

5.0 Capability Assessment

What Is A Capability Assessment?

The purpose of conducting a capability assessment is to determine the ability of a given jurisdiction to implement a mitigation strategy.¹ As in any planning process, it is important to try to figure out what actions are feasible, based on an understanding of those departments tasked with their implementation. More specifically, the capability assessment helps to determine what mitigation actions are likely to be implemented over time given the **fiscal, technical, administrative** and **political** framework of the community.² It also provides an opportunity to assess existing plans, policies and processes in place. A careful analysis was conducted to detect any existing gaps, shortfalls or weaknesses within existing government activities that could exacerbate community vulnerability. The assessment also highlights the positive measures already in place that should continue to be supported.



Conducting the Capability Assessment

As part of the initial kickoff meetings with counties and municipal governments, H-GAC staff distributed a detailed *Local Capability Assessment Survey*. The survey, which was filled out by local officials, posed several questions regarding existing local plans, policies, programs or ordinances that contribute to and/or hinder that county or municipality's ability to implement hazard mitigation actions. In addition, respondents were asked to self-assess their capabilities.³ The information was incorporated into a database for further analysis. A general scoring methodology was applied to quantify and rank each jurisdiction's overall capability relative to one another. According to the scoring system, each plan, policy, ordinance or program was assigned a rating based on its relevance to hazard mitigation. Additional points were added based on each county and municipal government's self-assessment. A total score and general rating (Limited, Moderate or High) was then determined according to the total number of points received. The general survey results are summarized in **Table 5.1**. In addition, the results of the survey serve as a good source of introspection for those jurisdictions that wish to improve their capability. Identified gaps may be re-cast as specific mitigation actions, designed to address identified weaknesses.

An inventory and analysis of previously implemented mitigation projects was also included as part of the capability assessment. This information provided a region-wide perspective of the efforts taken to reduce the effect of natural hazards and provided insight on the effectiveness of those efforts. Documenting past mitigation measures can also serve to help assess the degree to which local governments are willing to adopt future mitigation actions.

Capability Assessment Findings

The findings of the capability assessment are described below. **Table 5.1** provides a jurisdictional overview of the plans and programs in place, followed by summary statistics of the *Local Capability Assessment Surveys*. Each county and municipality was asked to self-assess their technical, fiscal,

¹ While the Interim Final Rule for implementing the Disaster Mitigation Act of 2000 does not require a local capability assessment to be completed for local hazard mitigation plans, it is a critical step in the development of a mitigation strategy that meets the needs of each jurisdiction while taking into account their own unique abilities. However, the Rule does state that a community's mitigation strategy should be "based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools" (44 CFR, Part 201.6(c) (3)).

² Photo courtesy of the City of Galveston.

³ A copy of the survey and the scoring system used to assess county and municipal capabilities has been included in Appendix D of this Plan. Due to the length of the survey and the number of participating jurisdictions in the H-GAC Plan, the completed surveys were not included in this document. Copies of the surveys can be obtained by contacting the H-GAC offices.

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administrative and political capabilities, which were subsequently defined. As required by Annex P of the Texas Division of Emergency Management, completed Hazard Mitigation Grant Program (HMGP) projects were identified and described. Finally, conclusions were presented, including a discussion of the approach used to develop meaningful mitigation strategies based on the capability and risk assessment findings.

**Table 5.1
Relevant Plans and Programs in Place**

Table Key																			
HMP: Hazard Mitigation Plan DRP: Disaster Recovery Plan CLUP: Comprehensive Land Use Plan FMP: Floodplain Management Plan SMP: Stormwater Management Plan EOP: Emergency Operations Plan COOP: Continuity of Operations Plan REP: Radiological Emergency Plan SARA: SARA Title III Emergency Response Plan TRANS: Transportation Plan										CIP: Capital Improvements Plan (that regulates infrastructure in hazard areas) REG-PL: Regional Planning HPP: Historic Preservation Plan ZO: Zoning Ordinance SO: Subdivision Ordinance FDPO: Flood Damage Prevention Ordinance NFIP: National Flood Insurance Program CRS: Community Rating System BC: Building Codes									
Jurisdiction¹	HMP	DRP	CLUP	FMP	SMP	EOP	COOP	REP	SARA	TRANS	CIP	REG-PL	HPP	ZO	SO	FDPO	NFIP	CRS	BC
H-GAC	✓											✓							
Austin County	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		
City of Bellville	✓			✓	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓		✓
City of Brazos Country	✓	✓		✓		✓	✓	✓	✓	✓		✓				✓	✓		
City of Industry	✓																		
Town of San Felipe	✓	✓		✓		✓	✓	✓	✓	✓		✓	✓						✓
City of Sealy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓		✓
City of Wallis	✓	✓		✓		✓	✓	✓	✓	✓		✓			✓	✓	✓		✓
Brazoria County	✓	✓		✓	✓	✓	✓	✓	✓	✓					✓	✓	✓		✓
City of Alvin	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓
City of Angleton	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓
City of Bailey's Prairie	✓	✓				✓	✓	✓	✓								✓		
Village of Bonney	✓	✓		✓	✓	✓	✓	✓	✓							✓	✓		✓
City of Brazoria	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓			✓	✓	✓		✓
City of Brookside Village	✓	✓		✓		✓	✓	✓	✓		✓	✓		✓	✓	✓	✓		✓
City of Clute	✓	✓		✓		✓	✓	✓	✓							✓	✓		
City of Danbury	✓	✓				✓	✓	✓	✓										✓
City of Freeport	✓	✓		✓		✓	✓	✓	✓			✓		✓	✓	✓	✓		✓
City of Hillcrest Village	✓	✓				✓	✓	✓	✓										✓
Town of Holiday Lakes	✓	✓				✓	✓	✓	✓					✓					✓
City of Iowa Colony	✓	✓	✓	✓		✓	✓	✓	✓		✓			✓	✓				✓
City of Jones Creek	✓	✓				✓	✓	✓	✓										✓
City of Lake Jackson	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓
City of Liverpool	✓	✓		✓	✓	✓	✓	✓	✓							✓	✓		
City of Manvel	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓
City of Oyster Creek	✓	✓				✓	✓	✓	✓			✓		✓	✓	✓	✓		✓

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HMP: Hazard Mitigation Plan DRP: Disaster Recovery Plan CLUP: Comprehensive Land Use Plan FMP: Floodplain Management Plan SMP: Stormwater Management Plan EOP: Emergency Operations Plan COOP: Continuity of Operations Plan REP: Radiological Emergency Plan SARA: SARA Title III Emergency Response Plan TRANS: Transportation Plan										CIP: Capital Improvements Plan (that regulates infrastructure in hazard areas) REG-PL: Regional Planning HPP: Historic Preservation Plan ZO: Zoning Ordinance SO: Subdivision Ordinance FDPO: Flood Damage Prevention Ordinance NFIP: National Flood Insurance Program CRS: Community Rating System BC: Building Codes									
Jurisdiction¹	HMP	DRP	CLUP	FMP	SMP	EOP	COOP	REP	SARA	TRANS	CIP	REG-PL	HPP	ZO	SO	FDPO	NFIP	CRS	BC
City of Quintana	✓	✓		✓		✓	✓	✓	✓					✓	✓	✓	✓		✓
City of Richwood	✓	✓	✓	✓		✓	✓	✓	✓	✓				✓	✓	✓	✓		✓
Village of Surfside Beach	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓		✓	✓	✓	✓		✓
City of Sweeny	✓	✓		✓		✓	✓	✓	✓						✓	✓	✓		✓
Velasco Drainage District	✓					✓					✓								
Chambers County	✓			✓		✓	✓	✓	✓			✓			✓	✓	✓		
Chambers County, Trinity Bay Conservation District, Chambers-Liberty Counties Navigation District	✓																		
Chambers-Liberty Counties Navigation District	✓																		
City of Anahuac	✓			✓		✓	✓	✓	✓			✓			✓	✓	✓		
City of Beach City	✓			✓		✓	✓	✓	✓			✓			✓	✓	✓		
City of Cove	✓			✓		✓	✓	✓	✓			✓			✓	✓			
City of Mont Belvieu	✓			✓		✓	✓	✓	✓			✓			✓	✓	✓		
City of Old River-Winfree	✓			✓		✓	✓	✓	✓			✓			✓	✓	✓		
Liberty County	✓			✓	✓	✓	✓		✓	✓	✓	✓			✓	✓	✓		
City of Ames	✓					✓						✓			✓				✓
City of Cleveland	✓			✓		✓	✓	✓		✓					✓	✓	✓		✓
City of Daisetta	✓			✓		✓			✓			✓					✓		
City of Dayton	✓		✓	✓	✓	✓				✓	✓	✓			✓	✓	✓		✓
City of Dayton Lakes ²	✓																✓		
City of Devers	✓																		
City of Hardin	✓																	✓	
City of Kenefick ²	✓																		
City of Liberty	✓	✓				✓		✓	✓			✓			✓		✓		✓
City of North Cleveland ²	✓																		
City of Plum Grove ²	✓																	✓	
Montgomery County	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓					✓		
City of Conroe	✓			✓	✓	✓		✓	✓		✓	✓			✓	✓	✓	✓	✓
Town of Cut and Shoot	✓			✓											✓		✓		✓

