Hazard and Resiliency Planning: Perceived Benefits and Barriers Among Land Use Planners

Final Research Report

National Oceanic and Atmospheric Administration Coastal Services Center

April 26, 2010

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TABLE OF CONTENTS

About Hazard and Resiliency Planning

Hazard and resiliency planning is the active pursuit of mitigating the risks associated with natural and other hazards in terms of losses of life, property, and natural and economic resources. Examples of hazard planning include structural preparations for natural disasters such as hurricanes and sea level change, but also include behavior change, community preparedness, education, and outreach. Communities that actively engage in hazard and resiliency planning are less prone to disaster, recover faster from disasters which do occur, and endure less economic hardship than those communities which do not. This research attempts to create a better understanding of the human dimensions involved in why local communities, specifically community planners, do or do not engage in hazard and resiliency planning behaviors, and what factors might lead to more robust planning.

Purpose and Goals of this Research Project

Based on needs identified by its partners, the NOAA Coastal Services Center (CSC) is currently developing new tools and information resources to help federal, state, and local agencies address the human dimensions of coastal hazards planning, emergency response, and post-storm recovery. The overall objective of these programs is to increase coastal communities' resilience to coastal hazards. The Center has a number of initiatives integrating social and economic information with natural science data to support coastal resilience planning and outreach.

A variety of CSC partners, including coastal resource managers, emergency managers, and floodplain managers, have identified a need to better understand attitudes, perceptions, and beliefs behind people's risk and resilience behaviors, and to improve the effectiveness of risk communication efforts. The Center is interested in understanding the "barriers and benefits" associated with behaviors that contribute to individual and community resilience. Understanding the barriers and benefits that different audiences perceive and experience related to specific behaviors can inform resilience-related education and outreach efforts of NOAA and its partners. Greater understanding of these variables, through existing or new efforts, is critical to identifying ways to foster more resilient and sustainable behaviors via education and outreach, social marketing, training, and decision-support tool development.

The purpose of this project was to gain a better understanding of the factors that contribute to specific risk and resilience-related behaviors, providing insight into ways to help individuals and communities engage in more resilient behaviors that reduce losses of life, property, and coastal resources. The project explored and documented the factors underlying specific coastal hazards risk and resilience related behaviors among local land-use planners in coastal zones of four of the NOAA regions. These underlying factors included individuals' attitudes, perceptions, beliefs, and historical experiences, as well as social, economic, and physical conditions that influence behaviors. Following a Community-Based Social Marketing model, this project explored the perceived and actual benefits associated with engaging in specific resilient behaviors, as well as the perceived and actual barriers to engaging in those behaviors.

Overall Research Approach

The general approach to this research project was three pronged. First, a literature review was conducted to ascertain the state of the literature on hazard and risk behaviors. This literature included the Center's own studies, as well as its partners' publications and data, and the most important relevant academic articles and publications. Throughout, the research strove to be sensitive to the distinctions between different geographies and their associated hazards, selecting cases for studies that reflected such diversity.

Building on this base of knowledge, the second stage of the research was to then reach out to experts and local planners through a series of structured interviews examining risk and resilience behaviors and perceived challenges. We conducted ten structured interviews with experienced local planners along with recognized experts who had a deep collective understanding of the resilient behaviors and associated issues involved in hazard and resiliency

planning. The third stage of this research then took the combined understanding gained from the literature review and structured interviews to inform a series of focus groups, consisting of six to nine land use planners which were generally representative of four of the NOAA Regions (Northeast, Mid-Atlantic, Southeast & Caribbean, Gulf of Mexico, Great Lakes, West Coast, Alaska, and Hawaii and the Pacific Islands). To reduce costs and to allow for a broader geographical distribution of focus group participants within each coastal zone, the focus groups online were conducted online. Taken together, the structured interviews and focus groups worked to identify key trends and anomalies and fill knowledge gaps found in the literature review.

High Level Research Outcomes

The research identified a small, yet robust, list of benefits along with a lengthy list of barriers. Benefits identified by land use planners tended to relate to the desire for professional satisfaction. Many planners were personally motivated to take action on risk and hazard issues and were intimately familiar with the hazards faced by their communities. Few believed, however, that their communities were adequately prepared for such hazard events. Planners further recognized that effective planning is the single most cost effective way to deal with hazards, as well as the strategy that is most protective of human life. In some communities there was a high level of public and political support for this type of planning (e.g., communities which have recently experienced disasters or cultures that place a high value on preservation of the natural environment).

Barriers to hazard and resiliency planning tend to be more external to the individuals, and included such barriers as a lack of public support or political will, limited budgets, competing priorities, limited access to actionable data, a disconnect with emergency planners, the competing interests of existing development, property rights, and a bias in favor of growth. While our research has allowed us to catalog and describe these benefits and barriers, it was not designed to prioritize or rank these items. In other words, we cannot conclude which benefits are most motivating, nor do we know which barriers are most inhibiting of action. At the same time, the list of benefits and barriers identified in this research is suggestive of larger patterns. Primarily, we note that the identified benefits appear to be fairly well maximized. That is, planners as an audience are already highly receptive to messages about the importance of hazard and resiliency planning. Thus, messaging to encourage such planners to engage in greater work in this area should focus on addressing barriers. Accordingly, our recommendations focus on ways to minimize barriers (vs. maximizing benefits).

