



Section 2 Executive Summary

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Fort Bend County, Texas developed its first Hazard Mitigation Plan in 2005 because of increasing awareness that natural and man-made hazards, especially flood hazards, had the potential to affect the County and its citizens. An approved hazard mitigation plan is a requirement in order for the County to remain eligible for some types of grants that are administered by the Texas Division of Emergency Management (TDEM), the Texas Water Development Board (TWDB) and the Federal Emergency Management Agency (FEMA). The abbreviation *HMP* is used throughout the update in place of Hazard Mitigation Plan.

The 2005 HMP was prepared by a Hazard Mitigation Committee (HMC) and supporting Hazard Mitigation Team (HMT). The HMT consisted primarily of representatives from local government, but also includes partners that represented industry and the private sector. The HMT included local government employees with skills that included a wide variety of disciplines that are required to achieve effective hazard mitigation objectives. The Fort Bend County Judge appointed supporting agencies and organizations to provide representatives to the HMT, and the HMC served as team leader and functional manager. The 2011 Plan update was completed using a Mitigation Planning Committee (MPC) that included representatives from numerous County departments, as well as a Stakeholders group. Specifics of the process are discussed in Section 4 of the update, *Planning Process*.

Fort Bend County has experienced multiple hazard events between 1965 and 2010. Since 1965, Fort Bend County has received nine major Presidential Disaster Declarations. These events are summarized as part of Table 5.2-1 in this 2011 HMP update. Of the nine Presidential Disaster Declarations that Fort Bend County received between 1965 and 2010, four of these events were floods, three were hurricanes and two were tropical storms. In recent history the County has been impacted by seven significant flood events, occurring in years 1994, 1998, 2001, 2004, 2008, and 2009.

The original Hazard Mitigation Plan set the stage for long-term disaster resistance through identification of actions that will reduce the exposure of people and property to natural hazards. The MPC reviewed all the actions from the original HMP, indicating the current status of the actions in Section 7, the *Mitigation Strategy*.

Sections of the Plan update:

- Provide overviews of the hazards that threaten the County
- Characterize the people and property that are exposed to risk from the hazards
- Outline the planning process
- Identify vulnerabilities and assess risks from specific hazards
- Identify and prioritize mitigation action items



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Copies of the adopted Plan update are available for review at the Fort Bend County Office of Emergency Management.

2.1 Organization of the Plan

The Fort Bend County Hazard Mitigation Plan Update is organized to parallel the structure provided in the Interim Final Rule (IFR). The Plan has ten sections and 24 appendices (A through X).

Section 1	Table of Contents
Section 2	Executive Summary
Section 3	Background
Section 4	Planning Process
Section 5	Hazard Identification and Profiling
Section 6	Vulnerability Assessment and Loss Estimation
Section 7	Mitigation Strategy
Section 8	Integration with other Plans
Section 9	Approval and Adoption
Section 10	Plan Monitoring and Maintenance

There are references to the IFR throughout the HMP update. Where possible these provide specific section and subsection notations to aid the review process. Although key elements and information from the original plan have been maintained as part of the update, the structure has been significantly modified to better follow the IFR and FEMA crosswalk document.

2.2 Background

The purpose of a mitigation plan is to rationalize the process of identifying and prioritizing actions that reduce (mitigate) the effects of natural hazards on a community. This document characterizes natural hazards in Fort Bend County, and includes:

- Identification of natural hazards that impact Fort Bend County
- A risk assessment that describes potential losses to physical assets, people and operations
- A set of goals, objectives, strategies and actions that will guide the County's mitigation activities
- A detailed plan for implementing and monitoring the HMP



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This Plan update focuses on three hazards with the highest potential for damaging physical assets, people and operations in Fort Bend County. These hazards are: floods, hurricanes and tropical storms (straight-line winds) and tornadoes. The vulnerability assessment/loss estimation and goals sections reflect this emphasis, which was the result of careful consideration and a qualitative ranking process carried out by the MPC.

2.3 The Planning Process

Section 4 provides details about the process that was used to develop this Plan update. The process closely follows the guidance in the FEMA "386" series of planning guidance, which recommend a four-stage process for developing mitigation plans.

