood event, COGs serve as a valuable resource by providing information, services, and tools for communities. COGs facilitate recovery through public engagement and community outreach, planning of regional infrastructure studies, and the development of plans to aid in recovery and resilience.

Additionally, NCTCOG provides a Local Disaster and Recovery Framework and Toolkit which includes post-disaster recovery checklists, local plan templates, as well as other documents to aid in the recovery process.

Four Trinity Region COGs (Brazos Valley Council of Governments, Deep East Texas Council of Governments, South East Texas Regional Planning Commission, and Houston-Galveston Area Council) received Community Development Block Grants for Disaster Recovery (CDBG-DR) allocated by the United States Department of Housing and Urban Development (HUD) for

Hurricane Harvey housing recovery assistance. These funds are for housing, infrastructure, and planning through state and local programs.

River authorities or districts in the State of Texas are public agencies established by the state legislature and given authority to develop and manage the waters of the state. The Trinity Region has seven river authorities within its region that have the power to conserve, store, preserve, utilize, and distribute the waters of a designated geographic region for the benefit of the public. The river authorities or districts are essential partners in floodplain management and create their own regulatory and management plans for water use and retention.

Texas Association of Regional Councils assists state and federal partners by coordinating and improving regional homeland security preparedness, planning, and response activities across jurisdictional boundaries. The TDEM works with the regional councils to verify that all regional and local emergency plans are up-to-date and compliant with Texas Government Code. Regional councils also work with TDEM in the event of a disaster within their region to access state resources in a timely manner.

Water districts are local government entities that provide water and sewer service and sometimes roads to its customers and residents, depending on the type of districts. There are three of these types of districts in the Trinity Region. Water districts play a role in the water quality and distribution and can aid in the construction of drainage and infrastructure. In relation to flood preparedness and response, water districts actively monitor water levels of the flood control systems they operate. They are active in flood planning, protection, and outreach efforts within the region.

Water supply and utility districts can include MUDs, Freshwater Supply Districts (FWSDs), Municipal Water Districts (MWDs), and SUDs. A water supply district is a special district given the task of supplying water and sewer needs to a community. Utility districts are political subdivisions that provide infrastructure and services such as water, sewer, and stormwater drainage in areas where city services are not available. Throughout the Trinity Region, there are a total of 164 of these districts. These districts can be useful in the containment and release of flood waters before or during a flood event. During the recovery phase of an event, districts can provide access to services such as water, sewer, and stormwater drainage.

A flood control district is a special purpose district created by the Texas Legislature and governed by County Commissioners Courts. It is a government agency established to reduce the effects of flooding. They utilize flood control infrastructure, such as levees, seawalls, and tide gates to work as physical barriers to prevent areas from flooding. Other measures, such as pump stations and channels, help reduce flooding. There are 39 flood control districts in the region that provide flood control. Flood control districts oversee construction and maintenance of the levees, storm water pump stations, canals, ponds, and other storm drainage

management facilities to protect residents, businesses, and their respective assets from the impact of flood-related damage.

Daily river forecasts are issued by the 13 River Forecast Centers (RFCs) using hydrologic models based on rainfall, soil characteristics, precipitation forecasts, and several other variables. Some RFCs, especially those in mountainous regions, also provide seasonal snowpack and peak flow forecasts. These forecasts are used by a wide range of users, including those in agriculture, hydroelectric dam operation, and water supply resources. The forecasts can provide essential information on river levels and conditions for flood preparation and potential evacuations.

Dams and levees are owned and operated by individuals, private and public organizations, and the government. The responsibility for maintaining a safe dam rests with the owner. A dam failure resulting in an uncontrolled release of the reservoir can have a devastating effect on persons and property downstream. It is critical that the owners are part of the flood planning process to promote collaborative and cohesive flood planning.

