The Elite Survey Report:

A Report on the Perception of State, County, and Local Officials Regarding the State of Texas Mitigation Plan, Coastal Management Plan and the Promotion of Mitigation Efforts in the Texas Coastal Management Zone

by

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A Report Prepared for the
Texas General Land Office
and
The National Oceanic and Atmospheric Administration
Under GLO Contract No. 09-045-000-3362

This investigation was funded by a grant from the National Oceanic and Atmospheric Administration administered by the Texas General Land Office. The views expressed herein are those of the authors and do not necessarily reflect the views of NOAA or any of its sub-agencies.

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Revised July 2009

List of Acronyms

CCC – Coastal Coordinating Council

CEPRA – Coastal Erosion Planning and Response Act

CMP – (Texas) Coastal Management Program

CIAP – Coastal Impact and Assistance Program

FEMA – Federal Emergency Management Agency

GDEM or DEM – Governor's Division of Emergency Management

GIS – Geographic Information Systems

HRRC – Hazard Reduction and Recovery Center

IBC – International Building Codes

IRC – International Residential Codes

NFIP – National Flood Insurance Program

STMP – State of Texas Mitigation Plan

TCMC – Texas Coastal and Marine Council

TDI – Texas Department of Insurance

TGLO or GLO – Texas General Land Office

TMP – Texas Hazard Mitigation Plan

TWIA – Texas Wind Insurance Agency

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1. Introduction

As part of the Status and Trends project a purposive elite survey was initiated during the first year and completed during the second year. The goal of this survey is not to gain data on a representative sample of leaders at the state, county and local levels in order to have findings that are necessarily representative of that "population." Rather, the goal of this survey is to gain detailed information and individual insights regarding the State of Texas Mitigation Plan, the Coastal Management plan, and general issues concerned with and surrounding mitigation planning along the Texas coast. More specifically the objectives of this project is to interview government officials, planning leaders and other stakeholder to ascertain their perceptions and knowledge of Costal Management Program, the Texas State Mitigation Plan and mitigation issues along the Texas coast. Secondly, this survey sought to assesses general perception of these individuals with respect to hazard mitigation policies and actions that might be taken by planners and emergency managers in local jurisdictions and how the GLO might enhance and encourage the knowledge and adoption of mitigation policies and actions.

The insights gained from these interviews will serve a variety of purposes. First, they will provide project staff with an understanding of the complexities of mitigation issues in Texas, with an emphasis on the coast and coastal hazards. Simply stated the whole issue of mitigation in Texas is highly complex because there are, in general, few comprehensive integrated planning mandates or building code policies that can be found in other states. For example, there is no statewide building code. While the Texas Department of Insurance does adopt a building code and does seek to strengthen and update that code, there is no mandate or at least enforceable mandate to ensure that it will be adopted by local municipalities or counties. In addition, there is no statewide mandate requiring for comprehensive planning by local municipalities or counties. Furthermore, there are very limited planning activities that can take place at the county, state, or regional level. "Home rule" is only granted to local municipalities; hence, the majority of planning activities in terms of zoning, land-use regulation, building codes, etc. must take place at the municipal or city level of government. To the extent that other forms of planning occur, such as mitigation planning, it is because of cooperative agreements or incentives based on federal and sometimes state dollars. Hence, by interviewing knowledgeable leaders and individuals, project staff can gain a more comprehensive picture of the complex processes involved in mitigation planning in the state and can better comprehend the complexity of mitigation planning processes in general.

A second purpose that the insights gained from these interviews might serve is to provide useful information on the part of knowledgeable individuals related to the State of Texas Mitigation Plan, the Coastal Management Program and how they might promote mitigation planning in the coastal management zone. However, the perspectives and insights gained from this survey activity must be utilized with caution. As will be addressed below, this research

activity is primarily a qualitative approach to data collection. As such, the goal is to gain rich highly detailed information from key informants, not to gain general information that is necessarily representative of the population of all leaders at the state, county and local levels, nor all emergency management or other planning personnel.

A final important purpose for undertaking these interviews is to provide project staff with critical information from knowledgeable individuals regarding important state and local mitigation policies and actions being currently undertaken or considered. This information will greatly facilitate future data collection activities that will be undertaken as part of the larger project. Specifically this information will provide important information about local mitigation actions and policies and about how best to ask future questions, particularly on more structured surveys that will be based on some form of random sampling. These surveys are likely to be self administered mailed surveys or structured telephone interviews. In such cases it is critical to know how to ask the question such that potential respondents will understand what you are asking and provide you with useful responses.

2. Study Methodology, Key Informants, and Targeted Area.

The principle strategy employed in this study was the qualitative interviewing of key informants. This strategy could more technically be termed as semi-structured interviews of a sample of key informants initially selected as positional leaders and then supplemented by informants selected using a snowballing technique. Semi-structured interviews were employed to better insure that highly detailed information, much of which might not have been initially anticipated, could be collected. A semi-structured instrument provided interviewers with an initial set of questions and topics to be covered, however interviewers were free to deviate from the initial questions as informants provided additional more detailed information based upon their individual knowledge, experience, and expertise. The initial sampling frame for this survey was based on positional leaders. In other words, the first phase of this survey targeted individuals who were holding particular positions within state, county and local governmental departments and agencies. The targeted individuals are those holding positions with the TGLO, the Texas Department of Insurance (TDI), the Texas Wind Insurance Association (TWIA), The Governor's Division of Emergency Management (GDEM or DEM), and individuals holding key positions in county and municipal emergency management departments, planning departments, building departments, flood plain managers, county judges, etc. As part of the interview, interviewees were often asked if there were other individuals (reputational or influential leaders) that should be interview. By using this snowballing technique, we were able to get a good purposive sample of individuals who were likely to know about or be involved with mitigation activities.

The primary target area for this study, particularly with respect to the selection of county and municipal key informants was Galveston, Brazoria, and Harris County areas within the coastal management zone (see figure 1). Within these counties, specific types of individuals were targeted, in part because of their location on involvement with areas in the coastal management zone, their coastal risk profile, and also because of community involvement in municipal, county, or regional mitigation planning activities.