- Step 1 Organize resources**
- Step 2 Assess risks**
- Step 3 Develop a mitigation plan**
- Step 4 Implement the plan and monitor progress**

As part of the planning process for the 2011 Update, the initial draft of this Plan was presented at three public meetings on held on May 1st – 3rd, 2011. The public was provided a second opportunity to review and comment on the Plan update at the point of the final draft stage when it was posted on the Fort Bend County website and a printed copy was made available for review at the Fort Bend County Office of Emergency Management (OEM).

2.4 Hazards and Risks

Sections 5 and 6 of this Plan update include detailed descriptions of the process that was used to assess and prioritize Fort Bend County's risks from natural hazards, as well as quantitative risk assessments for the County as a whole, with more detailed assessments for certain asset classes. A total of 10 hazards were initially identified and profiled by the MPC. The hazards included:

1. Floods (riverine flooding and shallow flooding)
2. Coastal storms (hurricanes and tropical storms)
3. Tornadoes
4. Severe thunderstorm/high winds
5. Dam failure and levee failure
6. Winter storm/extreme cold/ice
7. Wildfire/brush fire
8. Drought
9. Hail storm
10. Excessive heat

As part of the 2011 Plan update, the structure of the hazards included in the original Plan was slightly modified and one additional hazard is profiled. The Hail hazard, originally included under severe thunderstorms, has been profiled as a separate hazard (Section 5.4.9). The other significant change is the addition of the dam failure hazard to the levee section. This hazard is now listed as *Dam Failure and Levee Failure* (Section 5.4.5).



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These hazards are profiled in Section 5 of this Hazard Mitigation Plan. The MPC then used a qualitative ranking system with five criteria to identify the hazards with the most potential to impact the County. The criteria included: (1) history, (2) potential for mitigation, (3) presence of susceptible areas, (4) data availability, (5) federal disaster declarations and local emergency declarations. This classification allowed the County to focus its update efforts on the most significant hazards. The ranking and criteria are also discussed in detail at the end of Section 5.

Table 2.4-1
Fort Bend County: Hazard Ranking

Hazard	Rationale	Sources	Disposition
Flood	Widespread impacts, history of occurrences in the County, significant annual damages	FEMA Flood Insurance Studies, FEMA Flood Insurance Rate Maps, FEMA Public Assistance records, FEMA National Flood Insurance Program claims data, US Army Corps of Engineers (USACE), and National Oceanographic and Atmospheric Administration (NOAA), studies and records. NOAA's National Climatic Data Center (NCDC).	Profile and risk assessment
Coastal Storms – Wind (Hurricanes and Tropical Storms)	Relatively high annual probability with moderate to severe impacts, potential for widespread losses, history of occurrences in the County	NOAA, NCDC, National Hurricane Center	Profile and risk assessment, with emphasis on wind hazard
Tornado	High annual probability, widespread impacts, losses generally limited except in most extreme events.	NOAA, NCDC, National Weather Service (NWS) – Houston/Galveston, Texas Office	Profile and risk assessment
Severe Thunderstorms/ High Winds	High annual probability, widespread impacts, losses considered moderate except in most extreme events.	NOAA, NCDC, National Weather Service (NWS) – Houston/Galveston, Texas Office	Profiled, but not part of detailed risk assessment
Wildfire	High annual probability of site-specific events, with moderate impacts	NOAA and National Climatic Data Center (NCDC) records,	Profiled, but not part of detailed risk assessment
Drought	High annual probability, but impacts generally limited.	NOAA – NCDC	Profiled, but not part of detailed risk assessment
Dam and Levee Failure	Low annual probability, but potential for locally significant consequences.	Texas Commission on Environmental Quality (TCEQ) - Dam Safety Program	Profiled, but not part of detailed risk assessment
Extreme Heat	Low to medium annual probability, with impacts generally limited	NOAA – NCDC	Profiled, but not part of detailed risk assessment
Winter Storms	Low annual probability with the potential for widespread impacts	NOAA, NCDC, National Weather Service (NWS) – Houston/Galveston, Texas Office	Profiled, but not part of detailed risk assessment