Purpose of Literature Review and Introduction

The purpose of the literature review is to better understand what factors encourage and/or deter the implementation of hazard mitigation and climate adaptation policies by local land use planners and local decision makers. We investigate mitigation policy and the government's role, discuss development and climate adaptation issues, review factors affecting implementation, and identify benefits and barriers related to mitigation policies.

The Federal Emergency Management Agency (FEMA) defines mitigation as a reduction in loss of life and property, economic disruption, human suffering, and disaster-assistance cost from natural hazards (Rovins, 2009). The goal of hazard mitigation measures is to increase a community's resilience in the wake of a disaster. Operations involving coastal and emergency services are quite diversified throughout the nation, representing various levels of capacity, organization, size and responsibilities. It is therefore likely that managers in these organizations have similarly diverse needs regarding information and resources (Morrow, 2007).

Hazard mitigation addresses long-term, general hazard reduction issues, requiring strategic skills such as planning, policy design, and implementation (Godschalk and Brower, 1985). This stands in contrast to natural hazard policies which can be defined in more short-term, event related stages such as pre-disaster mitigation and prevention, pre-disaster preparedness, disaster response, and post-disaster recovery (Clary, 1985). In the long run, hazard planning is the most cost-effective way to reduce total expenditures on natural disasters (Godschalk, Beatley, Burke, Brower, & Kaiser, 1999). According to Godschalk and Brower (1999), the three major goals of community hazard mitigation strategies are: (1) containing or modifying the hazard, as with structures such as dikes and seawalls; (2) protecting people and facilities in hazardous areas, as with building elevation and flood-proofing requirements; and, (3) limiting uses of hazardous areas, as with land use and density regulations. Mitigation is moving away from more structural approaches, such as levees and floodwalls, to nonstructural approaches, such as building codes, construction standards, regulations, and land use planning.

Land use plans are public policies which attempt to regulate the use of land in an efficient and ethical way (Land Use Planning, 2009). Based on the projected needs for accommodating population and economic growth during the planning period, a plan is created to provide necessary public facilities and services where they are needed, to designate ample and suitable areas for potential development, and to protect environmental resources (Godschalk, 1985).

Risk conscious land use plans designate specific hazard areas, guide concentrated development away from these identified areas, and encourage open-space or low density development. Additionally, plans can contain evacuation routes, emergency shelters, and post-disaster reconstruction (Godschalk and Brower, 1985).

While land use plans include the various developmental needs of a specific area or community, hazard mitigation plans are long term measures taken to reduce the loss of life and property as a result of a disaster (Rovins, 2009). State and local governments' regulations and requirements for land use and hazard mitigation plans vary substantially. As an example, hazard mitigation is mandatory in Florida, but not in Louisiana.

Role of Government in Hazard Mitigation

The Disaster Mitigation Act of 2000 (DMA) amended the Stafford Act (Robert T. Stafford Disaster Relief and Emergency Assistance Act, 1988). This Federal legislation requires state, local and Indian Tribal governments to develop a mitigation plan in order to receive disaster assistance. The DMA emphasizes the need for state, local, and Indian Tribal governments to coordinate mitigation planning. The law "supports mitigation by its aim to reduce disaster costs, loss of life and human suffering, economic disruption, and loss of property" (Rovins, 2009). Florida created a Local Mitigation Strategy (LMA), a pilot program for DMA's planning requirements. A 10-year LMS study

found that the existence of a plan does not reduce loss and expenditures (Rovins, 2009). This is perhaps because much mitigation planning takes place at the State level (vs. the local level), and because such "mitigation plans are [seen as] a bureaucratic measure to receive FEMA recovery assistance" (Rovins, 2009).

In order to participate in the National Flood Insurance Program (NFIP), local governments must adopt and enforce a floodplain management ordinance for, at a minimum, all Special Flood Hazard Areas (100-year or 1%-annual-chance floodplains) as shown on the community's Flood Insurance Rate Map. Unfortunately, in a 2002 study, Heinz Center researchers concluded NFIP may have encouraged development in high risk areas, as the insurance provided by the program is cheaper than private insurance. However, the building standards adopted because of NFIP reduced the damage per structure by roughly 35 percent (Heinz Center, 2002). The Heinz Center's study (2002) noted that NFIP was facing challenges with homes receiving multiple damage payouts over the years as they are being repeatedly damaged by floods. In fact, 40 percent of the claims were made by only 2 percent of NFIP policy holders (Heinz Center, 2002). Of the 300 communities receiving repeated damage payouts, coastal communities were disproportionately represented (Heinz Center, 2002).

Since the 1950s, the average number of declared Federal disaster areas has tripled; damage losses between 1975 and 1998 totaled $500 billion (Heinz Center, 2002). Local communities used disaster relief funds from the Federal government to assist with the cost of rebuilding after natural disasters, thus decreasing their incentive to limit development in hazard areas. The increasing amount of Federal disaster money available may have discouraged more careful planning and more responsible community growth patterns (Heinz Center, 2002).