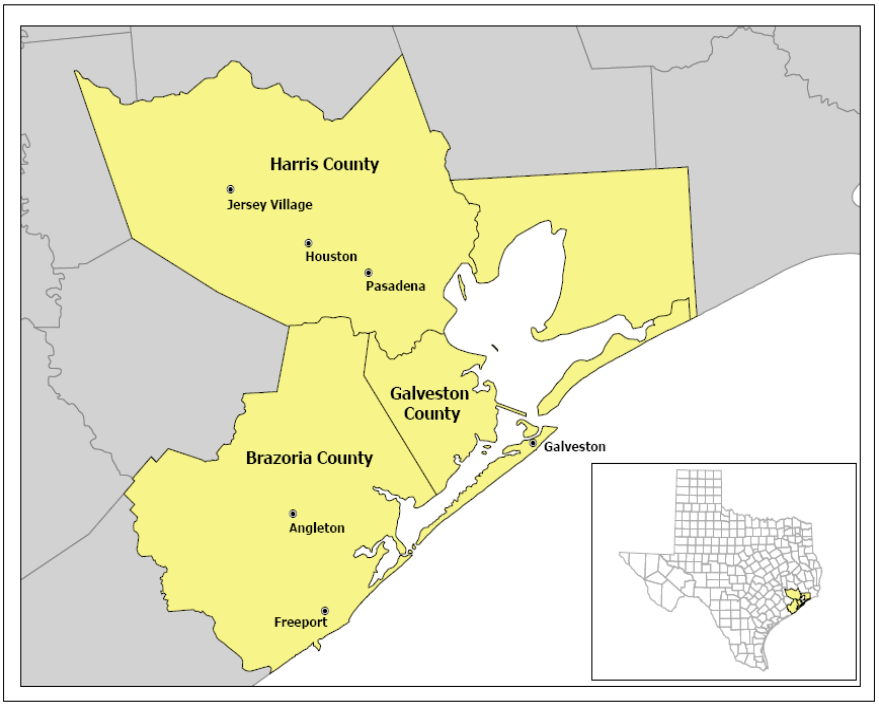

Figure 1. Targeted Area for County and local Informants

In addition to the semi-structured interviews with a purpose sample of key informants, the second methodology employed in this study was *participant observation*. Participant observation is a qualitative data collection method whereby researchers participate or take part in ongoing community or area activities. By participating in these activities the researcher can observe and informally interview participating individuals, gaining rich qualitative information of the particular actions being undertaken, obtain reports from participants concerning their perception and thoughts about the activity, observe interactions among participants, and grasp what types of activities and conversations are actually being undertaken. Project staff participated in a variety of activities generally associated with local mitigation planning, environmental planning, coastal management, community planning charrettes, and coastal research/practitioners workshops. When participating in these activities, participants knew that researchers were from the Hazard Reduction and Recovery Center and undertaking research on coastal mitigation planning. Interviewing during these activities was much more informal and free flowing in comparison to the semi-structured interviews conducted with key informants during a face to face interview sessions. However, many of the same topics were covered, particularly if they were germane to the activities at hand. More importantly, participation in these activities were often particularly advantageous, because they not only provided accesses to individuals that may have been part of our original sampling frame, but also to representatives of key stakeholders such as local business owners, developers, as well as contractors supporting local efforts in mitigation activities.

The implementation of the semi-structured interviews with key informants and informal interviews during participant observation resulted in interviews with approximately 50 individuals. These individuals included: representatives of state agencies such as the Texas

General Land Office, Texas Department of Insurance, Division of Emergency Management, Texas Wind Insurance Association, municipal planning department officials, municipal building inspectors, local and county emergency management officials, Sea-Grant extension agents, floodplain managers, contractors with planning and engineering firms, local business owners and developers, mayors, university coastal researchers, and directors of various research centers. The project staff also took part in over 15 activities associated with coastal and mitigation planning issues. These activities ranged from local community planning charrettes, stakeholder meetings, research and practitioner workshops, and various coastal planning conferences and workshops.

3. Interviewing Time Frame.

The semi-structured interview process was split in two time frames. The first set of interviews was conducted during the summer and fall of 2007. During the first set of interviews there were two instances of severe weather that inhibited the interview process, Tropical Storm Erin and Hurricane Humberto. In general, many of the interviews with state agency representatives took place during the first stage of the interviewing process. The second set of interviews conducted beginning in the summer of 2008 and extending into early 2009. During the second set of interviews the Texas Coast had 3 major hurricane events, Hurricane Dolly, Tropical storm Edouard and Hurricane Ike. In the case of Hurricane Ike the damage was so severe in the study sites that the scheduling of interviews became nearly impossible at times. Participant observation activities were undertaken from the summer of 2007 through early 2009.

4. The Semi-Structured Survey Instrument.

As discussed above, the interview instrument utilized for this survey was a semi-structured interview schedule. A structured interview protocol demands that the questions be read as written and in the order specified, without deviation. However, a semi-structured interview protocol is more of a guide to the interview regarding the types of questions that should be asked and the types of information that should, where possible, be collected. In other words, using a semi-structured protocol the interview is a more fluid and open process, with the interviewers having a set of questions to guide their interactions in terms of content and order. The interviewer allows the interviewee to answer the questions as they see fit in a more open fashion and the interviewer is allowed to ask follow-up questions or prompts to gain additional information. If the interviewee appears to be particularly knowledgeable or concerned about a particular topic or issue, they can be encouraged to elaborate on these points, providing far more detail than might be normally elicited or even anticipated. The order the interview questioning takes is open, because the goal is to acquire as much in-depth information as the interviewee can provide given their experiences and expertise. Finally, if the interviewee has limited or no knowledge regarding particular points or issues, the interview is free to move quickly over those points, or even skip sections that may be of no relevance to the interviewee. Given the nature of the instrument, it could be utilized both in the face-to-face interviewing process and as a general guide during participant observation activities.