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Jurisdiction ¹	HMP	DRP	CLUP	FMP	SMP	EOP	COOP	REP	SARA	TRANS	CIP	REG-PL	HPP	ZO	SO	FDPO	NFIP	CRS	BC
City of Magnolia ²	✓																	✓	
City of Montgomery	✓	✓	✓	✓	✓	✓						✓		✓	✓	✓	✓		✓
City of Oak Ridge North	✓	✓	✓	✓	✓	✓						✓		✓	✓	✓	✓		✓
City of Panorama Village	✓	✓		✓	✓							✓		✓	✓	✓	✓		✓
City of Patton Village ²	✓																	✓	
Town of Roman Forest	✓				✓										✓		✓		✓
City of Shenandoah	✓		✓	✓	✓	✓					✓		✓	✓	✓		✓		✓
City of Splendor	✓					✓						✓			✓	✓	✓		✓
City of Stagecoach ²	✓																	✓	
City of Willis	✓		✓		✓	✓		✓	✓						✓	✓	✓		✓
City of Woodbranch Village ²	✓																	✓	
The Woodlands Township ²	✓																		
Town of Woodloch ²	✓																	✓	
Walker County	✓			✓		✓	✓	✓	✓	✓		✓				✓	✓		
City of Huntsville	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓
City of New Waverly	✓					✓				✓					✓	✓	✓		
City of Riverside	✓					✓				✓								✓	
Waller County	✓		✓									✓			✓			✓	
City of Brookshire	✓														✓		✓		✓
City of Hempstead	✓					✓					✓	✓		✓	✓	✓	✓		✓
City of Pattison	✓														✓				✓
Town of Pine Island	✓																		
City of Prairie View	✓			✓		✓		✓	✓					✓	✓			✓	✓
City of Waller	✓	✓		✓		✓						✓			✓	✓	✓		✓

Notes: (1) Community data updated for the 2011 Regional Hazard Mitigation Plan unless otherwise indicated by (2).
 (2) Community did not submit a Capability Assessment Survey during the 2006 Regional Hazard Mitigation Plan.

As part of the *Capability Assessment Survey*, each county and municipality was asked to assess their own technical, fiscal, administrative and political capabilities. **Table 5.2** provides the results of this self-appraisal process. An “L” indicates low capability; an “M” indicated moderate capability; and an “H” indicates high capability.

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Table 5.2
Self-Assessment of Local Capability—2011 Regional Hazard Mitigation Plan

Jurisdiction	Technical Capability	Fiscal Capability	Administrative Capability	Political Capability
H-GAC				
Austin County	L	L	L	H
City of Bellville	M	H	H	M
City of Brazos Country	L	L	L	M
City of Industry	L	L	L	L
Town of San Felipe	L	L	L	M
City of Sealy	L	L	L	L
City of Wallis	L	L	L	L
Brazoria County	M	M	M	L
City of Alvin	M	M	H	L
City of Angleton*				
City of Bailey's Prairie*				
Village of Bonney*				
City of Brazoria	L	L	M	M
City of Brookside Village	L	M	M	M
City of Clute*				
City of Danbury*				
City of Freeport	M	H	H	M
City of Hillcrest Village*				
Town of Holiday Lakes	L	L	L	L
City of Iowa Colony	L	L	L	L
City of Jones Creek*				
City of Lake Jackson	H	M	M	M
City of Liverpool*				
City of Manvel	L	L	H	H
City of Oyster Creek	L	L	L	L
City of Quintana	H	L	L	M
City of Richwood	H	H	H	L
Village of Surfside Beach	L	L	L	L
City of Sweeny	L	M	H	H
Chambers County	L	L	L	L
Chambers County, Trinity Bay Conservation District, Chambers-Liberty Counties Navigation District*				
Chambers-Liberty Counties Navigation District*				
City of Anahuac	L	L	L	L
City of Beach City	L	L	L	L
City of Cove	L	L	L	L
City of Mont Belvieu	L	L	L	L
City of Old River-Winfree	L	L	L	L
Liberty County	M	M	M	L
City of Ames	L	L	L	L
City of Cleveland	L	L	M	L
City of Daisetta	L	L	L	L
City of Dayton	L	M	M	M
City of Dayton Lakes*				

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Jurisdiction	Technical Capability	Fiscal Capability	Administrative Capability	Political Capability
City of Devers	L	L	L	L
City of Hardin	L	L	L	L
City of Kenefick*				
City of Liberty	L	L	L	L
City of North Cleveland*				
City of Plum Grove*				
Montgomery County	M	L	M	L
City of Conroe	M	M	M	M
Town of Cut and Shoot	L	L	L	L
City of Magnolia*				
City of Montgomery	L	L	L	H
City of Oak Ridge North	M	L	L	L
City of Panorama Village	L	L	H	M
City of Patton Village*				
Town of Roman Forest	L	L	L	M
City of Shenandoah	L	M	M	L
City of Splendora	L	L	L	L
City of Stagecoach*				
City of Willis	L	L	H	L
City of Woodbranch Village*				
The Woodlands Township*				
Town of Woodloch*				
Walker County*				
City of Huntsville	L	L	H	L
City of New Waverly*				
City of Riverside*				
Waller County	L	L	L	L
City of Brookshire	L	L	L	L
City of Hempstead	L	L	L	M
City of Pattison	L	L	L	L
Town of Pine Island	L	L	L	L
City of Prairie View	L	L	M	M
City of Waller	L	L	L	L

* Did not submit a Capability Assessment Survey.

Emergency Management Capabilities

Hazard mitigation is widely recognized as one of the four primary “phases” of emergency management. Other phases include preparedness, response and recovery. In reality, each phase is interconnected with hazard mitigation as **Figure 5.1** suggests. Planning for each phase is a critical part of a comprehensive emergency management program and a key to the successful implementation of hazard mitigation actions. As a result, the *Capability Assessment Survey* asks several questions across a range of emergency management plans in order to assess the jurisdiction’s willingness to plan and their level of technical planning proficiency.

Figure 5.1
Hazard Mitigation and the Phases of Emergency Management



Hazard Mitigation Plan: A hazard mitigation plan represents a community’s blueprint for how they intend to reduce the impact of natural and human-caused hazards on people and the built environment. Elements of a hazard mitigation plan include a risk assessment, capability assessment and mitigation strategy.