Finally, the Federal government had more "growth-inducing" policies than "growth-reducing" hazard mitigation policies leading local governments to favor furthering development rather than limiting it (Burby and Dalton, 1994). In 1999, local governments in Louisiana and California were surveyed about their response to coastal hazards. The results revealed state governments needed clearer policies to assist local land use planning in potentially hazardous areas (Fischer, 1999). In a study of 176 local governments in five states, Burby and Dalton (1994) found that many local governments would not use land use planning and development regulations without state mandates, a factor which is explored later in this literature review.

The importance of state and local governments must be considered in hazard mitigation plans, as these entities are involved in the implementation of the policies. Local governments understand the needs, the citizens' view of policies, and the political environment better than the Federal or state governments. However, local governments often require both Federal and state support and mandates when implementing hazard mitigation plans.

Support from higher levels of government assists in mitigation implementation. Strong leadership by the Coastal Resources Commission in North Carolina helped overcome local opposition to hazard mitigation plans. The commission supported local governments by providing additional resources, technical assistance, public participation opportunities, public information, and monitoring and enforcement (Godschalk and Brower, 1985).

Federal and state government mandates influenced local policy adoption by requiring local governments to:

1. Create land use plans that limit development in hazard areas;
2. Adopt hazard mitigation mandates, like state building codes or shoreline protection laws (Burby and Dalton, 1994).

State mandates and enforcement have a strong effect on recommendations put forward in land use plans. In fact, the more that state governments monitored and enforced their hazard mitigation mandates, the more likely land use plans recommended limited development (Burby and Dalton, 1994).

Limiting Development

Burby and Dalton identified three weaknesses of using building codes and structural protection in hazard mitigation: (1) whenever development was allowed in hazardous areas, a risk of loss exists, other methods reduced the probability of loss; (2) structural measures furthered the development of hazardous areas, leading to higher cost and

risk, and (3) the lack of protection of natural resources. These weaknesses further support limited development in high risk areas as a necessary component in hazard mitigation.

Potential benefits existed in land use plans that restricted development and addressed the hazards localities faced, including hazard area information that makes communities more aware of the potential costs of building in those areas. Plans indicated the most appropriate use of land in a community but not always the least economically advantageous use. Highlighting this in plans increased the likelihood of considering and adopting these alternative land uses. Land use plans increased the priority given to hazard mitigation by decision makers through association with other important issues, such as public safety and economic disruption of hazards (Burby and Dalton, 1994).

Burby and Dalton (1994) identified five approaches to limit development in hazardous area: (1) prohibition of development in high-hazard areas; (2) low-density zoning to limit the number of dwelling units built in hazardous areas; (3) density bonuses to compensate developers; (4) reduced property taxes for parcels located in hazardous areas that developers have dedicated to open-space use; and (5) transfer of development rights, a procedure that allows landowners to recoup financial losses from density reductions in hazardous areas by selling rights to build at higher densities than normally allowed in less hazardous areas.

Although land acquisition would provide local governments with full control over the land in hazardous areas, cost often became a limiting factor. Other options included Federal funding, easement purchases, land swaps, and donations (Godschalk and Brower, 1985).

Deyle, Chapin and Baker's (2008) study of Florida's 1985 planning mandate, limiting development in hazardous areas, found the authorization had "limited impact on coastal residential development densities" and the quality of a hazard mitigation plan only marginally affected development outcomes. Other factors affecting the implementation of the planning mandate included limited land available for development outside of hazardous area, local government's hesitation to potentially infringe on property rights, and ordinances created before the 1985 mandate (Deyle, Chapin and Baker, 2008).

Climate Adaptation

Coastal communities are particularly vulnerable to the various effects of climate change, such as sea level rise and reduction in Great Lake water levels. Climate adaptations are policies that attempt to address these issues. An adaptation is an "adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities" (Intergovernmental Panel on Climate Change, 2007). Climate adaptation plans should be flexible and consider a broad range of issues, given the uncertain nature of climate change. Policies may be resilient, enabling quick adaptation to changed conditions, or robust, permitting communities to continue their functions under a wide range of conditions (Lenhart and Smith, 1996).

The net benefits of climate adaptation may not be realized for decades due to the gradual rate at which climate change occurs. Thus, adaptation becomes a low funding priority with only small "changes in infrastructure and changes in planning" (Lenhart and Smith, 1996).

Lenhart and Smith (1996) offered several policy options for adaptation to sea level rise, outlined below, coinciding with hazard mitigation plans:
- *Plan urban growth*: Redirecting growth away from sensitive lands and toward less vulnerable areas.
- *Decrease subsidies to develop sensitive coastal lands:* Limiting government subsidies or tax incentives to develop land sensitive to sea-level rise.
- *Use set-backs for coastal development:* Buffer zones enable sea level to rise up to a point without threatening coastal development.
- *Discourage permanent shoreline stabilization:* Permanent shore-hardening structures, such as seawalls and groins, may be banned or discouraged in moderately developed areas.