The semi-structured interview instrument was designed to gather information on the Texas Coastal Management Program (TCMP), various TCMP policies and funding streams, as well as the Texas General Land Office (TGLO); 2) the State of Texas Mitigation Plan (STMP),

3) Local Mitigation Plans, 4) local community and county mitigation policies, actions and incentives, and other forms of planning tools, 5) building codes, and 5) wind and flood insurance. The final section was a handout that explained the Coastal Planning Atlas, an online GIS planning support system that acts as a proactive device to identify, visualize, and predict the impacts of future growth along the coast. The coastal planning atlas is being developed as part of this overall project. The complete interview instrument is provided in Appendix A.

5. The Interview Process:

The exact nature of the interview process depended on whether it was part of a more formal face-to-face interview or if it took place as part of a participant observation activity. With respect to the more formal face-to-face interviews, interviewees were, as mentioned above, selected because of their formal position in state or local agencies or because they had been referred to during a previous interview. Initial contacts were often made through email. The survey team identified themselves as researchers with the Texas A&M's Hazard Reduction and Recovery Center (HRRC) working on a project funded by the Texas General Land Office. After making initial contact the survey team moved to phone conversation where they further explained the purpose of their research and their desire to set up an interview to ask questions related to coastal hazard mitigation. There were occasions when no response was received from email. In these cases, the team waited three days after sending an email before making a phone call to contact the potential interviewee. If no email information was available, contact was initiated via telephone from the start. After contact was made, meetings were arranged to begin the interview. A number of times the interview instrument was sent prior to the meeting so that the interviewee might have time to review the document. Generally interviews were conducted in a place designated by the interviewee to make the process as comfortable as possible. At the conclusion of all interviews the survey team often left a copy of the interview protocol. A copy was left with the interviewee to review and if they later felt that they had inadequately answered a particular question or if they remembered additional information after the survey team left, they could notify the team and provide additional information.

3. Findings

As might be expected, the conversations during participant observation activities and during the semi-structure interview were often quite wide ranging and the particular topics covered were highly dependent upon the relative expertise and experience of the individuals involved as well as the context. In analyzing the information gathered during this research activity the goal was to bring forward important insights, issues, and themes that emerged. Before beginning this discussion, the caveat that these findings were again gained from a purpose sample and participant observation in a select number of workshops and community activities, and not a random sample of stakeholders must be kept in mind. This means that findings may well not hold for more representative sample, but they do provide us with detailed information upon which future actions might be undertaken, with caution.

The following highlights issues that emerged from the data collection activities and have been organized into issues and themes related to a) state level agencies; b) county and local emergency management and managers, c) local planners and related local agencies, d) mitigation

planning activities and mitigation actions, and finally, e) constraints on mitigation planning activities.

3a. Issues related to state level agencies.

The following are some of the issues that emerged from interviews with individuals working in state agencies associated with coastal hazards and hazard mitigation. Some of the following are simply points of information related to the operation of these agencies, while others are relevant in that they address or highlight points of commonality among agency missions and hence opportunities to coordinate activities.

- The relationship between the Texas General Land Office (GLO) and the Division of Emergency Management (DEM) through changes in the 2007 State of Texas Mitigation Plan in which the GLO will be playing an active role in working with mitigation planning activities should enhance the working relationship between the two and should may also help ensure greater consistency between the State of Texas Mitigation Plan (STMP) and Coastal Management Program (CMP) activities.
- In the words of a key official with the Division of Emergency Management, the best possible outcome related to mitigation in the coastal zone is to "minimize coastal development to reduce cost of response, evacuation, and public sheltering." This clearly suggests the implementation of effective mitigation planning will help insure that development and subsequently people are not located in coastal high hazard zones.
- In addition, the same official from the DEM noted that, if development must or simply does occur, then that development must be "floodplain and wind-code compliant to reduce cost of public sheltering" and subsequent response and recovery efforts. This statement was given in the context of promoting effective building codes related to wind and flooding, but was also coupled with programs and policies that promote open green space, provide for setbacks, storm surge flow-through of ground level parking, cluster developments, and other forms of effective land-use planning policies.
- Several individuals either mentioned or, when the issue was introduced, expressed the opinion that the inclusion of a representative from the Governor's Division of Emergency Management on the Coastal Coordinating Council may well help insure greater coordination and more concerted action between the GDEM and the TGLO actions, particularly with respect to the STMP and the CMP.
- There is a good deal of commonality in goals between the Texas Department of Insurance (TDI) and the TGLO and its CMP because they both are concerned with reducing losses related to coastal hazards although the TDI is much more focused on wind hazard, because flood hazards are covered by the National Flood Insurance Program (NFIP). This commonality in mission could have implications for joint efforts to better model and assess coastal wind hazards along the Texas Coast and for the CMP consistency reviews.
- The Texas Windstorm Insurance Association (TWIA) is the insurer of last resort for Texas homeowners that are seeking wind coverage, which is generally not

covered by homeowner policies along the coast. The TWIA's exposure to property losses is rising exponentially along the Texas Coast as insurers refuse to underwrite wind hazard insurance following the hurricanes and tropical storms of the 2005 (Rita), 2007 (Erin and Humberto), and 2008 (Dolly, Edouard, and Ike).

- The TDI is making a concerted effort to constantly improve coastal building codes through material testing and the adoption of new International Residential and Building Codes (IRC/IBC) building codes with "stronger" Texas amendments. For example, the new IRC/IBC 2006 was adopted. Yet there is little knowledge of the adoption of these codes by local municipalities. The TDI performs an informal survey of municipalities, but does not systematically collect these data.
- While local communities in the coastal zone, first tier counties, are required to adopt the TDI sanctioned code, there is no enforcement or way to enforce this mandate.
- It is interesting to note that the Texas Coastal and Marine Council (TCMC), the precursor to the Coastal Coordinating Council (CCC), drafted a model minimum hurricane resistant building standard for the Texas Gulf coast in 1976. Clearly there a history of common interests and missions between the TDI and the CMP.
- The insurance market in Texas has a tripartite structure consisting of the: 1) voluntary market made up of licensed private sector insurers, 2) involuntary market made up of the TWIA (the insurer of "last resort") and 3) the surplus market made up of insurers who are not licensed in the state but can sell insurance without any restrictions.
- Local municipalities often do not inspect residential or other built structures for wind related hazards. Any inspection related to wind, for example, roof inspections, is undertaken by the TDI if at all.
- Many insurers including the TWIA require roof inspection and a windstorm certification of compliance (WPI-8) indicating that the roof has been inspected by a certified state inspector/engineer and found to be in compliance before wind coverage will be issued.