State Entities

The mission of the TWDB is to lead the state's efforts in providing a secure water future for Texas and its citizens**.** TWDB provides water planning, data collection and dissemination, financial assistance, and technical assistance services to the citizens of Texas. TWDB is statutorily responsible for administering the regional water planning process and preparing and adopting the State Water Plan every five years. Additionally, TWDB offers a variety of cost-effective loan and grant programs that provide for the planning, acquisition, design, and construction of flood related infrastructure, watershed studies, flood warning systems, flood awareness and outreach programs, and water quality improvements. TWDB also works with the Texas Natural Resources Information Systems (TNRIS) to provide real time flooding information through www.texasflood.org.

The GLO is the oldest state agency in Texas. The GLO manages state lands, operates the Alamo, helps Texans recovering from natural disasters, helps fund Texas public education through the Permanent School Fund, provides benefits to Texas Veterans, and manages the vast Texas coast. GLO, through the community development and revitalization division, aids communities in rebuilding, restoring critical infrastructure, and mitigating future damage through resilient community planning. The GLO administers both CDBG-DR and Mitigation (CDBG-MIT) funds from the HUD on behalf of the State of Texas.

The TDEM, a division of the Texas Department of Public Safety (DPS), is charged with coordinating state and local responses to natural disasters and other emergencies in Texas. TDEM is intended to verify the state and its local governments respond to and recover from emergencies and disasters, as well as implement plans and programs to help prevent or lessen the impact of emergencies and disasters. TDEM's Recovery and Mitigation divisions work

closely with local jurisdictions, state agencies, and federal partners to confirm Texans successfully navigate recovery processes and become more resilient for future disasters. The Disaster Recovery Task Force was created to assist jurisdictions that have been impacted by an emergency or disaster, to recover more efficiently by starting the recovery process early in the response phase.

There are six TDEM regions within Texas. In those regions, Assistant Chiefs and District Coordinators serve as the division's field response personnel stationed throughout the state. They have dual roles as they carry out emergency preparedness activities and coordinate emergency response operations. In their preparedness role, they assist local officials in carrying out emergency planning, training, and exercises. They also develop emergency teams and facilities and teach a wide variety of emergency management training courses. In their response role, they deploy to incident sites to assess damages, identify urgent needs, advise local officials regarding state assistance, and coordinate the deployment of state emergency resources to assist local emergency responders. The Trinity Region is primarily in TDEM Regions 1 and 2, with some counties extending into TDEM Regions 5 and 6.

Though the public face of the agency is generally associated with the construction and maintenance of the state highway system, the Texas Department of Transportation (TxDOT) is also responsible for overseeing aviation, rail, and public transportation systems. TxDOT can provide real-time road closure and LWC information in the response and recovery phases of a flood event. Users can access this data through TxDOT's Drive Texas website, www.drivetexas.org.

Federal Entities

FEMA is an agency of the United States Department of Homeland Security (DHS). FEMA's mission is "helping people before, during and after disasters." While on-the-ground support of disaster recovery efforts is a major part of FEMA's charter, the agency provides state and local governments with experts in specialized fields and funding for rebuilding efforts and relief funds for infrastructure by directing individuals to access low-interest loans, in conjunction with the Small Business Administration. In addition to this, FEMA provides funds for training of response personnel, establishes accessible flood hazard limit information, participates in flood outreach and awareness activities, provides floodplain management standard guidance, and works with local, regional, and state floodplain administrators as part of the agency's preparedness efforts.

The National Weather Service (NWS) mission is to provide weather, water and climate data, forecasts, warnings, and impact-based decision support services for the protection of life and property and enhancement of the national economy. NWS provides flash flood indicators through watches, warnings, and emergency notices to inform the public of potential flood risks.