NOTE: The following survey results were determined during the planning process for the 2006 Regional Hazard Mitigation Plan. Current information is being updated and should be available by April 30, 2011.

- Survey results indicate that three of the seven counties participating in the H-GAC Plan have developed hazard mitigation plans.
- At the municipal level, 20 percent reported that they had a hazard mitigation plan in place at the time of the survey. Sixteen percent of participating communities indicated that they were part of a county mitigation plan. Sixty-six percent of municipalities did not have a plan in place at the time of the survey.⁴

Disaster Recovery Plan: A disaster recovery plan serves to guide the physical, social, environmental and economic recovery and reconstruction process following a disaster.

- Survey results indicated that four of the seven counties responding to the survey have developed a disaster recovery plans.

⁴ Each participating county and municipality will have a hazard mitigation plan in place once this planning process is complete.

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- Twenty-four percent of the municipalities surveyed indicated that they had a disaster recovery plan in place, while 14 percent of municipalities reported that they were part of a county recovery plan. Sixty-two percent of municipalities did not have a plan in place at the time of the survey.

Emergency Operations Plan: An emergency operations plan outlines responsibilities and the means by which resources are deployed following an emergency or disaster.

- Survey results indicated that six of the seven counties responding to the survey have an emergency operation plan.
- Fifty percent of the municipalities that responded to the survey reported having an emergency operations plan in place. Twenty-eight percent of municipalities reported that they participated in the county emergency operations plan. Twenty-two percent of reporting municipalities did not have a plan in place at the time of the survey.

Continuity of Operation Plan: A continuity of operations plan establishes a chain of command, line of succession and plans for backup or alternate emergency facilities in case of an extreme emergency.

- Survey results indicate that six counties have a continuity of operation plan.
- Survey results indicate that 24 percent of municipalities maintain a stand-alone continuity of operation plan, while 14 percent of municipalities reported that they participated in a county-level plan. Sixty-two percent of municipalities do not maintain a continuity of operation plan.

Radiological Emergency Plan: A radiological emergency plan delineates roles and responsibilities for assigned personnel and the means to deploy resources in the event of a radiological accident.

- Survey results indicate that five of the counties have a radiological emergency plan.
- Twenty-eight percent of the municipalities have radiological emergency plans, while 18 percent participate in their county's plan. Fifty-eight percent of municipalities do not have a radiological emergency plan.

General Planning Capabilities

The implementation of hazard mitigation activities often involves individuals beyond the emergency management profession. Stakeholders may include local planners, public works officials, economic development specialists and others. Similarly, hazard mitigation planning crosses multiple disciplines. As a result, the questions asked in the *Capability Assessment Survey* regarding general planning capabilities were designed to measure the degree to which mitigation was integrated into other planning efforts.

Regional Planning: Regional planning refers to any type of planning effort that involves a community working in conjunction with neighboring jurisdictions. For example, the development of this Hazard Mitigation Plan is a regional planning effort.

- Survey results indicate that six counties have participated in regional planning efforts.
- Fifty-six percent of municipalities reported participating in regional plans.⁵

Comprehensive Plan: A comprehensive plan establishes an overall community vision and a guide to municipal decision-making. Typically a comprehensive plan is comprised of demographic conditions,

⁵ These figures underestimate county and municipal involvement in regional planning, as the H-GAC Regional Mitigation Plan is a multi-jurisdictional effort.

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land use, transportation elements and community facilities.⁶ Given the broad nature of the plan and its regulatory standing, the integration of hazard mitigation measures into the comprehensive plan can enhance the likelihood of achieving risk reduction goals and actions.

- Survey results indicate that no counties maintain comprehensive plans.⁷
- Ten percent of municipalities reported the existence of a comprehensive plan, while 14 percent reported that they are in the process of developing a plan. Seventy-six percent of municipalities did not have a comprehensive plan in place at the time of this survey.

Transportation Plan: A transportation plan identifies the means to gauge transportation demands and the options to meet those needs, while considering the social, economic and environmental characteristics of the area. The development of transportation networks can significantly impact the amount, type and location of future growth. As a result, transportation planning can have a dramatic impact on future hazard vulnerability.

- Survey results indicated that five counties maintain transportation plans.⁸
- Twenty-four percent of municipalities had a transportation plan in place at the time of this survey.

Capital Improvements Plan: A capital improvement plan guides the scheduling of public improvements spending. A capital improvements plan can serve as an important mechanism to guide future development away from identified hazard areas. Limiting public spending in hazardous areas is one of the most effective long-term mitigation actions available to local governments.

- Survey results indicated that two counties have a capital improvement plan.
- Eighteen percent of the municipalities surveyed indicated that they do not have a capital improvement plan.

Historic Preservation Plan: A historic preservation plan is designed to establish a strategy for protecting historic structures or districts within a community. An often overlooked aspect of the historic preservation plan is the assessment of buildings and sites located in areas subject to natural hazards, including the identification of the means to reduce future damages.⁹ Examples involve retrofitting or relocation techniques that account for the need to protect buildings that may not meet current building standards or are located within a historic district that cannot easily be moved out of harm's way.

- None of the counties had a historic preservation plan in place at the time of this survey.
- One municipality indicated that they maintained a historic preservation plan.

Zoning Ordinances: Zoning represents the primary means by which land use is controlled by local governments. As part of a community's police power, zoning is used to protect the public health, safety and welfare of those in a given jurisdiction. A zoning ordinance is the mechanism through which zoning is typically implemented. Since zoning regulations enable municipal governments to limit the type and density of development, it can serve as a powerful tool when applied in identified hazard areas.

⁶ Adapted from *The Practice of Local Government Planning*. 1988. Frank So and Judith Getzels, Eds. International City Management Association: Washington, D.C. pp. 71-81.

⁷ County governments do not have the statutory authority to implement land use controls.

⁸ Several respondents considered the transportation plan to be part of the emergency plan (Annex S) and not a separate planning document.

⁹ See *Protecting the Past from Natural Disasters*. 1989. Nelson, Carl. National Trust for Historic Preservation: Washington, D.C.

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- No counties reported that they had a zoning ordinance in place.¹⁰
- Forty percent of participating municipalities reported that they maintained a zoning ordinance.

Subdivision Ordinances: A subdivision ordinance is intended to regulate the development of housing, commercial, industrial or other uses, including associated public infrastructure, as land is subdivided into buildable lots for sale or future development. Subdivision design that accounts for natural hazards can dramatically reduce the exposure of future development.¹¹

- Survey results indicated that six counties maintain subdivision ordinances.
- Seventy-eight percent of participating municipalities have subdivision ordinances.

Building Codes, Permitting and Inspections: Building Codes regulate construction standards. Decisions regarding the adoption of building codes (that account for hazard risk), the type of permitting process required both before and after a disaster, and the enforcement of inspection protocols all affect the level of hazard risk faced by a community.

- No counties enforce building codes.¹²
- Seventy-six percent of participating municipalities enforce building codes.

Building and Fire Codes in the H-GAC Region

Table 5.3 and **Table 5.4** provide information on local building and fire codes within the region. Where available, the date and type of codes in use have been listed, including a description of the inspection and permit process. If available, the number and qualifications of inspectors have been listed, as well as the number of building starts and inspections.¹³



Note: The following two tables are an abbreviated version of information concerning building and fire codes. The entire tables (showing description of the building and fire inspection process, number and qualifications of inspectors, number of building starts and inspections conducted during last 12 months) can be found in Appendix D of this plan.

Table 5.3
Building Code and Inspection Programs in the H-GAC Region

Jurisdiction	Adopted Building Codes	Current Building Code (Date and Type)
H-GAC	NA	NA
Austin County	No	NA
City of Bellville	Yes	International Building Code - adopted 04/18/2000

¹⁰ Counties do not have the statutory authority to implement land use controls such as zoning (see Chapter 232, Texas Local Government Code).