As is reflect in the above, there are points of common interest and commonalities in missions between the TDI, GDEM, TGLO, as well as the TWIA. In a state that does not legally mandate comprehensive planning, particularly as it relates to coastal hazard mitigation, or a statewide building code, it is important, indeed critical, for agencies active in this area to work together, pool limited resources, and facilitate concerted actions on this important issue. Coordination and the pooling of resources can be particularly important when the onus of planning falls on often small coastal communities that simply do not have the personnel, expertise, or resources to devote to these important activities. There are of course a variety of mechanisms that might be employed to insure more coordinated action. One obvious action that might be taken is to include membership from DEM, TDI, and perhaps even TWIA on the Coastal Coordinating Council (CCC). Membership of these entities on the CCC might better ensure overall coordination of activities of these agencies as they focus on coastal issues, particularly those addressing coastal hazards and hazard mitigation.

Another mechanism to insure increased coordination might be to undertake joint programs and activities, such as is occurring with joint efforts between DEM and the TGLO on coastal

mitigation planning efforts. These might be extended to include the TDI and TWIA as well. In addition, to the extent that it is possible, developing programs to incentivize the adoption of stronger building codes, land-use planning, zoning that reflects hazard exposure, and similar types of policies that have hazard mitigation potential. Other potential joint project might be related to technical assistance programs, training programs for local communities and the development of mitigation technical tools. An example of the latter might be the development of a scientifically valid high resolution mapping tools for wind hazard. Such a tool would identify in high resolution, such as at the census block or block-group, the probability and hence, the risk of hazards winds of particular magnitudes. This tool should be available to the public and local governments to facilitate mitigation planning decisions related to coastal development, building codes, etc. In other words, this tool would become a critical element in hazard mitigation planning actions and policies. Such a tool could also be the first step in developing of a public insurance rating model, to empirically validate rate changes by insurers throughout the coast, as well as establishing TWIA rating structures.

3b. Issues related to emergency managers and mitigation planning:

The following section addresses a host of issues related to emergency management, emergency managers, and the relationship between and among emergency mangers and local planners. These primarily focus of these findings is on county and local emergency managers and management agencies/organizations.

- Emergency management is much more focused on emergency and response activities, with little time, energy or commitment for mitigation and recovery planning. In many cases emergency managers do not deal with mitigation plans directly and often define mitigation issues as separate from their activities.
- In spite of the above statement and seemingly inconsistent with it, emergency management personnel were often found to be the "designated" participants in local hazard mitigation planning activities. In other words, while they perceive of themselves as focused on emergency and response activities, they are often called upon to work with mitigation planning. The result is that there is a tendency for local mitigation planning activities and proposed mitigation actions to focus more on emergency management and response issues, rather on mitigation issues (see Peacock et al 2009).
- Some emergency managers attended training/school held by FEMA once or twice a year. However, most of that training is based on response and, to a limited extent, recovery and little attention to mitigation strategies.
- For the most part city and county emergency management office have very small staffs. In some cases the emergency manager is a part-time or volunteer position. The staffs that are associated with them have limited training in mitigation and in come cases are mainly clerical assistance personnel.
- To the extent that mitigation is discussed, the solutions are often in terms of technical solutions, such as beach nourishment or re-nourishment, but rarely are issues like land use planning, zoning, and other forms of mitigation policies.
- The perception of all emergency managers is they have some form of coordination authority in their respective county especially in regard to evacuation

and emergency response. However, there are some cases where the coordination is based on very little contact among participating agencies and municipalities. Unfortunately, there are sometimes ill feelings expressed about the competency of other emergency personnel which prevent stronger communication.

- Emergency management offices often provide preparedness material such as brochures, leaflets and flyers and they also support educational awareness activities. This material generally focuses only for emergency preparedness and response, such as steps a household could take before and after a disaster event. This literature rarely addresses mitigation or long-term recovery issues.
- There appear to be regular meetings between certain city emergency managers and county emergency managers. In these meetings, joint resolutions have been drafted for evacuation procedures and special group needs.
- Emergency management personnel often speak of good communication between municipal planners and emergency management, but this communication seem to be more related to emergency and response, with little communication or joint activities related to mitigation and mitigation planning.
- Most city emergency management personnel have little knowledge of the CMP or work with the TGLO. However, as will be seen below, the counties and planning agencies are more likely to know about the CMP and be currently working with the TGLO or have worked with them in the past.
- Municipal emergency management, generally hold that their own emergency management strategies and activities come first, but they do appreciate and believe that it is very important to have communication between their operations and county level to increase cooperative efforts.
- Surprisingly, while there is general knowledge of the existence of the STMP, some emergency management personnel have limited knowledge of the actual plan and how it addresses local issues.

On the whole, the picture that emerges from interviews with local emergency management and managers is one of individuals that are much more focused on the tasks of emergency response and preparation, but not on long term recovery or mitigation issues. Mitigation and recovery efforts are more likely to be seen as in the realm of planning, not emergency management. Nevertheless, local emergency managers are often the same individuals that are called upon to participate in local mitigation planning efforts. There is communication between emergency management and planning, but little in the way of joint work on hazard mitigation. There are clear needs to facilitate education, training and support activities to emergency managers on mitigation and long-term recovery. Indeed, local emergency managers are often working with limited resources and time; hence, they tend to focus on the immediate short term issues, rather than longer term mitigation issues.

3c. Issues related to planners and planning related personnel and agencies.