- *Incorporate marginal increases in the height of coastal infrastructure*: Increases may be included to offset a sea-level rise.
- *Preserve vulnerable coastal wetlands*: Efforts should be made to maintain coastal wetlands that are more likely to withstand a sea-level rise.

As with hazard mitigation and land use planning, a number of factors influenced climate adaptation policies, including political will and cost-effectiveness. Klein, et al (2001) noted that public acceptance at the local level was becoming increasingly important for successful implementation of policies, and gaining public support from two-way interactions is key (Klein, et al. 2001).

Marketing and Communication

Traditional outreach campaigns are information-based, aimed at increasing public knowledge and awareness of an issue in order to change current behaviors. However, simply distributing information is an ineffective way to alter complex human behavior (McKenzie-Mohr, 2000). Social marketing campaigns are based on the attitude-behavior and economic-self interest approaches (McKenzie-Mohr, 2000).

Community based social marketing (CBSM) is based on social science research that demonstrates behavior change is most effectively achieved through efforts delivered at the community level. These initiatives focus on removing barriers to an activity while simultaneously enhancing the activities' benefits. CBSM's goal is to promote a desired behavioral change in stakeholder groups through a more pragmatic approach involving identifying barriers to a sustainable behavior, designing a strategy that uses behavior change tools, and then piloting the strategy with a small segment of a community. Once the pilot is implemented, results are collected and impact is determined (McKenzie-Mohr, 2000). The model uses five tools to change behavior: commitment, prompts, norms, communications, and incentives (McKenzie-Mohr, 2000).

While many studies exist on coastal risk and hazard mitigation, little research has been done on the use of social marketing to effectively communicate to land planners and decision makers. However, Pickens (2002) completed studies using elements that could be duplicated in exploring how to best approach and communicate to land use planners and local officials. His study of Oregon's EcoTeam program's and Colorado's "Go Boulder" program's use of CBSM was conducted to assess the usefulness of this tool in planning programs that aim to change the behavior of individuals. Of the EcoTeam participants surveyed, 94.7% said they had completed the program (Pickens, 2002). Between 1990 and 1994 in Boulder, Colorado, experts saw a six percent modal shift from single occupant vehicles to other modes of transportation in Boulder (Pickens, 2002).

Barriers to Hazard Mitigation Planning

Local land use planners and elected officials face many barriers to implementing hazard planning and resiliency policies, yet also stand to gain potential benefits from implementing such policies. In addition to the factors already discussed, this section identifies benefits and barriers experienced by these decision-makers.

Federal, State and Local Governments

Agencies in favor of using natural hazard mitigation in land-planning efforts face several challenges. Foremost, many state and local agencies struggle to follow through with the execution of any land use or growth management plans that might be developed, or to develop such plans in the first place. Creating such plans is complex, and requires government agencies to evaluate or audit environmental, social and economic implications, and to apply these findings to future uses. Such planning also requires local officials to identify and recruit state officials as stakeholders in any project that would require legislative approval to carry out recommendations outlined in those plans.

The planning process often begins with an audit. Local government officials start by identifying stakeholders to form a committee to provide guidance and support throughout the process (a key but difficult process), obtaining the resources to perform the appropriate research and analysis, including access to public documents and interviews with knowledgeable informants. While the audit is a critical first step, "achieving true safe growth requires that the audit findings be acted upon" (Godschalk, 2009). This may seem intuitive, but experience shows that these types of growth plans have continually become stagnant when efforts turned from the planning stage to implementation. Thus, moving from planning to implementation is an ongoing barrier.

Another barrier to enacting effective policies concerning coastal and marine areas lies in the fact that so many federal and state agencies, along with academic institutions, are involved in creating policies concerning these areas. These agencies habitually contradict each other, "making these regions and the resources they contain extremely vulnerable to mismanagement" (National Research Council, 1999).

Symptomatic of these barriers, several states have conducted efforts to institute aspects of land-planning in recent years, but these efforts are not often successful. Godschalk explains that while some states have succeeded in developing comprehensive plans for "smart growth" concerning land use, there seems to be a lack of collaboration between agencies that leads to the failure of following through with these plans (Godschalk, 2007). In general, there is a lack of commitment to implementing the plans that government agencies develop. The southeastern states of Florida, Georgia, South Carolina, North Carolina and Alabama have made attempts to create growth management plans (Godschalk, 2007). While approaches varied from state to state, the common factor of deficiency in these efforts lay in the lack of government agencies' abilities to follow through in carrying out the recommendations outlined in these growth management plans. Consider a series of examples from the Southeastern United States (Godschalk, 2007): Florida undertook a mandated growth management approach to reduce the population in the Everglades and named designated sustainable communities. A lack of collaboration between state-level officials, however, led to incomplete results and a deficient growth agenda. While Georgia succeeded in persuading local governments to prepare growth plans through creating incentives (99% of local governments developed plans), local governments never managed to follow those plans' recommendations. In North Carolina, land-use plans were regularly updated by coastal counties only for their recommendations to be ignored by the governor and legislature. Many regional planning agencies, urban counties and municipalities went as far as creating plans and implementing zoning policies in South Carolina, but growth management measures were not passed when introduced to the state legislature. Alabama has ignored recommendations to develop a smart growth commission council to address land-use planning issues. Thus, "despite some progressive steps … no Southeast state has been able to meet the challenges of sprawl during the past decade" (Godschalk, 2007).