¹¹ For additional information regarding the use of subdivision regulations in reducing flood hazard risk, see Subdivision Design in Flood Hazard Areas. 1997. Morris, Marya. Planning Advisory Service Report Number 473. American Planning Association: Washington, D.C.

¹² Counties are not allowed to adopt building codes. However, some counties have adopted the Uniform Fire and Building Codes for commercial buildings and certain public facilities in order to address fire safety.

¹³ Photo courtesy of the Galveston Fire Department.

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Jurisdiction	Adopted Building Codes	Current Building Code (Date and Type)
City of Brazos Country	No	NA
City of Industry	No	NA
Town of San Felipe	Yes	Southern Building Code - adopted 05/04/1999 - Ordinance No. 199-3
City of Sealy	Yes	IBC - 10/16/02
City of Wallis	Yes	SBCCI - adopted 06/01/1975
Brazoria County	Yes	IRC 2006
City of Alvin	Yes	IBC 2009 IRC 2009
City of Angleton	Yes	IBC 2003
City of Bailey's Prairie		
Village of Bonney	Yes	Interlocal w/Brazoria County
City of Brazoria	Yes	International Standard Building Code - adopted 2006
City of Brookside Village	Yes	Southern Building Code - adopted 1968
City of Clute		
City of Danbury		
City of Freeport	Yes	SBCCI - adopted in the 1960s
City of Hillcrest Village		
Town of Holiday Lakes	No	Building Ordinance
City of Iowa Colony	Yes	IRC - adopted 2000
City of Jones Creek	No	
City of Lake Jackson	Yes	International Building Code 2006
City of Liverpool	Yes	Interlocal w/Brazoria Cnty
City of Manvel	Yes	IBC
City of Oyster Creek	Yes	Standard Building Code - originally adopted codes in 1987
City of Quintana	Yes	SBCCI - originally adopted codes in 1976
City of Richwood	Yes	International Building Code
Village of Surfside Beach	Yes	IRC 2003 and IEC
City of Sweeny	Yes	International Building Code – 2000
Velasco Drainage District	NA	
Chambers County	No	NA
Chambers-Liberty Counties Navigation District	NA	NA
City of Anahuac		
City of Beach City	No	
City of Cove		
City of Mont Belvieu	Yes	2006 IBC for Building Codes 2008 NEC for Electric
City of Old River-Winfree	Yes	Adopted State Building Codes May 2007
Trinity Bay Conservation District	NA	NA
Liberty County	No	NA
City of Ames	Yes	SBCCI
City of Cleveland	Yes	IBC (2000) - originally adopted codes in 1976
City of Daisetta	No	NA
City of Dayton	Yes	IBC (2000) - originally adopted codes in 1991
City of Dayton Lakes		
City of Devers	No	NA
City of Hardin	No	NA

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Jurisdiction	Adopted Building Codes	Current Building Code (Date and Type)
City of Kenefick		
City of Liberty	Yes	ICC - 2002
City of North Cleveland		
City of Plum Grove		
Montgomery County	No	NFIP and septic only
City of Conroe	Yes	ICC - adopted 2002
Town of Cut and Shoot	Yes	International Residential Code and National Electrical Code - adopted Dec 01 to comply with Chapter 214 LGC Subchapter G
City of Magnolia		
City of Montgomery	Yes	International Residential Code - 2001
City of Oak Ridge North	Yes	International Building Code
City of Panorama Village	Yes	SBCCI - adopted in 1972
City of Patton Village		
Town of Roman Forest	Yes	Standard Building Code - adopted 1975
City of Shenandoah	Yes	ICC
City of Splendora	Yes	SBCCI – unsure of adoption date
City of Stagecoach		
City of Willis	Yes	SBCCI (1997) - adopted 04/21/98
City of Woodbranch Village		
The Woodlands Township		
Town of Woodloch		
Walker County	No	
City of Huntsville	Yes	International Building Code (2000) - adopted February 2002
City of New Waverly	No	
City of Riverside	No	
Waller County	No	NA
City of Brookshire	Yes	ICC
City of Hempstead	Yes	Southern Building Code 09/22/1998
City of Pattison	Yes	Southern Building Code (99) 10/10/2002
Town of Pine Island	No	NA
City of Prairie View	Yes	SBCCI - adopted 2000
City of Waller	Yes	Ordinance 280 - 11/11/2002 and ordinance 281 – 11/11/2002 - ICC

**Table 5.4
Fire Codes in the H-GAC Region**

Jurisdiction	Adopted Fire Codes	Current Fire Code (Date and Type)
H-GAC	NA	NA
Austin County	No	NA
City of Bellville	Yes	International Fire Code - 1991
City of Brazos Country	No	NA
City of Industry	No	NA
Town of San Felipe	No	NA
City of Sealy	Yes	International Fire Code - 2000 edition

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Jurisdiction	Adopted Fire Codes	Current Fire Code (Date and Type)
City of Wallis	No	NA
Brazoria County	Yes	International Fire Code
City of Alvin	Yes	IFC 2009
City of Angleton	Yes	IFC 2006 11/10/09
City of Bailey's Prairie		
Village of Bonney		
City of Brazoria	Yes	ICB 2006
City of Brookside Village	Yes	SBCC - Adopted 11/14/2000
City of Clute		
City of Danbury		
City of Freeport	Yes	Southern Building Code (1997 Edition) - adopted in 2000
City of Hillcrest Village		
Town of Holiday Lakes	No	NA
City of Iowa Colony	No	NA
City of Jones Creek	No	
City of Lake Jackson	Yes	International Fire Code 2006
City of Liverpool	Yes	Interlocal w/Brazoria County
City of Manvel	Yes	2000 International Fire Code 08/11/00
City of Oyster Creek	No	NA
City of Quintana	Yes	Fire Prevention Code - adopted 1980
City of Richwood	Yes	International Fire Code
Village of Surfside Beach	No	NA
City of Sweeny	No	NFPA
Velasco Drainage District	N/A	
Chambers County	No	NA
Chambers-Liberty Counties Navigation District	N/A	
City of Anahuac		
City of Beach City		
City of Cove		
City of Mont Belvieu	Yes	2009 IFC
City of Old River-Winfree		
Trinity Bay Conservation District	N/A	
Liberty County	Yes	Life Safety Code
City of Ames	No	NA
City of Cleveland	Yes	2000 International Fire Code - originally adopted fire codes in 1976
City of Daisetta	No	NA
City of Dayton	Yes	International Fire Code (2000) - originally adopted codes in 1991
City of Dayton Lakes		
City of Devers	No	NA
City of Hardin	No	NA
City of Kenefick		
City of Liberty	Yes	IFC
City of North Cleveland		
City of Plum Grove		
Montgomery County	No	NA
City of Conroe	Yes	International Fire Code - 2000 edition

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Jurisdiction	Adopted Fire Codes	Current Fire Code (Date and Type)
Town of Cut and Shoot	No	Fire related matters are handled by ESD 12
City of Magnolia		
City of Montgomery	Yes	Standard Fire Prevention Code – adopted 1998
City of Oak Ridge North	Yes	International Code Council – adopted 1982
City of Panorama Village	Yes	1998
City of Patton Village		
City of Roman Forest	No	NA
City of Shenandoah	Yes	International Fire Code
City of Splendora	No	NA
City of Stagecoach		
City of Willis	Yes	Standard Fire Code (1997) - adopted 04/21/1998
City of Woodbranch Village		
The Woodlands Township		
Town of Woodloch		
Walker County	No	
City of Huntsville	Yes	Adopted International Fire Code 2000
City of New Waverly	No	
City of Riverside	No	
Waller County	No	NA
City of Brookshire	Yes	SBCC
City of Hempstead	Yes	International Fire Code
City of Pattison	No	NA
Town of Pine Island	No	NA
City of Prairie View	Yes	NFPA
City of Waller	Yes	2003 ICC Fire Code

In addition to using survey results, the adoption and enforcement of building codes by local jurisdictions were assessed using the Building Code Effectiveness Grading Schedule (BCEGS) program developed by the Insurance Services Office, Inc. (ISO).¹⁴ Under the BCEGS program, ISO assesses the building codes in effect in a particular community and how the community enforces its building codes, **with special emphasis on mitigation of losses from natural hazards**. The results of BCEGS assessments are routinely provided to private insurance companies, which in turn may offer ratings credits for new buildings constructed in communities with strong BCEGS classifications. ISO assumes that communities with well-enforced, up-to-date codes should suffer fewer losses, thereby enabling insurers to offer lower rates.