The following are issues that emerged related to planners and planning agencies and personnel. The terms “planners” and “planning agencies” are broadly defined here to include all individuals and agencies addressing planning and management policies at the local or county level. Hence, this includes planners, floodplain managers, building code and permitting

personnel, etc. These are however confined to individuals working for municipal or county governments. The following are some of the key issues that emerged:

- Planning staffs appear to have good general knowledge of the TGLO and are often working quite closely with them on a variety of funding programs and permitting activities. The knowledge of the CMP is for the most part confined to funding programs related to beach re-nourishment activities, public access support, signage, and public education materials.
- As noted above, there seems to be a rather clear differentiation between planning and emergence management activities at the local levels. In general, emergency management personnel appear to be less familiar with the CMP or the TGLO, particularly with respect to mitigation.
- While there appears to be good general knowledge of the CMP and the TGLO, there is often limited knowledge of the STMP and how it might be incorporated into on-going community planning activities.
- Similarly, recovery planning, as a part of a mitigation plan or a stand along plan, is rarely discuss, particularly as it relates to opportunities to significantly improve a community's mitigation status and potentially improve, protect, and reclaim ecological resources such as wetlands.
- Mitigation does not appear to be completely understood, nor is the relationship between normal development or planning activities and mitigation clearly recognized. Planning agencies are often attempting policy changes and planning actions that do have both positive and negative consequences for mitigation; they are simply not viewed as "mitigation" actions. Nevertheless, to the extent that "mitigation" of potential losses to coastal hazards is not explicitly addressed in many ongoing development strategies is a point of concern.
- There may be a whole host of policies related to historic dwellings, special zoning areas, etc. that can enhance or sometimes thwart mitigation. For example, modifications to a home above 50% of the value of the structure can require the complete retrofitting of the home to meet new building code standards. This can have negative consequences on low valued homes or on fixed income households that cannot afford bring a home up to code. In the case of the former even seemingly minor mitigation retrofitting can trigger the 50% rule because of low property (just the structure) values.
- This does not mean that mitigation related actions should be reduced, rather it means that there is a need for flexibility, incentives, and perhaps even public assistance to insure that needed maintenance/improvements are not ignored and the resulting mitigation actions not taken.
- Mitigation plans are addressed by many agencies such as Planning, Public Works, City Manager, Commission or councils (at the municipal and county level), Floodplain Administration office, and Emergency Management.
- City and county planners have projects that directly and/or indirectly work with the TGLO. Some city and county planners and administrators have a long standing working relationship with the TGLO.

- Many programs have been funded through 306, 309 and 6217 both at the county level and the city level. However, it is mostly the counties who participate in projects funded by CEPRA, CMP and CIAP.
- Cities and Counties have some regulations related to mitigation such as park ordinance, sand dune law, and flood prone areas. These are very limited at the county level, usually focusing on flood plain management. However on the issue of regulating ecologically sensitive areas such as wetlands there is a lack of knowledge on how to integrate these natural resource areas into their mitigation strategy.
- There is an understanding, on the part of some planners, that mitigation actions can take many forms that allow appropriate and responsible development while protecting life, property and the environment. In a few municipalities, there are attempts to strengthen mitigation planning are by putting an element of mitigation into their comprehensive plans. Some municipalities also have relatively strong building codes and seek to ensure that residential structures obtain windstorm certificates during the construction process.
- There is increasing interest and use of GIS to support mitigation planning and provide more information to individuals, groups and other agencies within local jurisdictions. Some planning agencies and departments have budgets to support GIS and hire qualified GIS technicians. However, the extent to which this is wide spread is difficult to determine from the current survey. It appears that the use of GIS is higher among planning offices than among emergency management offices.
- Building officials are very aware of building code issues and the importance of coastal setbacks for mitigation purposes. They also appear to be knowledgeable about the CMP and TGLO.
- There is considerable concern about debris removal, which is seemingly considered a mitigation activity.
- There are novel programs in the State to help provide immediate access to "recovery" dollars on behalf of municipalities – particularly with respect to debris removal. These funds that can be made readily available (advanced) to local municipalities and later paid back from federal recovery funding. It is hoped, that such programs can jumpstart the recovery process after a disaster.
- When the relevance of mitigation planning is evident, planners often discuss the lack of "political will" on the part of elected officials to undertake comprehensive planning and land use regulation. The short term decision horision displayed by local officials, particularly when policies are perceived as going against local development interests, can make it difficult to propose long run mitigation polices related to land use planning, environmental protection, zoning, etc.

In general, planners and planning agencies often have good knowledge of the coastal management program and work with the Texas General Land Office. However, there is often a failure to see how effective mitigation planning might be incorporated into a community's on going planning efforts. It should be noted that planners and planning agencies often have limited resources and expertise to be able to fully integrate mitigation planning into their on going activities. They are extremely open to the use of GIS applications and tools, but again, often lack the resources to make this happen. Furthermore, planners and planning departments are more

often than not in reactive rather than proactive mode. In other words, they are often reacting to changes in their communities, rather than having the ability to work with local community constituencies and stakeholders to shape community change and development trajectories. Of course, the lack of political will issue was often mentioned by a variety of respondents. This continues to point to the need to enhance education of stakeholders and elected officials to the benefits of comprehensive mitigation planning wrapped around concepts like smart growth and community disaster resilience.

3d. Mitigation Planning Processes and Action

The following represent a set of general issues and observations that emerged from the interviewing and participant observation that relate more directly to mitigation planning and processes.

- Mitigation planning and plans are often developed with the assistance of outside consulting firms with little or no knowledge of local situations. In these situations outside contractors and firms must depend upon local involvement to provide local knowledge and input. Unfortunately, in the case of the development of a county mitigation plan, rarely were emergency managers from various municipalities within the county involved in the planning stages or implementation process. Even more limited is the participation by local planning personnel in the development, evaluation, and implementation of the mitigation planning process and plan.
- Local participation is often difficult to ensure, particularly from the general public and even by some planning departments. As a consequence contractors are left with little local input and the resulting plans are very formulaic.
- Contractors often seek to work one-on-one with stakeholders to better insure their understanding of mitigation and how to develop measureable mitigation actions, but time and expenses can make this difficult particularly if there is not community buy in and commitment to the process.
- Participation by local municipalities in county and regional mitigation planning efforts appears to be limited and uneven.
- Many mitigation action plans still focus on structural mitigation, meaning that the actions are related to projects like constructing and renovating drainage systems, channel maintenance, sewage systems, storm water management, elevating roads, and retrofitting public and private buildings.
- There is little understanding of "soft" mitigation strategies such as the use of zoning and building codes to prevent infrastructure damage. In particular, there is often little discussion, understand, or knowledge of a host of planning related strategies that can be employed such as: overlay zoning, performance zoning, density bonuses, infill/community redevelopment policies, conservation easements and setbacks, land banking, real estate disclosures, etc.
- There are a few examples of potential overlap between the municipal and county/regional mitigation planning, with some cities having independent mitigation planning efforts and plans while at the same time being located in counties or regions with existing mitigation plans. These plans may not reflect

coordination between municipal and county or regional mitigation plan efforts. This is not necessarily a negative, however to the extent that planning efforts are mutually supportive and cooperative, both plans may be strengthened and consistent mitigation actions undertaken.