Officials seeking to implement such policies also encounter structural barriers. For example, an optimal infill site needs to be "located in a receptive neighborhood with well-maintained properties, good land price, adequate utilities, no major land problems, appropriate zoning and potential development profitability compared with alternative sites" (J. Terrence Farris, 2001).

Unfortunately, local governments are not likely to adopt land use plans without state or Federal mandates. Governance of coastal hazards administered reactively cost the government more money than using a proactive approach (Fisher, 1999). Thus, it is important to inform coastal land use planners of factors which influence coastal hazard management in order to further the adoption of resilience and hazard mitigation plans.

Urban and regional planning professors Deyle, Chapin, and Baker discussed how Florida's hurricane mitigation planning affected land use planning outcomes in coastal areas prone to hurricane hazards (2008). In considering factors that limit the efforts of local governments to employ development plans, they identify "(1) lack of or weaker local political constituencies for the state goals, (2) competing local issues of greater perceived priority, (3) disjunction between short-term political and fiscal costs and uncertain future benefits, (4) limited local capacity to implement state directives, and (5) pre-existing local development management measures that are perceived to have established political and legal entitlements to specific land use intensities and densities." This strengthens the argument that state and sometimes Federal governments must be engaged in support for any kind of mitigation planning to be successful.

Morrow (2007) analyzed several interviews conducted with emergency service managers from North Carolina to Texas. The results suggest that "growth drives the train," meaning that planning was biased toward approving plans in favor of urban development. Some of the needs these managers identified in the interviews were as simple as GIS skills (they were currently relying on GIS data from other agencies or county departments) and methods of providing outreach and education to the public (Morrow, 2007). Survey results from the Royal Town Planning Institute of 1,250 planners in more than 100 countries also identified "managing the impact of development and increasing planning capacity" as the greatest challenges faced by planners (Stapleton, 2008).

People

When land use plans recommended limited development, "policy makers tended to adopt those recommendations." (Burby and Dalton, 1994). However, many factors affected policy adoption such as staff's capacity and commitment and demand for land inside of hazardous areas (Burby and Dalton, 1994). Studies conducted in Los Angeles and Orange County, California assessed hazards in coastal land use decisions. Results confirmed local planners were aware of existing and potential coastal hazards in their area, and were dealing with them in accordance with government mandates and their own perception of the severity of these problems in relation to other city issues (Fischer, 1999). Staff capacity and commitment to hazard mitigation increased the likelihood that land use recommendations would be implemented (Burby and Dalton, 1994).

To evaluate the public's attitude and values associated with the English coast, Nicholls, et al (1998) surveyed and analyzed 15 open coast locations over a 10-year period. Results showed the public highly valued those areas. When asked about coastal resilience, the public revealed an "innate conservatism" in their attitudes and perceptions of the coast, indicating a strong desire to keep things the same in relation to resilience planning for the coastlines. Even though people valued the British coasts, they did not want new policies impeding development in these areas. The public's attitude influenced the political process to favor policies which kept protection, and thus, resilience status quo (Nicholls et al., 1998).

Technology and Information

Fischer (1999) surveyed local officials in Louisiana and California and discovered a lack of coastal hazard information and a need for regulatory measures from "next higher level of government" to effectively address hazards in those areas (Fischer 1999). Some local governments lacked the necessary technology to predict when and where hazards would occur, thus reducing their ability to create effective mitigation plans (Clary, 1985). The survey of Los Angeles and Orange County, California, revealed a shortage of coastal information and professional expertise. Local officials surveyed indicated they would be "willing to seek expert advise about coastal issues" (Fisher, 1999). Fischer notes this may be due to the local governments' perceived notion that expertise must be purchased.

Many local governments lack the technology and technological expertise in planning to successfully carry out mitigation policies. A survey of local public officials conducted in Cantabrian, Spain, revealed that few of the municipalities had undertaken or knew of studies that could be used as a basis for coastline protection. Technical assistance and increased funding to meet national requirements were the types of planning power officials most desired (Fischer, 1995).

An additional survey conducted in Spain showed that scientific studies and data did not play a role in coastal planning. Instead, the local officials relied on personal observations, legal requirements, and tourist demands to guide their coastal land use planning (Fischer, 1995).

Economics and Politics

External political demand, such as pressure from local residents, was important as it signaled to policy makers that limiting development was necessary and politically feasible (Burby and Dalton, 1994). However, development limitations were less likely when the hazardous areas contained a large proportion of the community and were densely developed.

Studies have shown that local governments were more likely to use hazard mitigation policies when citizens identified hazards as a problem, wanted a solution, and applied political pressure (Burby and Dalton, 1994). For states without mandates, three factors were strongly identified with limited development recommendations: (1) political support and action to reduce hazards, (2) planning staff capacity and staff commitment to hazard reduction, and, (3) community wealth. However, these factors had less effect in states with mandates (Burby and Dalton, 1994).