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Hazard	Rationale	Sources	Disposition
Hail Storm	High annual probability of site-specific events, with moderate impacts	NOAA, NCDC, National Weather Service (NWS) – Houston/Galveston, Texas Office	Profiled, but not part of detailed risk assessment

Based on qualitative ranking above, the Fort Bend County MPC recommended including three hazards in the more detailed risk assessments in Section 6:

- Flood
- Coastal Storms – Hurricane And Tropical Storms (with emphasis on wind hazards)
- Tornado

Risks

Risk is a numerical calculation of potential future damages. Although the range of events from hail to drought all have some potential to affect the County, floods, coastal storms (hurricanes and tropical storms), and tornadoes are clearly the most significant hazards. These three hazards were selected for much more detailed assessments and estimations of future damages. Section 6 includes details about calculation methodologies and results of the risk assessment, which are summarized below in Table 2.4-2.

Table 2.4-2
Summary of Fort Bend County Risk Assessment
by Asset and Hazard Type (50 and 100-year horizons)

Asset	Hazard	Planning Horizon	Risk
Residential repetitive loss properties	Floods	100-year	\$2,090,912
Residential severe repetitive loss properties	Floods	100-year	\$1,131,978
Residential properties	Hurricane/Tropical Storm Winds	50-year	\$456,101,154
County facilities	Hurricane/Tropical Storm Winds	50-year	\$643,098,860
Residential properties	Tornado wind	50-year	\$164,036,265
County facilities	Tornado wind	50-year	\$5,548,888

Section 6 also includes a detailed risk assessment of the National Flood Insurance Program (NFIP) Repetitive Loss and Severe Repetitive Loss properties within the planning area. This section also includes risk assessments for the tornado, and coastal storms hazards.

Of the 219,539 total parcels in Fort Bend County it is estimated that 24,919 (or 11.3%) are located within areas shown on flood hazard maps prepared by the Federal Emergency Management Agency (FEMA). This information is addressed in greater detail in Sections 5 and 6.



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2.5 Summary of Goals, Objectives, Strategies and Actions

Section 7 of the Plan update, *Mitigation Strategy*, describes Fort Bend County's priorities for mitigation actions. The section prioritizes the actions, describes the funding required, potential sources of funding, the level of support, and the estimated timing of the action. The section also includes the County's hazard mitigation goal statement, objectives, and strategies. The original Plan included four mitigation goals. The four goals from the 2005 Plan were discussed and reviewed at the initial MPC meeting held on December 8, 2010. The goals from the 2005 version were circulated to the MPC for comment. After careful analysis, the Committee determined that the original goals from the 2005 Plan were appropriate to include in the 2011 update.

Section 7 also includes two subsections outlining Fort Bend County's mitigation objectives and strategies. Objectives are well-defined intermediate points in the process of achieving goals. Strategies are specific courses of action to achieve objectives. The list of strategies and objectives can be found in Section 7.5. That section also provides the status of all the actions that were listed in the 2005 mitigation plan.

2.6 Integration with other Plans

Section 8 describes how mitigation is integrated with other plans and processes in the County.

2.7 Approval and Adoption Processes

Section 9 discusses Approval and Adoption of the updated Plan. The Fort Bend County Commissioners Court was responsible for approving and adopting the Fort Bend County 2011 Hazard Mitigation Plan update. The Commissioners Court reviewed and approved the Plan update on [insert date]. The 17 participating municipalities also adopted the Plan update. See section 9.4 for the municipality adoption dates.

2.8 Monitoring and Updating Processes

Section 10 (Plan Monitoring and Maintenance) describes the schedule and procedures for ensuring that the County's Mitigation Plan remains current. The section identifies when the Plan must be updated, and who is responsible for monitoring the Plan and ensuring that action items are implemented. This section also provides a combination of cyclical dates (oriented toward FEMA requirements) and triggering events that will initiate amendments and future updates to the Plan. The Fort Bend County Emergency Management Coordinator, or his/her designee is responsible for monitoring the Plan update and initiating the cyclical update process.