The National Oceanic and Atmospheric Administration (NOAA) is an American scientific and regulatory agency within the United States Department of Commerce that forecasts weather, monitors oceanic and atmospheric conditions, charts the seas, conducts deep sea exploration, and manages fishing and protection of marine mammals and endangered species in the United States exclusive economic zone. NOAA's National Center for Environmental Information (NCEI) provides historical data that can help communities determine their future probability of flood events and is key in the planning and mitigation process. For coastal flood events, NOAA's Office of Coastal Management plays a key role in providing information, technology, and flood management strategies. NOAA weather data enables communities to prepare for flood events by providing weather information.

The United States Army Corps of Engineers (USACE) is essential to the nation's military. The agency is responsible for a wide range of efforts in the United States including addressing safety issues related to waterways, dams, and canals, but also environmental protection, emergency relief, hydroelectric power, and much more. USACE is composed of several divisions, with the Trinity Region being in the Southwest Division and the Galveston and Fort Worth districts.

The USACE Flood Risk Management Program (FRMP) focuses on the policies, programs, and expertise of USACE to help reduce overall flood risk. This includes the appropriate use and resiliency of structures such as levees and floodwalls, as well as promoting alternatives when other approaches (e.g., land acquisition, flood proofing, etc.) reduce the risk of loss of life, reduce long-term economic damages to the public and private sector, and improve the natural environment.

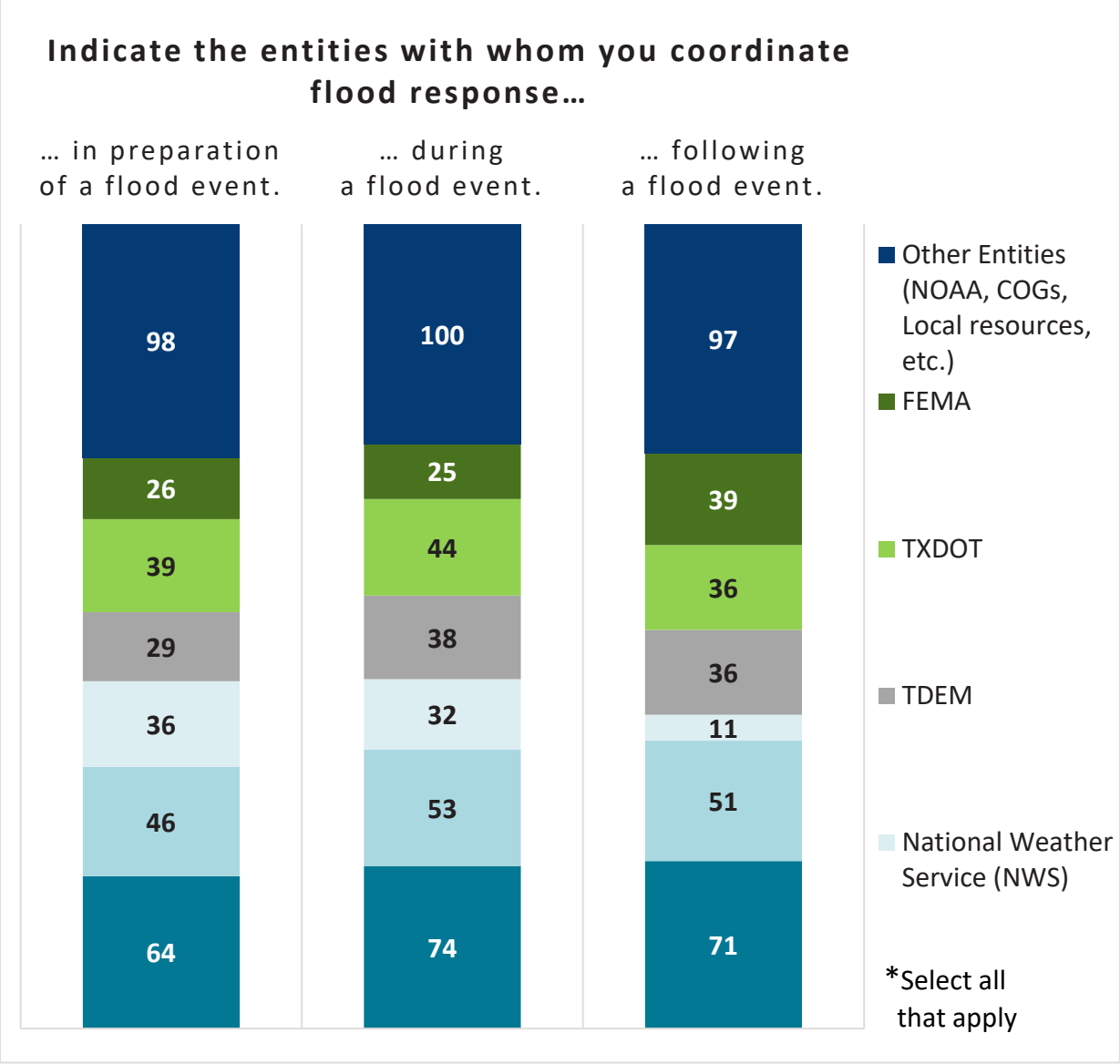
USACE responds to disasters each year by deploying hundreds of trained personnel and providing resources nationwide. USACE works under the direction of FEMA as a member of the federal team to support state and local governments in responding to major disasters.