Political and economic constraints put pressures on local governments that did not coincide with effective hazard mitigation plans, such as pressures for new commercial and residential development in hazard areas (Clary, 1985). The cost of mitigation was highly visible and occurred while its benefits were not realized until the future and were often diffused throughout the area (Godschalk and Brower, 1985).

In some communities limiting development was not an option as the economic costs of doing so were too high and any limiting policies were met with strong opposition. The economic cost became too great in communities that had scarce development opportunities outside of the hazardous area. The limited opportunities were often due to the concentrated development within the hazard zone. In fact, the community's density was the strongest factor affecting plan recommendations (Burby and Dalton, 1994). As the proportion of land exposed to hazards and population density increased, policy makers found land use solutions increasingly difficult to adopt (Burby and Dalton, 1994).

Property rights and takings is also a factor in hazard mitigation. Takings is defined by Callies (2001) as "the point at which a land use regulation so restricts a landowner's use of land that it becomes a constitutionally protected taking of property, either without compensation or without due process of law." Land owners claim that land use regulations, such as hazard-related zoning and development restrictions, violated private property rights granted by the fifth and fourteenth amendments (Kusler, 2008). This may make communities reluctant to implement mitigation policies despite Kusler's finding that in "only a very small number of cases" have landowners won taking cases.

Level of Exposure

A local government's exposure to hazards may dictate why communities had implemented plans and others had not (Clary, 1985). In areas where hazards were a serious existing or potential problem, the adoption of hazard mitigation plans was greater. Also, areas that experienced repeated hazards were more likely to adopt plans (Burby and Dalton, 1994).

In a study by Burby and Dalton (1994), the seriousness of hazards as a community problem was indicated by three factors: chronic losses, catastrophic losses, and development pressure. Development pressures in rapidly growing communities had the strongest effect on the adoption of development limitations while the other two factors had very little impact. When a community was faced by the first two factors, the political demand for action was focused on reducing loss in existing development, and not in preventing loses in potential new developments (Burby and Dalton, 1994). The increase of support for development restrictions as the pressure for development increases was also demonstrated in a survey of local municipalities in Cantabrian, Spain (Fischer, 1995).

When a low frequency of natural hazards existed, elected officials felt it necessary to allocate limited resources elsewhere and gave low priority to hazard planning activities (Clary, 1985).

Benefits of Hazard Mitigation Planning

The definition of mitigation highlights its most basic benefit: It "promotes safe community development by encouraging appropriate developmental and technological advances and introducing capabilities that protect against loss from hazards" (as cited in Rovins, 2009). A proper plan can maximize protection of vulnerable populations such as children, the disabled and the elderly; minimize physical damage to buildings and infrastructure needed to provide everyday and emergency services to the public; and help avoid economic loss due to dense population of a

hazardous area. Utilizing a plan that integrates risk reduction measures into governmental policies can help curtail billions of dollars in damage nationally (Rovins, 2009).

The sheer number of U.S. coastal communities poses a challenge but also presents an opportunity to leverage public support. According to U.S. Census data, more than half of U.S. residents live in one of 673 coastal counties (as cited in National Research Council, 1999). The majority of U.S. citizens live in less than 20 percent of the country's total area, including many coastal areas. Thus, coastal issues are likely to be of interest to a large percentage of the population. This is a significant potential benefit, assuming policy makers can effectively leverage this interest.

In addition, hazard mitigation practices have economic and social implications. A safe growth audit as defined by Godschalk (which outline the pros and cons of a community's growth plan by examining policies, ordinances and plans surrounding a jurisdiction's growth practices) would benefit both private and public sector decision makers. Public officials may gain from creating effective policies that protect state land and residents, while the private sector, e.g., real estate developers, may gain by obtaining information to make appropriate and profitable investments.

Planners themselves see benefits in this type of work. In a survey conducted by Burby and Dalton (1994), local planning administrators were asked to identify any effects land uses plans had on hazard reduction in their community. Findings include:

- 57% increased attention to hazard reduction in land use and development management regulations
- 44% increased attention to reducing the amount of development allowed in hazardous areas
- 42% increased linkage of hazard reduction with other community goals (e.g., recreation and environmental quality)
- 34% provided new information about the nature of natural hazards and areas at risk from those hazards
- 31% increased priority given to hazard reduction by elected officials

Thus, land use plans can be effective in limiting development of hazardous areas. Evidence from Burby and Dalton's (1994) study demonstrated that land use plans can be a valuable tool to impact local governments' decisions about development management.

Urban and regional planning professors Deyle, Chapin, and Baker's findings support the idea that mitigation plans can yield positive results in communities that suffer natural hazards. Using Florida as an example, they explore a top-down model of planning that utilizes state regulations and requirements to govern the comprehensive plans of local governments to implement policies. While they discovered that these plans had, unfortunately, limited effects on development, they did find that identifying coastal high hazard areas (CHHAs) on future land use maps resulted in positive outcomes concerning reducing residential development densities after plan approval. Thus, maps can be useful in actualizing plan objectives. Their case studies also suggest that down-zoning and land acquisition aided in reducing the amount of development within these high hazard areas (Deyle, et al., 2008).