In conducting the assessment, ISO collects information related to the qualifications of personnel as well as number of inspections performed per day. This type of information, combined with local building codes, is used to determine a grade for that jurisdiction. Grades range from 1 to 10, with lower grades representing a higher standard. A BCEGS grade of 1 represents an exemplary commitment to building code enforcement, whereas a grade of 10 indicates that a jurisdiction does not meet a minimum recognized protection level. The results of those jurisdictions in the H-GAC planning area that agreed to submit to the evaluation are listed in **Table 5.5**.

¹⁴ Participation in BCEGS is voluntary. Local governments must request that ISO officials conduct an evaluation.

**Table 5.5
H-GAC Building Code Effectiveness Grading Schedule**

Jurisdiction	County	Personal Rating	Commercial Rating	Most Recent Date of Evaluation
City of Angleton	Brazoria	5	5	1996
City of Bellville	Austin	8	8	1997
City of Brazoria	Brazoria	6	6	1999
City of Brookshire	Waller	5	5	1997
City of Cleveland	Liberty	6	6	1997
City of Clute	Brazoria	5	5	1999
City of Conroe	Montgomery	6	6	2000
City of Dayton	Liberty	5	5	1997
City of Freeport	Brazoria	6	6	1999
City of Huntsville	Walker	8	8	1997
City of Lake Jackson	Brazoria	6	6	1996
City of Liberty	Liberty	7	7	1996
City of Mont Belvieu	Chambers	7	7	1997
City of Sealy	Austin	5	5	1996

Floodplain Management Capability

Flooding represents the greatest natural hazard facing the Nation and the H-GAC planning area. H-GAC created a Regional Flood Management Council (RFMC) whose purpose is to assist and advise elected officials in their decision-making responsibilities on issues related to all aspects of flood management in the Gulf Coast Planning Region. The RFMC developed a handbook to provide an overview of best flood management practices including planning and mitigation techniques, regulatory tools, and funding resources available to local governments in the H-GAC region. The handbook is designed to help floodplain managers work more effectively with elected officials, developers, and landowners to reduce flood damage to life and property.

At the same time, the tools available to reduce the impacts associated with flooding are among the most advanced when compared to other hazard-specific mitigation techniques. In addition to approaches that cut across hazards, such as education, outreach and the training of local officials, the National Flood Insurance Program (NFIP) offers specific regulatory measures that enable government officials to determine where and how growth occurs relative to flood hazards. In order for a county or municipality to join the NFIP, they must adopt a *Local Flood Damage Prevention Ordinance* that requires jurisdictions to follow established minimum building standards in the floodplain. Another key service provided by the NFIP is the mapping of identified flood hazard areas. Flood Insurance Rate Maps (FIRMs) are used to assess flood hazard risk and set flood insurance rates. The maps also provide an important tool to educate residents, government officials and the business community about the likelihood of flooding in their community. All counties and 86 percent of municipalities in the H-GAC planning area participate in the NFIP.¹⁵ **Table 5.6** provides a snapshot of the NFIP flood insurance policies in place within the H-GAC region. This is a summary table organized by county.

¹⁵ Some jurisdictions surveyed do not participate in the NFIP due to the lack of mapped Special Flood Hazard Areas or the belief that they do not face a significant flood risk. However, localized flooding may occur regardless of existing streams, rivers or low-lying areas. Furthermore, homeowners are not eligible to maintain flood insurance unless the jurisdiction in which they own property participates in the NFIP.

**Table 5.6
 National Flood Insurance Program Policy Summary**

Jurisdiction	Total Number of Policies	Total Coverage	Total Number of Losses	Total Dollars Paid
Austin	283	\$46,688	57	\$1,471,819
Brazoria	28,965	\$4,766,533	12,774	\$144,122,574
Chambers	5,344	\$873,560	2,305	\$29,040,113
Liberty	1,477	\$191,723	1,792	\$22,868,393
Montgomery	11,294	\$2,276,196	5,683	\$134,486,953
Walker	185	\$26,079	189	\$2,390,511
Waller	486	\$79,950	173	\$3,867,245
TOTAL	100,813	\$16,685,888	52,522	\$624,045,715

An additional indicator of floodplain management capability is the number of participants in the Community Rating System (CRS). The CRS is an incentive-based program that encourages counties and municipalities to undertake flood mitigation activities that go beyond the minimum requirements of the NFIP. All of the 18 creditable CRS mitigation activities are assigned point values. As points are accumulated and reach identified thresholds, communities can apply for an improved CRS class rating. Class ratings, which range from 10 to 1, are tied to flood insurance premium reductions. As class ratings decrease, the percent reduction in flood insurance premiums for NFIP policyholders in that community increases. Of the 57 jurisdictions that responded to the survey, one municipality and no counties participate in this program.

Table 5.7

CRS Premium Discounts

1	45%
2	40%
3	35%
4	30%
5	25%
6	20%
7	15%
8	10%
9	5%
10	---

Table 5.8

CRS Communities and Rankings in the H-GAC Region

Jurisdiction	CRS Rating
Conroe	7

Table 5.9

Information on Floodplain Management Programs in the H-GAC Region

Note: The following information was taken from the Local Community Capability Assessment Surveys during the planning process for the 2006 Hazard Mitigation Plan. Current information is being updated and should be available by April 30, 2011. The full version of this table (including information regarding the number of inspections conducted and number of permits issued in the last 12 and the number and explanation of variances issued in the last 12 months) can be found in Appendix D.

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Jurisdiction	NFIP Participant	Current Floodplain Management Ordinance/ Court Orders	Date Adopted
Austin County	Y	Flood Damage Prevention Ordinance	11/13/1989 amended 05/24/1999
City of Bellville	Y	See Austin County	04/1998
City of Brazos Country	Y	Ordinance 2001-09	08/15/2001
City of Industry	N	NA	NA
Town of San Felipe	Y	See Austin County	
City of Sealy	Y	Flood Damage Prevention Ordinance	06/09/1999
City of Wallis	Y	See Austin County	
Brazoria County	Y	Flood Damage Prevention Order	Adopted 12/1971 Amended 2007
City of Alvin	Y	Flood Damage Prevention Ordinance	Adopted 11/7/2005
City of Angleton	Y	Flood Damage Prevention Ordinance	Adopted 3/21/89
City of Bailey's Prairie	Y		
Village of Bonney	Y	Interlocal w/Brazoria County	Adopted 12/1971
City of Brazoria	Y	Flood Damage Prevention Ordinance	Adopted 12/11/2007
City of Brookside Village	Y	Flood Damage Prevention Ordinance	
City of Clute	Y		
City of Danbury	Y		
City of Freeport	Y	Flood Damage Prevention Ordinance	04/1989
City of Hillcrest Village	Y	No ordinance	NA
Town of Holiday Lakes	Y		
City of Iowa Colony	Y	No ordinance	NA
City of Jones Creek	Y		
City of Lake Jackson	Y	No - part of Floodplain Management	NA
City of Liverpool	Y	Interlocal w/Brazoria County	Adopted 12/1971
City of Manvel	Y	Ordinance #2010-O-10	5/24/2010
City of Oyster Creek	Y	Ordinance Number 311	03/19/1987
City of Quintana	Y	Flood Damage Prevention Ordinance	1984
City of Richwood	Y	Flood Damage Prevention Ordinance	1987
Village of Surfside Beach	Y	Flood Damage Prevention	Amended 2007
City of Sweeny	Y	Ordinance Number 102-87	1987
Velasco Drainage District	NA		
Chambers County	Y		
Chambers-Liberty Counties Navigation District	NA		
City of Anahuac	Y		
City of Beach City	Y		