Entities in Preparation of a Flood Event

In the planning process it is important to consider flood planning in preparation, during, and following a flood event to access the entities that provide the respondents with the most assistance and support. Of the survey responses received, the top six entities in which coordination was indicated as key were county, city, TDEM, TxDOT, NWS, and FEMA with all other entities accounting for much smaller responses.

Figure 7.4 shows the breakdown of survey responses regarding entities that contribute most significantly in the preparation, the response, and the recovery efforts within the Trinity Region's various jurisdictions. Respondents could select all that apply in their responses. For example, all of the survey participants responded that during a flood event, they coordinate with other entities, such as NOAA, COGs, etc.

Figure 7.4: Flood Event Entities



Source: Trinity Region data collection survey results as of September 16, 2021

Emergency Information Dissemination

There are various means by which data can be collected and disseminated before and during a flood event.

Two types of gauges used are rain gauges and stream gauges. A rain gauge is a meteorological instrument to measure the rain in a given amount of time per unit area. It collects water falling on it and records the change over time in the rainfall depth. Stream gauging is a technique used to measure a stream's discharge or the volume of water moving through a channel per unit of

time. The height of water in the stream channel, known as a stage or gauge height, can be used to determine the discharge in a stream.

In addition to the NWS, local media such as news or radio stations are vital components in relaying real time information to local residents about inclement weather and flooding. Local media can also alert residents of LWC closings, dam or levee breaches, and other potential dangers. They typically relay NWS messages regarding flood watches, warnings, and emergency notifications. Some media outlets have created their own weather apps that include real-time weather alerts including rain and flood notices. NWS provides data for Emergency Alert Systems (EAS) to alert individuals to imminent or dangerous weather conditions.

In the Trinity Region, the Graphical Severe Weather Warnings project (GWARN) represents a collaborative effort between the NWS Fort Worth office, the NWS Southern Region Headquarters, and the NCTCOG. Using the warning polygon area, a demographic database at NCTCOG is queried to determine characteristics of the population at risk. This has served as a model for numerous other integrations of demographics data into weather impacts. (NCTCOG, n.d.)

An EAS is software that provides alert messages during an emergency. Messages can interrupt radio and television to broadcast emergency alert information. Messages cover a large geographic footprint including the entirety of the Trinity Region. Emergency message audio/text may be repeated twice, but EAS activation interrupts programming only once, then regular programming continues. According to the county websites, 32 counties within the Trinity Region are currently enrolled in some type of EAS program.

A local entity can invest in a reverse 911 system that allows the entity to pull up a map on a computer, define the area of interest, and send a recorded phone message to each business or residence in that area. The reverse 911 program participants can opt to receive text messages or calls through this system. Per the survey and in reviewing data from the HMPs, entities within the Trinity Region have indicated interest in pursuing the reverse 911 system to provide data to residents regarding flood dangers in their area.