Literature Review Conclusions

This literature review briefly describes the government's role in hazard mitigation, identifies the weaknesses in adopting policies limited to building codes and structural protection, describes issues related to the impact of climate change in coastal areas, and discusses barriers and benefits to creating natural hazard mitigation and safe growth management plans. It also discusses the social and economic implications of hazard mitigation and the impact community-based social marketing may have in encouraging managers and governments to act upon the recommendations outlined in hazard mitigation plans. The primary intention of this review is to better understand the benefits and barriers that local land use planners and elected officials face when considering whether to implement hazard mitigation planning.

While this review has uncovered numerous benefits and barriers, there is insufficient information in the current literature to fully understand these issues. For example, there is little formal research with planners and local officials to catalog and rank benefits and barriers. As a result, we do not know which of these barriers are most limiting (nor which can be most easily overcome), nor do we know which benefits are most important or crucial in motivating the

adoption of policies. As a next step in understanding these issues, primary research with decision makers (in the form of qualitative interviews and focus groups) will be conducted to better understand and delineate identified barriers and benefits.

The existing research suggests that a complex mix of barriers negatively impacts the adoption of hazard or risk resiliency policies. Among these barriers is the sheer complexity of such planning. Effective risk mitigation policies require multiple parties (including all levels of government, policy makers, elected officials, developers, and others) to work together to develop and implement policies that will be effective within a local community. Additionally, developing such plans requires access to and the ability to use complex information sources, including specialized technology (e.g., GIS) that may not be available in all communities unless additional technical assistance and funding are provided. Hazard planning activities also compete with other priorities faced by planners and local officials, many of which may seem to be more urgent and thus more worthy of immediate attention (this appears to be especially true for climate adaptation issues such as sea level rise and reduction in Great Lakes water levels).

Another primary barrier uncovered in this research is that plans, once developed, are often not implemented. This is especially true if plans are created in response to a requirement that is perceived as bureaucratic in nature (e.g., as a prerequisite to receiving Federal funds). Indeed, just establishing a plan is not enough to ensure implementation, since effective implementation requires diverse parties to work together, creating additional challenges. Thus, while plans tend not to be created unless they are required by mandate, the existence of a plan is not sufficient to ensure adoption and implementation.

Planning tends to have a bias in favor of growth, whereas effective hazard planning requires restrictions on growth in high-risk areas. Thus, many communities may experience substantial political pressure that may oppose any plans which limit or restrict development. Likewise, public support is critical, and communities are much more likely to develop and implement plans where public opinion is favorable. Lack of public support, or the perceived lack of such report, is thus an additional barrier.

A final set of barriers identified in this review is that ineffective policies may, in fact, worsen problems. For example, the availability of relatively "cheap" National Flood Insurance may be an incentive to development in high-risk areas, or the substantial increase in Federal disaster assistance funds may prevent communities from taking necessary precautions in high-risk areas.

Compared to this diverse set of identified barriers, the set of known benefits related to hazard and resiliency planning is more compact. The chief benefit of such planning (from the perspective of planners and officials) is an acknowledgment that planning can save lives and reduce economic losses in the face of a disaster. Effective planning is the single most cost effective way to deal with hazards. Planners generally understand these benefits. Moreover, once plans are in place, planners tend to incorporate more hazard reduction into planning efforts (thus, the act of creating a plan seems to have some cross-over benefits into broader planning activities). At a concept level, then, hazard planning appears to be widely understood and supported by planners and local officials.

As noted, hazard planning is required to receive Federal disaster assistance, and is also a part of the National Flood Insurance Program. Thus, an additional benefit to creating such plans is being eligible for these programs. Personal factors also serve as a benefit related to plan creation. Planners who are more personally familiar with the needs for such plans (e.g., they live in areas that experience more frequent or severe disaster events or simply know more about these issues) are more likely to implement plans. Public or political support for planning, when present, also can serve as a benefit and incentive to planning (just as its absence serves as a barrier).

On the whole, however, the perceived benefits of hazard and resiliency planning are under-studied. It is simply not known if factors other than efficacy, desire to comply with mandates, and personal (or public or political) support increase planning activities. Future research into this issue should focus on a better understanding of the benefits and barriers in these contexts. As more is known about how land use planners and local elected officials perceive hazard and risk resiliency planning, such information can be incorporated into effective community-based social

marketing efforts. The ultimate goal is to increase the amount of such planning that takes place at the local level, to save lives, to reduce injuries, and to reduce economic and other losses associated with natural hazard events.

These issues are further explored in the next stages of this research.

Purpose of Interviews

NOAA's Coastal Services Center is engaged in a research project to better understand the benefits and barriers that local land use planners and elected officials face when considering whether to implement hazard mitigation planning. To investigate this topic, Booz Allen Hamilton engaged in a three-part research process. This second phase of the research built on the findings from phase one (the literature review) to employ a qualitative research approach to further explore identified barriers and benefits. To explore issues in more detail, Booz Allen Hamilton interviewed eleven land use professionals, including planners at the regional and local levels and consultants working in this area.