- There is little understanding of the differences between 1) hazard exposure, 2) social and physical vulnerability, and 3) risk analysis. Furthermore, contractors and others working with local communities do little to clarify the issue and rarely engage in full risk analysis. While hazard exposure is concerned with areas subject to natural hazard impacts and vulnerability is related to the susceptibly of the built environment or natural environment and the population to damage, injury, or death due to hazard impacts, risk is associated with assessing the probability of impact and damage due to different levels of impact. Unfortunately, risk analysis is often too expensive to undertake within local mitigation planning efforts.
- Rarely do mitigation strategies deal with or address the full spectrum of "special needs" or socially vulnerable populations. When asked about special needs or socially vulnerable populations, most emergency managers describe elderly and the mentally incompetent. A complete understanding of factors that shape and identify socially vulnerable populations is generally lacking and is rarely included in mitigation planning efforts.
- The relationship between mitigation and environmental management, resource preservation and reclamation, and, as mentioned above, general development is often missing. If the issue of mitigation planning is properly understood as a critical component of these other important issues, it may be possible to attract and increase stakeholder involvement in the process, and thereby strengthen the final product.
- There is little recognition that recovery planning, as part of mitigation planning, can be an important tool for addressing past development problems. Through policies such as land banks, damage-building acquisition, development rights acquisition, damaged and abandoned properties can be converted to more appropriate land-uses, shifting development away from high hazard areas. These policies can be more easily implemented and funded in the aftermath of disaster when communities often have the political will to propose and pass these policies and recovery dollars, particularly mitigation funding from the Federal government can be employed to fund these initiatives.

These issues and insights above provide a wealth of opportunities for the TGLO and its agency partners; unfortunately many of these are not easily met. There clearly is a need for education regarding the broad nature of mitigation issues and the great variety of mitigation actions that might be proposed or developed. This is particularly evident with respect to the variety of mitigation planning efforts and policies that might be implemented. Broad based education programs, while good, may not insure broad based stakeholder understanding of mitigation planning issues. Perhaps targeted education programs would better enhance mitigation planning. In other words, education of emergency management, planners, floodplain managers, coastal planners, and elected officials might enhance the process. Given the long history of emphasis on structural mitigation strategies, such as sea walls, levies, and beach nourishment, participants in mitigation efforts are quick to identify these as likely solutions to hazard

mitigation. Unfortunately there is little knowledge regarding soft mitigation policies that can be equally as effective. The development of model plans or planning tools might also facilitate the process by offering local municipalities tools to help martial stakeholder support for why mitigation actions should be undertaken and once actions are proposed, there might be off the shelf examples to guide in the development of these policies. In addition, the development of scientifically valid tools to not only map hazard risk, vulnerability, and exposure, but also help local communities visualize the nature of their risk may well help in the process. Working with grassroots organizations that are natural allies to mitigation planning can also expand the stakeholder base and, perhaps, foster increasing involvement.

4. Summary and Recommendations

Reviewing the issues and insights gained from this research it is perhaps difficult to not be somewhat discouraged when it comes to addressing mitigation issues along the Texas Coast. There are so many constraints to developing effective mitigation planning. Some of these constraints include: 1) the lack of comprehensive planning mandates, 2) the lack of a mandated statewide building code, 3) limited planning potential at the county level of government and at regional levels as well, 4) potential and actual divisions among and between emergency management and planners, 5) a lack of financial resources, technical skill, and human resources at so many critical points, but particularly at the local community level where most effective planning activities can be undertaken and 6) sometimes a lack of coordinated mitigation efforts.

However, there are also many positive points to build on. First, there are large numbers of dedicated individuals throughout coastal counties and the coastal management zone, particularly in the target counties where much of the interviewing took place, that firmly believe in mitigation and mitigation issues. They may not all agree on the solutions or actions that should be taken, but they do agree that something must be done to address the ever-increasing vulnerability of the Texas coast. Second, there are also many dedicated individuals at state, county, and local levels that recognize the nature of the problems facing the Texas coast and that hazard mitigation is a prime factor in moving us toward a solution. Furthermore, as discussed above, there are already beginning stages of cooperative and coordinated action between the GDEM and TGLO with respect to mitigation planning, and there is the potential of increasing that coordination with the TDI and TWIA. In addition, recent events related to Rita and Ike have provided an important window of opportunity that can perhaps motivate municipalities and various stakeholders toward greater participation in broader mitigation activities at the state, regional, county and local level.

Perhaps the best strategy is to build on the strengths that are already evident and by building on these strengths seek to develop a more comprehensive and integrated program promoting coastal hazard mitigation through the TSMP and the CMP. Some of the actions that might be recommended are as follows:

1. ***Build on current cooperation and seek to enhance future coordination:*** In a sense the first steps have already been taken with cooperation between the TGLO and GDEM focusing on mitigation planning efforts. However, future cooperative efforts among TGLO, GDEM, and TDI should be explored. One important step that should be

considered is expanding membership on the CCC for GDEM and, perhaps even, the TDI should be considered. Clearly there are commonalities in the missions of these agencies and there is a strong possibility of enhancing synergies through coordinating efforts through the CCC.