School emergency alert systems are tools that allow schools to communicate quickly to staff, students, first responders, and others so that they can take appropriate action in the event of an emergency situation. Various versions of this tool are used in schools throughout the region from daycares to K-12 grade schools and universities.

Plans to be Considered

Local Plans

In the Trinity Region's data collection effort and survey tool in 2021, publicly available local emergency management and emergency response plans were requested. An emergency

management plan is a course of action developed to mitigate the damage of potential events that could endanger an organization's ability to function. These plans include measures that provide for the safety of personnel and, if possible, property and facilities. Some emergency plans are protected by law and are not available to the general public. The region obtained emergency management plans, HMPs, and other regional and local flood planning studies from county and local jurisdictions.

The Trinity Region has several region-wide plans and regulations in place that dictate a community's capabilities in implementing mitigation and preparedness actions. While each of the region's counties have a HMP, only 27 of 38 county plans are currently approved by FEMA, as they are to be updated on a five-year cycle. One plan is expired with the county seeking funding or funding pending for an update to their plan. Eight counties have a plan in development or being updated, and two counties have a plan in review, revision, or adoption. Additionally, eight cities have HMPs, with two of them being expired. Having an up-to-date HMP is key to assessing risk and developing mitigation actions.

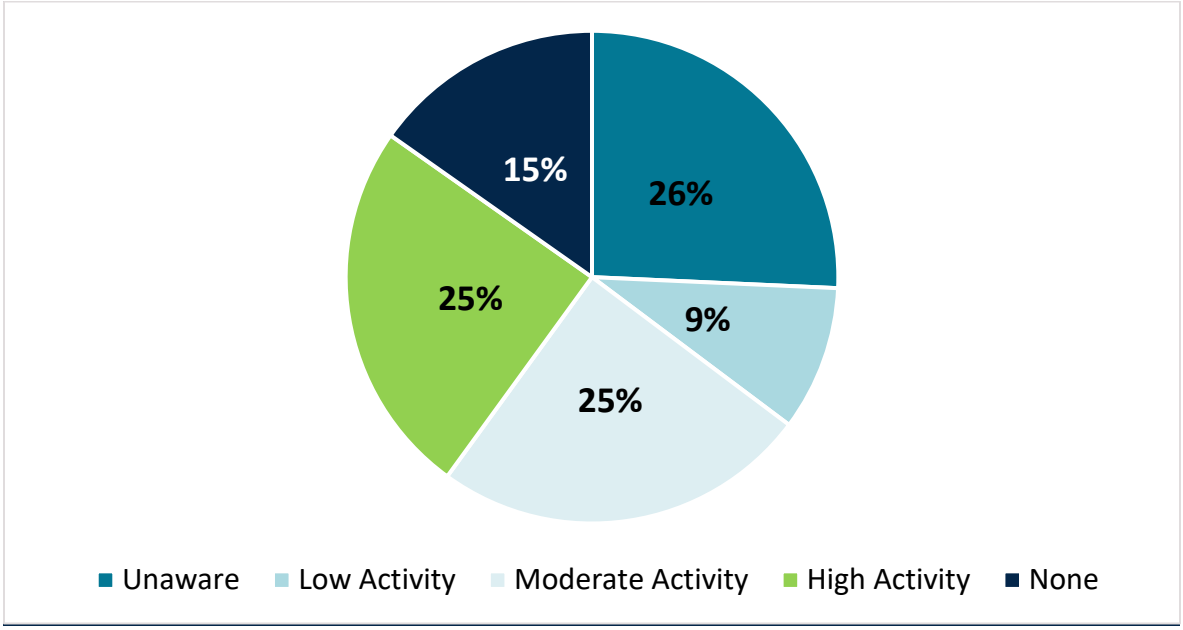
Other plans to consider include Emergency Action Plans (EAPs) and watershed master plans. An EAP provides the basis for the coordinated planning and management of types of emergencies and disaster events. Watershed master plans promote collaboration between all community sectors to create a resilient flood hazard area.