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Jurisdiction	NFIP Participant	Current Floodplain Management Ordinance/ Court Orders	Date Adopted
City of Cove	Y		
City of Mont Belvieu	Y		
City of Old River-Winfree	Y		
Trinity Bay Conservation District	NA		
Liberty County	Y	Flood Damage Prevention Order	07/25/1988 - entered into record 03/02/1992 (Vol. 7 Page 635)
City of Ames	Y		
City of Cleveland	Y		
City of Daisetta	Y	No ordinance	NA
City of Dayton	Y	Flood Damage Prevention Ordinance	1988
City of Dayton Lakes	Y		
City of Devers	Y	NA	NA
City of Hardin	Y	No ordinance	NA
City of Kenefick	N		
City of Liberty	Y	No ordinance	
City of North Cleveland	N		
City of Plum Grove	Y		
Montgomery County	Y	No order	Joined the program in 1978-79
City of Conroe	Y	Flood Damage Prevention Ordinance	1995 - currently being amended
Town of Cut and Shoot	Y	No ordinance	Adopted 06/1987, amended 11/1996
City of Magnolia	Y		
City of Montgomery	Y	Flood Damage Prevention Ordinance	1996
City of Oak Ridge North	Y	Flood Damage Prevention Ordinance	1982 - amended 1997
City of Panorama Village	Y	Flood Damage Prevention Ordinance	
City of Patton Village	Y		
Town of Roman Forest	Y	No ordinance	NA
City of Shenandoah	Y	Floodplain Management Ordinance (ORD. No. 0-9604)	12/11/1996 - amended 04/24/2002 to include criminal and civil penalties
City of Splendor	Y	Flood Damage Prevention Ordinance	12/04/1986
City of Stagecoach	Y		
City of Willis	Y	Flood Damage Prevention Ordinance	12/17/1996
City of Woodbranch Village	Y		
The Woodlands Township	Y		
Town of Woodloch	Y		
Walker County	Y	Regulations for Floodplain Management	05/04/1987
City of Huntsville	Y	Flood Damage Prevention Ordinance	07/05/1977
City of New Waverly	Y	Regulations for Prevention Ordinance	05/04/1987

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Jurisdiction	NFIP Participant	Current Floodplain Management Ordinance/ Court Orders	Date Adopted
City of Riverside	Y	Regulations for Prevention Ordinance	05/04/1987
Waller County	Y	Flood Damage Prevention Ordinance	Joined the program in the 1980s
City of Brookshire	Y	No ordinance	NA
City of Hempstead	Y	Flood Damage Prevention Ordinance	01/08/1988
City of Pattison	Y	No ordinance	NA
Town of Pine Island	N	NA	NA
City of Prairie View	Y	No ordinance	Joined the program in 1987
City of Waller	Y	Floodplain ordinance	

NOTE: The following survey results are from the 2006 Hazard Mitigation Plan.

Community Assistance Visits (CAVs): State and federal floodplain management officials occasionally perform Community Assistance Visits (CAVs). A CAV is performed to review the local floodplain management program and note any deficiencies. H-GAC officials sent a letter to FEMA requesting information on CAVs conducted over the past 15 years for the participating jurisdictions. FEMA responded that they could not provide this information because of limited manpower and because community files are purged on a regular basis.

Floodplain Management Plan: A floodplain management plan (or Flood Mitigation Plan) provides a framework for action regarding the corrective and preventative measures in place to reduce flood-related impacts.

- Survey results indicated that six counties had a floodplain management plan in place at the time of this survey.
- Fifty-six percent of participating municipalities reported that they had a floodplain management plan and eight percent reported that they were part of a county-level plan.

Stormwater Management Plan: A stormwater management plan is designed to address flooding associated with stormwater runoff. The stormwater management plan is typically focused on design and construction measures that are intended to reduce the impact of more frequently occurring minor urban flooding.

- Survey results indicated that two counties maintain a stormwater management plan.
- According to survey results, 24 percent of municipalities had a stormwater management plan in place at the time of this survey, and one municipality noted that they participated in their county-level stormwater management plan.

County and Municipal Self-Assessment

The *Capability Assessment Survey* was comprised of two parts: 1) an evaluation of existing plans, policies and ordinances and 2) a self-assessment of county and municipal capabilities. This section discusses the findings of the self-assessment. County and municipal officials were asked to self-assess their capabilities (as high, moderate or limited) across the following characteristics: technical, administrative/ institutional, fiscal and political capability.¹⁶ First, a description of each characteristic is

¹⁶ Seven of the eight participating counties and 59 percent of the municipalities answered the self-assessment survey questions.

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provided, followed by the regional findings. It is important to note that due to the high degree of variability across county and municipal capabilities, the mitigation actions chosen by each jurisdiction in their Mitigation Action Plans will reflect these local abilities.

Technical Capability

Technical capability can be defined as possessing the skills and tools needed to improve decision making, including the development of sound mitigation actions. Technical capability can be measured across three primary elements: 1) geographic information systems (GIS) and database management; 2) grants management; and 3) hazard mitigation planning. Measuring the degree to which each element is found in the H-GAC region was conducted using the *Capability Assessment Survey* and through discussions with county and municipal staff. Self-assessment survey questions addressing technical capability focused on the use of GIS, while questions addressing grants management and mitigation planning capability can be found in Part VI, *Participation in Grant Programs and Projects* and Part II, *Hazard Mitigation Plans, Policies and Ordinances*.

The analysis of the responses to the *Capability Assessment Survey* indicated that there is generally a low technical capability at the county and municipal level. Seventy-seven percent rated their technical capability as low. Of the 57 responding counties and municipalities, three jurisdictions (municipalities) assessed themselves as having a high level of technical capability, while 10 (three counties and seven municipalities) responded that they had a moderate technical capability. The following are a summary of key resource needs affecting technical capability:

- Information on previous disasters and mitigation projects;
- Additional training to undertake GIS-driven risk assessments, identify potential mitigation projects, and develop hazard mitigation plans; and
- Enhancing the ability to use information technologies to facilitate the formulation, development, implementation and monitoring of mitigation plans.

Recommendations: The result of the technical capability assessment highlights a belief among those who filled out the survey that the existing capability of most counties and communities could be improved. As a result, local Mitigation Action Plans should be developed that strengthen technical capabilities. While there is a wide range of technical resources across county and municipal governments, the development of a systematic protocol for sharing resources could significantly increase the level of technical capability to analyze natural hazards and develop meaningful actions to reduce their impact. The development of regional mitigation actions could also be used to assist in this effort.

Administrative/ Institutional Capability

Administrative and institutional capability was evaluated by reviewing county and municipal staffing and the existing organizational structure found across local government to implement mitigation strategies. The analysis of the responses to the *Capability Assessment Survey* indicated that there is a moderate to low administrative capability at the county and municipal levels respectively. However, this capability varies widely across municipalities. Of the six counties responding, one reported a high administrative capability, while three counties self-assessed their administrative capability as moderate and two reported a low capability. Sixty-four percent of municipalities reported their administrative capability as low, while 24 percent rated their administrative capability as moderate and 12 percent rated their administrative capability as high. The following are a summary of key issues affecting administrative capability:

- Limited integration of mitigation into county/ local government functions; and
- Limited interdepartmental coordination.