2. ***Targeted Education and Training programs:*** Education programs are often mentioned as a solution to enhancing mitigation, however it might be more strategically sound to target those education programs focusing on local emergency management and planning officials. The goal would be to increase the understanding of broad based mitigation approaches, policies, and actions that can be undertaken. Here again, coordination among agencies will be important. In particular, it makes since for GDEM and the TGLO to coordinate efforts. Furthermore, when developing these programs it may well make sense to work with professional emergency management organizations, the Texas Chapter of the American Planning Association, and various state universities that have planning and coastal management programs. These programs should focus on broad based mitigation planning including "soft" mitigation strategies such as: overlay zoning, performance zoning, density bonuses, infill/community redevelopment policies, conservation easements and setbacks, land banking, real estate disclosures, etc. In addition, as noted above, there is little recognition that recovery planning, as part of mitigation planning, can be an important tool for addressing past development problems. Hence education programs might address topics such as land banks, damage-building acquisition, and development rights acquisition as tools that can, in the aftermath of a disaster, promote the conversion of damaged and abandoned properties to more appropriate land-uses, shifting development away from high hazard areas.
3. ***Developing policy and planning templates:*** In addition to education programs, the development of policy and planning templates might well be a logical next step to promote the adoption of mitigation policies. For example, as part of the Texas Chapter of the American Planning Association's list-serve one constantly encounters local planners asking for examples of ordinances and plans that can be employed as models in their own community. These examples are important, not only because they make it easier for a community considering an ordinance to develop its own, but also because these examples have often withstood legal challenges thus better insuring effective policy and ordinance development.
4. ***Providing Strategic Tools and Technical Assistance:*** It is clear that many local communities (as well as counties) lack the tools and technical knowledge to engage in the critical elements of hazard mitigation planning: hazard Identification, vulnerability assessment, and risk analysis. This is particularly the case with the latter. Investment in hazard risk assessment tools, such as the wind risk assessment tools discussed above, might well be a sound investment toward helping coastal communities better understand their risk. The TGLO and GDEM have already developed some of these tools and have sought to develop and make available to the public a variety of data sets to help in hazard identification and risk. Perhaps the TDI might be an additional partner in these efforts, working with the TGLO and GDEM to enhance the development of tools and data bases related to wind risk, as well as higher resolution flooding and surge mapping tools. Of course the development of tools and technical capacities must be coupled with the creation of additional tools and technologies that can integrate data, model output and

enhance the ability of local communities, grassroots organizations, stakeholders, and ultimately the public to visualize the problems they face and potential solutions.

5. ***Enhancing visualization and data integration tools:*** Community planning and emergency management agencies, stakeholders, and the public must have access to tools that can enable them to better visualize and integrate data necessary to not only understand and analyze their current mitigation status, but also to envision their future under a variety of different scenarios. If tools are only left in the hands of a few, then the hopes of widening access and increasing community involvement in coastal planning in general and hazard mitigation planning in particular is doomed. This is particularly important the case of Texas, where planning can most effectively be undertake at the local municipality level. The efforts being undertaken as part of this project to develop a coastal community planning atlas is an important step in the direction of creating web-based visualization and data integration tools that be easily accessed by the broader public. However, as important as this effort is at providing as a test of concept, enhancing and maintaining this tool or developing the next generation of tools that can be easily accessed must be considered.
6. ***Promoting involvement and increasing stakeholder involvement:*** Mitigation planning must be seen as part of the larger solution for developing resilient and sustainable coastal communities in Texas. If disaster mitigation planning is seen as part of a portfolio of related issues for developing resilient communities, then the stakeholder base will be increased and, perhaps, involvement also enhanced. This should be part of the targeted education and training programs mentioned above, but also part of a targeted public education program as well. Specifically these programs can be designed to place hazard mitigation into a large context of environmental sustainably, climate change and variability, sea-level rise, and other issues of critical importance to coastal counties in general and coastal communities in particular. These programs should work through and in conjunction with local elementary, middle, and high schools and local community colleges and universities.

Appendix A: Semi-structured elite interview schedule

City/County/ Organization name_____

Date _____

Individual name and title_____

Contact information_____

1. The Texas Coastal Management Program (TCMP) addresses 16 Coastal Natural Resource Areas (CNRA's) along the Texas coastline and adjacent waters. Examples of the TCMP's activities and projects in existence today are as follows: Shorefront Planning, Shoreline Erosion Response, Energy Facility Siting, Coastal Wetlands Management, Areas for Preservation and Restoration (Texas Parks and Wildlife Department, Texas Historical Commission, General Land Office and Texas Parks and Wildlife Department), and Plan Coordination.

2. Have you ever heard of the TCMP?

3. Do you as a planner, emergency manager, etc believe it is important to manage economic development in order to prevent any damage to the coastal zone? Why?
4.
5. Do you see transportation problems along your coastal zone?

    - If yes, what are they and how is it a detriment to the CNRA's?

6. Are your aware of any projects related to the TCMP in your jurisdiction?

    - If yes, can you tell me about them? (May I have a list of them?)
    - If yes, were you involved in any way in developing and/or implementing them?

7. Have you received any Federal grant funding to implement projects related to the TCMP?

    - If yes, can you tell me which of the following Federal revenue streams this was funded through?
        - **306 Administrative Grants?** (May be used to fund the administration of the TCMP as well as planning, mapping, GIS, and research projects).
        - **306A Coastal Resource Improvement Grants?** (May be used to fund projects that meet one or more of the following objectives: 1) Preservation or restoration of CNRAs or restoration and enhancement of shellfish production of clutch material on publicly-owned reef tracts, 2) Redevelopment of deteriorating and underutilized urban waterfronts and ports, 3) Provision of access to public beaches and other coastal areas and to coastal waters, 4) Development of a coordinated process among state agencies to regulate and issue permits for aquaculture facilities in the coastal zone).

- **309 Coastal Zone Enhancement Grants?** (May be used to develop program changes and support in one or more of the following nine coastal zone enhancement areas: wetlands, public access, coastal hazards, cumulative and secondary impacts, energy and government facility siting, marine debris, ocean resources, special area management plans, and aquaculture).
- **6217 Non-point Source Pollution Control Grants?** (Funds are used to implement the management measures that are part of the Coastal Non-point Source Pollution Program. Examples include the establishment of the Clean Texas Marina Program, implementation of best management practices on agricultural lands, and funding of a seafood-composting project).

- If yes, how much grant funding did you receive per year/over the last 5 years?
- Do you think this funding has facilitated coastal planning in your area?
- In general, do you think these projects have facilitated economic development in your area? If yes, which projects seemed to work best?