Hazard mitigation planning reduces loss of life and property by minimizing the impact of disasters. It begins with state, tribal, and local governments identifying natural disaster risks and vulnerabilities in their area. After identifying these risks, they develop long-term strategies for protecting people and property from similar events. Mitigation plans are key to breaking the cycle of disaster damage and reconstruction.

In the private sector, an EAP is a document required by the Occupational Safety and Health Administration (OSHA) standards. The purpose of an EAP is to facilitate and organize employer and employee actions during workplace emergencies. EAPS are an essential in emergency management for critical facilities and for dams. EAPs for dams are essential for identifying potential emergency conditions and specifying preplanned actions to be followed to minimize property damage and loss of life.

These plans are critical components in creating and maintaining strong floodplain management practices in the region. When asked which of the following best describes the activity of your jurisdiction in floodplain management practices, only 26% of survey respondents indicated that their jurisdiction maintained strong practices indicating interest in improved floodplain management practices throughout the region. ***Figure 7.5*** summarizes the survey responses regarding the self-reported strength of local floodplain management practices.

Figure 7.5: Floodplain Management Practices



Source: Trinity Region data collection survey results as of September 16, 2021

Aligning common goals and objectives in the region can facilitate the efficiency of plans and actions taken. Having more robust floodplain practices both locally and regionally creates an ideal flood mitigation scenario and promotes good floodplain management practices.

The Trinity Region's ability to prepare, respond, recover, and mitigate disaster events is determined by several factors. With a clear understanding of the plans that determine a community's capabilities, a recognition of the entities with whom coordination is key, and knowledge of the actions sustained to promote resiliency, the region can be better equipped to implement sound measures for flood mitigation and preparedness.

Regional and State Plans

As part of the NCTCOG, the Regional Emergency Preparedness Program (REPP) is brings together urban, suburban, and rural jurisdictions to facilitate information sharing, collaboration, and cooperation among jurisdictions. (NOTCOG, n.d.) Preparedness is defined by the DHS and FEMA as "a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action in an effort to ensure effective coordination during incident response." (DHS, 2022)The REPP accomplishes this through networking, standardization of policy and procedures, and coordination efforts with entities.

FEMA's Regional Catastrophic Preparedness Grant Program (RCPGP) provides funding to close gaps in housing, logistics, and supply chain management; encourages innovative regional

solutions to issues related to catastrophic incidents; and builds on existing regional efforts. (FEMA, 2022)

The State HMP can reduce losses by reducing the impact of disasters on people and property. Mitigation efforts cannot eliminate all potential impacts of disastrous events. (Minnesota Department of Public Safety, 2014) However, the implementation of HMPs can significantly reduce the anticipated impacts of hazardous events.

The plan evaluates, profiles, and ranks natural and human-caused hazards effecting Texas by frequency of event, economic impact, deaths, and injuries. The plan:

- Assesses hazard risk through a risk and vulnerability assessment
- Reviews current state and local hazard mitigation and climate adaption capabilities
- Develops mitigation strategies
- Identifies state agency (and other entities) potential actions to address state and regional needs.

Potential Regulatory Recommendations

In the Trinity Region, improvements could be made to further the effectiveness of emergency actions, especially preparedness. Recommendations made by the Trinity RFPG are included in ***Chapter 8*** and promote the creation and use of floodplain mapping, education of entity officials regarding flooding, and encouragement of local regulations. A couple of recommendations also address emergency mitigation, such as encouraging jurisdictions to work towards common flood mitigation goals and the establishment of a dam safety program. Furthermore, recommendations such as preparing a statewide database of disaster-related fatalities can assist entities with emergency recovery and preparation for future flooding events.

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