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- Limited powers granted to County governments¹⁷.

Recommendations: The results of the administrative capability assessment demonstrate that counties, generally speaking, and larger municipalities, tend to possess a stronger administrative capability than smaller, rural communities. The enhancement of administrative capability may be achieved through county/ municipal training, outreach and mentoring of smaller rural jurisdictions as well as the sharing of resources, when appropriate.

Fiscal Capability

The ability to take action is often closely associated with the amount of money available to implement policies and projects.¹⁸ This may take the form of grants received or state and locally-based revenue. The costs associated with policy and project implementation vary widely. In some cases, policies are tied primarily to staff costs associated with the creation and monitoring of a given program. In other cases, money is linked to a project, such as the acquisition of flood-prone homes, which can require a substantial commitment from local, state and federal funding sources.

The analysis of the responses to the *Capability Assessment Survey* indicated that there is a moderate to low fiscal capability at the county and municipal levels respectively. Of the six counties responding, one reported a high fiscal capability, while two counties self-assessed their fiscal capability as moderate and three reported a low capability. Seventy-eight percent of municipalities reported their fiscal capability as low, while 16 percent rated their fiscal capability as moderate and 6 percent rated their fiscal capability as high.

Recommendations: The factors used in the self-assessment of local capability should be used as a general guide to help craft mitigation actions that are achievable. When considering the effect of fiscal capability on the implementation of policies and projects, jurisdictions should ask several basic questions:

- Does the action require a monetary commitment or staff resources?
- Can jurisdictions combine resources with other counties or municipalities to address identified problems?
- Is the jurisdiction willing to commit local revenue on a sustained or one time basis?

In order to implement mitigation projects and policies, some monetary commitment or staff resources will be required. This may take the form of a non-federal match requirement or the costs associated with staff time devoted to policy development and implementation. The identification of eligible Pre-Disaster Mitigation (PDM) projects, as well as other federal funding sources identified in the H-GAC Mitigation Plan, enables communities in the region to compete nationally for available funding. County and municipal governments should consider, whenever possible, combining financial and staff resources to address hazards, most of which tend to impact regions rather than individual jurisdictions. Finally, if local governments have access to an ongoing source of revenue, a more comprehensive and sustained effort can be achieved. Examples include the development of a stormwater management fee or the development of a budgetary line item that specifically addresses hazard mitigation.

¹⁷ Counties in the state of Texas have limited powers when it comes to enacting codes. Similarly, County governments may not adopt ordinances; they may only implement court orders.

¹⁸ Gaining access to federal, state or other sources of funding is often an overriding factor driving the development of hazard mitigation plans. However, an important objective of local governments seeking a more sustainable future is the concept of self-reliance. Over time, counties and municipalities should seek the means to become less dependent on federal assistance, developing a more diversified approach that assesses the availability of federal, state and locally-generated funding to implement mitigation actions. Additional assistance may be available from the business and corporate sector as well as certain non-profit groups. This should be coupled with an attempt to identify mitigation measures that cost little or no money, yet may compliment the larger array of actions identified in the plan.

Political Capability

One of the most difficult and sensitive capabilities to evaluate involves the political will of a jurisdiction to enact meaningful policies and projects. According to the results of the survey, the H-GAC region has a low to moderate political capability to enact meaningful and proactive mitigation policies. Sixty percent of municipalities reported a low political capability. Of the 50 municipalities reporting, 34 percent expressed that they had a moderate political capability and 4 percent stated that their jurisdiction had a high political capability. Two of the seven counties reported a high political capability, and five reported that they had a low political capability.

Recommendations: County and municipal government officials reported that while there is an interest in disaster mitigation activities, there appears to be a lack of local commitment to take the steps necessary to implement mitigation activities. Political support from elected officials can prove critically important. Past events, including Tropical Storm Allison in 2001, Hurricane Rita in 2005, and Hurricane Ike in 2008, which all devastated parts of the H-GAC planning area, should be used to better educate elected officials regarding the merits of mitigation planning. When possible, local governments who have implemented hazard mitigation projects should attempt to assess their effectiveness following future events. The ability to document mitigation projects and policies that work is a high priority among FEMA officials. Therefore, local government staff should work with Texas Division of Emergency Management and FEMA officials following disasters to evaluate past mitigation projects. The results should be presented to locally elected officials in order to provide real world examples of how mitigation can protect lives and property.

Previously Implemented Mitigation Measures

The success of future mitigation efforts can be gauged, in part, by past efforts. Previously implemented mitigation measures indicate that there has been a desire to reduce the effects of natural hazards. Past success of these projects can also be influential in building support for new mitigation efforts.

Hazard Mitigation Grant Program (HMGP) Projects

The Federal Emergency Management Agency's Hazard Mitigation Grant Program (HMGP) provides competitive funding to states and local governments for the implementation of long-term hazard mitigation measures following a presidential disaster declaration. According to the Texas Division of Emergency Management, since 1991 there have been 24 HMGP and HPP-M projects completed in the region totaling \$14,647,005. This number will increase substantially as HMGP projects associated with Tropical Storm Allison and Hurricane Ike are completed. Completed projects, including a project description, award and completion date, subgrantee and budget are listed in **Table 5.10**.

Hurricane Local Grant Program and Hurricane Property Protection Mitigation Program

Each year, the Texas Division of Emergency Management (DEM) awards grants to local jurisdictions in the coastal areas of Texas for projects relating to hurricane awareness and property protection mitigation against damage from hurricanes. Through the Hurricane Local Grant Program, approximately \$10,000 in grants of \$1,000 or less per jurisdiction are awarded for projects that enhance hurricane-related public awareness and education. Through the Hurricane Property Protection Mitigation Grant Program (HPP-M), Texas DEM distributes approximately \$100,000 in grants of \$20,000 or less per jurisdiction for projects designed to enhance hurricane-related property protection mitigation. The Local Grants have no match requirement, but the HPP-M requires a 50 percent cash match by the jurisdiction.

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Table 5.10
Closed (Completed) HMGP and HPP-M Projects in the H-GAC Region

Note: The information listed below was provided by Texas Division of Emergency Management.

Jurisdiction (County)	Grant Number	Project Description	Amount	Date Awarded	Date Completed
City of Angleton (Brazoria)	DR-900-001	Storm sewer system	\$153,162	04/12/1991	01/25/1994
City of Clute (Brazoria)	HPP-M-FY-2000-011	Construction of power switching unit on City Hall/Police Station	\$14,650	06/17/1998	08/24/1998
City of Danbury (Brazoria)	HPP-M-FY-1997-017	Built structure to house generator and generator supplies	\$8,890	12/18/1997	05/21/1998
City of Richwood (Brazoria)	DR-900-008	Drainage improvements	\$45,876	04/12/1991	09/30/1994
City of Sweeny (Brazoria)	HPP-M-FY-2000-004	Replace overhead door of Fire Department to protect emergency response vehicles from hurricane force winds	\$10,480	05/24/2000	07/07/2000
Liberty County	DR-1041-041	Acquisition/demolition of 54 properties	\$1,301,429	10/18/1994	03/23/1998
Liberty (Liberty)	HPP-M-FY-1999-013	Installation of storm doors for fire station	\$20,000	02/05/1999	09/14/1999
Liberty (Liberty)	DR-930-011	Levee	\$464,042	12/26/1991	08/3/1995
Montgomery County	DR-1041-031	Acquisition/demolition of 272 properties	\$13,996,449	10/18/1994	05/16/2001

Public Assistance (PA) Program Projects

FEMA's Public Assistance (PA) grant program is available to states, local governments and eligible non-profit organizations following a presidentially-declared disaster. Grants focus on emergency measures such as debris removal, costs associated with operational response, and the repair and reconstruction of damaged infrastructure. Over 570 PA projects have been implemented in the H-GAC planning area. This listing is too extensive to include in this plan. To obtain the complete listing of PA projects as supplied by the Texas Division of Emergency Management, contact the H-GAC offices.