8. Are you familiar with the Small Business and Individual Permitting Assistance Program offered through the TCMP? (The Small Business and Individual Permitting Assistance Program provide individuals, small businesses, and local municipalities in the coastal zone with environmental permitting assistance).

    - Have you used this program in your city/county?
    - If yes, were they useful to you?
    - Which permits did they help you obtain?
    - From which Federal, State, or Local agencies were you applying for an environmental permit? (Texas General Land Office, Texas School Land Board, Texas Commission on Environmental Quality, Texas Parks and Wildlife Department, Railroad Commission of Texas, Texas Department of Transportation, Public Utility Commission of Texas, Texas Historical Commission, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers).

9. Do you have any special departments that address and deal with hazards, emergency management, zoning, etc?

10. Who else should we talk with?

STATE OF TEXAS MITIGATION PLAN QUESTIONS

1. Does your city/county have a mitigation plan?

2. What type of issues does it address? (Sea level rise, storm surge, wind, evacuation planning, flooding issues, etc?)

3. Does your city/county have a recovery plan?

4. Is the recovery plan a part of the mitigation plan or is it a stand-alone plan?

5. Does your city/county have zoning or special land use planning in place for hazard mitigation and environmental preservation? (Related to sea level rise, storm surge, wind, evacuation planning, flooding concerns)

6. Are there specific building standards/codes in place in your city/county as mitigation measures against hurricanes? (Roofing, glazing of windows, shutters, hurricane straps, etc)
    - If yes, are these international building code standards?
    - Does that include codes related to wind hazards appropriate for the wind risk zones for your area?

7. Do you know of homeowners and/or businesses that are having trouble getting or having insurance/wind coverage dropped?

8. What wind standards have your city/county population adopted?

9. Are members of your city/county aware of the Texas Windstorm Insurance Association (TWIA)?

10. Do members of your city/county have or are they able to obtain insurance through the TWIA? (Have they accepted the state codes and received a WPI-8 Certificate, Windstorm Insurance Inspection Certificate? Property to be considered insurable property by the TWIA must be inspected or approved by the Commissioner for compliance with the TWIA plan of operation. Additionally, the TWIA plan of operation in 28 TAC §5.4001 (d)(2)(D) provides that the TWIA board may issue a TWIA policy on certain types of risks without an inspection and requires the TWIA board to submit a set of regulations for such risks to the Commissioner for approval.)

11. Has your local mitigation plan been reviewed by a state and regional liaison officer?

12. Are you aware of the Texas Hazard Mitigation Plan (TMP)?

13. The State of Texas Hazard Mitigation Plan addresses a number of natural hazards that occur across Texas. Do you as a planner/emergency manager/etc have any projects in and around your city/county that would do the following (If yes, please list them):

    - Reduce or eliminate hazardous conditions that cause the loss of life, inflict injuries, cause property damage, or that would degrade important natural resources?

14. Has your city/county been able to acquire any of the mitigation funding stated in the TMP to help plan or implement mitigation strategies?

15. To what extent does the TMP influence the development of your local hazard mitigation plan?

16. Did you help in any way with the development of your local hazard mitigation plan?

17. What department oversees mitigation efforts for your city/county?

18. Do the emergency management department and/or personnel oversee mitigation efforts exclusively or does your planning department participate as well?

19. What types of planning tools or policies are used to promote hazard mitigation in your local area?

    - Tax Incentives?
    - Impact Fees?
    - Special Planning Areas?
    - Storm Water Retention Requirements?
    - Dune and Wetland Protection Factors?

20. Do you attend mitigation-training sessions/seminars when available?

    - If yes, what are they?
    - Who conducts these training sessions? (FEMA, the state, etc.?)

21. Have you had or do you have implementation responsibilities for projects related to your local mitigation plan?

22. Has your city/county ever in the past had to evacuate from your area to a shelter or elsewhere?

    - Was an evacuation order issued?
    - If yes, did you have good compliance rates?
    - What were your compliance rates?
    - How did you get your compliance rate estimates?
    - Who did the compliance rate estimates?
    - Were the transportation routes functioning as planned?
    - Were there trouble spots in the transportation system? If yes, where at?

23. Do you see any relationship between the TMP and the TCMP? If yes, what is it?

    - If yes, are there ways you see that the TCMP and the TMP could work together better to target funding, enhance mitigation, and promote development that reduces vulnerabilities?

24. Do you have a GIS Department? Do you use GIS in your planning projects?

As part of our project we are developing a Coastal Atlas System website to promote development that recognizes the need for sustainable development. Please take a few

moments to read the following few paragraphs that explain the Atlas System and at your convenience visit the Atlas website that is listed below.

This project will develop a web-based Coastal Communities Planning Atlas for Texas as part of a larger Sustainable Coastal Initiative. The goal of the Planning Atlas System is to create a spatial decision support system that acts as a proactive device to identify, visualize, and predict the impacts of future growth along the coast. It will provide an easily accessible tool with which communities can analyze existing socioeconomic and biophysical conditions, and better understand the consequences of development decisions before they take place. Communities along the coast can use this educational tool to help guide future decisions on growth in a sustainable manner such that the need for economic development is balanced with priorities associated with environmental protection and human health, safety, and welfare. Once completed, the Planning Atlas will have three main system components: 1) base layer data, 2) hotspot identification areas, and 3) scenario building case studies.

Base layer data was compiled and graphically displayed for the entire coastal region of Texas. Data included, among others, multiple biophysical, socioeconomic, development, and hazard-based layers. Hotspot identification areas were mapped for the northern portion of the Texas coast and included data layers for ecosystem criticality, economic development, and social vulnerability to hurricane risk. Within these two components, a user has limited interactive capabilities, such as zooming, buffering, measurement between multiple points, identification of data attributes, etc. For the third Atlas component, we selected Galveston County for a more detailed analysis and simulation of "development scenarios." Geographic Information Systems (GIS) and Internet-based visualization software application were used to graphically and statistically project the consequences of land use change decisions related to pollution, runoff, and vulnerability to natural hazards

The Atlas can be viewed at: HYPERLINK: http://coastalatlas.tamug.edu/

Thank you very much for your time and assistance!