Corps of Engineers Studies, Plans and Projects

The United States Army Corps of Engineers (USACE) provide a variety of hazard mitigation services. Examples include developing plans, studies and projects related to the reduction or elimination of long-term risk to human life and property. While a number of USACE projects have been completed in the H-GAC planning area, only a few are directly related to mitigation. Those projects not related to mitigation have not been included in this list.

Table 5.11
Mitigation-Related USACE Studies, Plans and Projects in the H-GAC Region

Project Name	Project Sponsors	Description
Clear Creek Texas Flood Control Project	Brazoria, Galveston, Harris, Harris County Flood Control	Flood control project under development to provide flood damage reduction along Clear Creek
Freeport Hurricane Protection Levee, Texas		The project consists of a system of levees and pumping stations that protect approximately 42 square miles from storm surge inundation due to hurricanes and tropical storms – under development

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Wallisville Lake	Chambers-Liberty Counties Navigation District, City of Houston, Trinity River Authority	3,800 acre reservoir created to ease flooding problems and enhance recreational opportunities
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Texas Water Development Board Studies, Plans and Projects – Flood Mitigation Assistance Program

In the State of Texas, the Texas Water Development Board (TWDB) administers the FEMA Flood Mitigation Assistance (FMA) program. The FMA program provides funding for projects and plans that are aimed at reducing the number of insured properties that have incurred repetitive flood losses. The TWDB also provides state Flood Protection Planning Grants to communities to support regional flood protection planning efforts. Eligible activities under Flood Protection Planning include studies and analyses to identify problems resulting from or relating to flooding, and identify potential solutions.

**Table 5.12
FMA Grantees in the H-GAC Region**

Jurisdiction	Grant Type	Year	Amount
City of Huntsville	FMA Planning Grant	2001	\$50,000
Liberty County	FMA Planning Grant	1998	\$46,875
City of Oak Ridge North	FMA Planning Grant	1999	\$35,000

**Table 5.13
TWDB Flood Protection Planning Grants in the H-GAC Region**

Contract Number	Contractor Name	Description	Amount	Fiscal Year Commitment
99483318	Brazoria County	Flood Protection Study for Brazoria County	\$300,000	1999
8483519	Brazoria County C&RD No. 3	Brazoria County Conservation and Reclamation District No. 3	\$176,335	1987
5541017	Brazoria County Drainage District #4	Brazoria County Drainage District #4, Brazoria County	\$60,000	1984
8483631	Montgomery County	Southern Montgomery County	\$74,994	1988

Pre-Disaster Mitigation Program; Property Protection – Mitigation Program

The Pre-Disaster Mitigation (PDM) program is designed to provide states and communities with funding to implement cost-effective hazard mitigation activities. Eligible activities may include the acquisition or elevation of flood-prone properties, retrofitting structures, education and outreach efforts, and mitigation planning.¹⁹

Master Drainage and Stormwater Management Plans in the H-GAC Region

The following communities indicated in their local *Capability Assessment Surveys* that they have a Master Drainage and/ or Stormwater Management Plan. More detailed information regarding the effectiveness of these plans can be found in the individual surveys.²⁰

Table 5.14

¹⁹ Pre-Disaster Mitigation funding was provided to H-GAC by FEMA and Texas DEM in order to develop this Plan.

²⁰ A copy of individual local *Capability Assessment Surveys* can be obtained by contacting H-GAC staff.

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Master Drainage and Stormwater Management Plans in the H-GAC Region

Name of Community	
City of Bellville	Montgomery County
City of Brookside Village	City of Oak Ridge North
City of Conroe	City of Panorama Village
City of Dayton	Town of Roman Forest
City of Lake Jackson	City of Shenandoah
Liberty County	City of Willis
City of Montgomery	

Comprehensive Plans in the H-GAC Region

The following communities indicated in their Local Capability Assessment surveys that they maintain a Comprehensive Plan. More information regarding the effectiveness of these plans can be found in local surveys.

**Table 5.15
Comprehensive Plans in the H-GAC Region**

Name of Community			
City of Alvin	City of Huntsville	City of Montgomery	City of Shenandoah
City of Brazoria	City of Iowa Colony	City of Oak Ridge North	Village of Surfside Beach
City of Brookside Village	City of Lake Jackson	City of Richwood	City of Willis
City of Dayton			

H-GAC and Project Impact

The H-GAC region was designated a Project Impact community by FEMA in 1998. Project Impact was created by FEMA in an attempt to reduce future disaster losses through the widespread use of hazard mitigation prior to the onset of a disaster. Key objectives of the initiative included: identifying hazards and assessing their potential impact on communities, and educating local government officials, citizens and members of the business community about the adoption of hazard mitigation measures.

Most Project Impact communities received federal “seed” money to establish program objectives and implement hazard mitigation projects. Specific projects funded in the H-GAC region included:

- Equipping Schools with Scanners and NOAA Weather Radios
- Public Education: Hurricane Preparedness Booklet

Conclusions on Local Capability

The capability of local governments in the Houston-Galveston area varies greatly from jurisdiction to jurisdiction. Generally speaking, county-level governments scored higher than municipalities. Of the 57 respondents, five of the counties scored in the top 15 jurisdictions in the region. However, much of this variation can be accounted for when assessing the size of each jurisdiction. Larger cities tended to score higher, while smaller, more rural communities reported more limited capability. Additional factors to consider include the physical location and wealth of participating municipalities. Several smaller suburban jurisdictions scored high on the capability assessment. It is not clear whether this is due to the level of resources at their disposal or their proximity to larger urban areas, where public expectations regarding governmental services tend to be higher than in rural areas.

Perhaps one of the most significant survey findings was the widespread existence of several planning programs and tools already in use across the H-GAC area. However, many of the processes and tools do not incorporate hazard mitigation practices. For example, planning is widely applied to response-

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related activities via the use of Emergency Operations Plans, Continuity of Operations Plans, Radiological Emergency Plans and SARA Title III planning. As a result, counties and local governments are familiar with the concept of planning and it has been institutionalized across the region. Therefore, an important regional consideration in this Plan should be to work with counties and municipalities to apply this planning experience to hazard mitigation and, likewise apply hazard mitigation to planning activities already taking place. The H-GAC Regional Hazard Mitigation Plan provides the vehicle to begin this process. However, in order to succeed, it will require clearly articulating the benefits of participating in and sustaining the mitigation planning process. One of the best ways to obtain local buy-in and long-term success is to identify and implement achievable mitigation actions.

Linking the Capability Assessment, the Risk Assessment, and the Mitigation Strategy

The conclusions of the *Capability Assessment* and *Risk Assessment* serve as the foundation for a meaningful hazard mitigation strategy. During the process of identifying the goals and mitigation actions, each jurisdiction must consider not only their level of hazard risk but also their existing capability to minimize or eliminate that risk.

In jurisdictions where the overall hazard risk is considered to be HIGH, and local capability is considered LIMITED, then specific mitigation actions that account for these conditions should be considered. This may include less costly actions such as minor ordinance revisions or public awareness activities. If necessary, specific capabilities may need to be improved in order to better address recurring threats. Similarly, in cases where the hazard vulnerability is LOW and overall capability is HIGH, more emphasis can be placed on actions that may impact future vulnerability such as guiding development away from known hazard areas.