Methodology to Conduct Interviews

Booz Allen Hamilton conducted interviews in January 2010 with 11 industry professionals. These included planners at the regional level, consultants, coastal managers, and natural resources managers.

Interviewees were recruited through various channels, including recommendations from NOAA. Each participant was invited to take part in a discussion to explore issues related to land use planning. Participants represented diverse geographic areas including the States of Wisconsin, Hawaii, Oregon, New Jersey, Florida, Maryland, and Washington, D.C. Full details on each participant are included in Appendix B.

A discussion guide was developed to explore topics of interest such as general land use planning decisions, decision making specific to risk and resiliency planning, and communication and outreach issues. The complete discussion guide appears as Appendix C to this report. Each participant was asked to provide his/her feedback on these topics of interest.

Interviews were conducted by trained moderators via telephone. Each discussion lasted about an hour. Detailed notes were produced from each interview. These detailed notes were compiled by question, with identifying information removed for each interviewee. Trained qualitative researchers then analyzed these compiled notes to identify and report overall findings for each research question, including direct quotations from participants whenever possible. Findings were presented topically.

Detailed Interview Findings

Top Concerns of Land Use Planners and Decision-Making Timeframes

Interviewees reported that they deal with a wide range of concerns on a day-to-day basis. This included unprompted awareness of hazard and planning issues, especially for interviewees who lived in vulnerable areas or areas that had experienced hazards. Moreover, interviewees who manage or work in vulnerable areas identified natural hazards as a prominent issue. Awareness of these issues likely will increase as risks become more pronounced. For example, some participants mentioned that sustainability issues have received a higher level of attention recently. Media coverage and public awareness of disasters have likely contributed to raising the profile of these issues in recent years.

Interviewees were asked to describe the kinds of land issues their communities faced. They mentioned a wide range of such issues, including:
- overall land-use planning
- resource allocation issues
- agricultural sustainability
- protecting natural landscapes
- coastal development issues

- coastline erosion
- wave energy development
- marine spatial planning
- water shortages and water quality issues
- flooding and dam breaks
- extreme heat events
- development of tsunami and evacuation zones
- natural hazards

There were numerous competing pressures that participants reported preventing work on these land issues, however. Many areas that are susceptible to hazards are already well-developed, which prevents planners from being able to take significant action to address future hazards. While planners can implement zoning and permitting policies in these areas to help mitigate potential threats, such restrictions on existing development can receive opposition from businesses and residents. Interviewees mentioned that terms like "limiting" and "restricting" development further increase resistance to this type of planning. Other pressures planners felt were keeping them from addressing these issues were lack of funding and staff, as well as day-to-day issues and concerns that interfere with long-term strategic thinking.

Some of the top concerns participants mentioned facing as planners were:
- economic issues, including finding a balance between economics and nature preservation
- affordable housing
- historic and cultural landmark preservation
- environmental issues, such as how land use influences water quality
- urban growth boundary expansion
- striking a balance between development and the limited amount of open space left in their communities

One interviewee observed that the communities she dealt with (she was a consultant serving many areas) weren't seeing the results residents sought from their zoning and planning efforts. In other words, the planning requirements communities had developed were not resulting in the types of communities they sought to develop. As a result, these communities were rethinking their approach. This suggests that communities may be more likely to consider resiliency planning when they are in this kind of transitional position.

"Communities are realizing that their planning and zoning that they have on books isn't getting them the communities that they want."

Reported planning horizons varied from immediate (6 months or less) to long-term (20-years or more). While many of the participants discussed developing 20-year plans (typically as part of a larger community planning effort), planners from smaller communities reported more frequent resource constraints that inhibit this type of long-term thinking. That is, they do not have the resources to address day-to-day issues and to do long-term planning. All planners also reported feeling pressure from their supervisors and elected officials to address immediate issues, often at the expense of long-term planning. Notably, most hazard and resiliency planning occurs in these long-term horizons.

"Generally speaking, communities are pressured to deal with issues that are in the 6-month to a year horizon."

"A lot of master plans say 20 years, but it's not really, they can't really grasp that far in the future, especially elected officials."

Overall Influences on Land Planning Decision-Making: Supportive Factors and Barriers

Each community has its own culture and pressures related to development and planning. For example, in Maui there was a large culture of history and preservation, while in Naples, Florida there was frequent conflict due to the high pressures to develop the coastline. Other municipalities had precedents giving more or less weight to specific issues.

In States where land use regulations occur at the municipal level, planners' positions as regional or county planners placed them in more of an advisory role than in a decision-making role. In those States, planners said that local politics, in addition to funding and staff resources, had major impacts on the kinds of issues they addressed and how these issues were resolved.

In general, resources everywhere were constrained (including budget and staff) and politics were an issue. Planning constituents (e.g., political leaders and citizens) also may not fully understand or appreciate the need for resiliency planning. For example, one beach community planner reported significant natural threats due to beach erosion and flooding, but residents and community leaders there tended to put more emphasis on economic development than protecting these resources. Another indication that this kind of planning is a low priority to community leaders and elected officials was evident in our recruiting: contacted elected officials tended to redirect our request for an interview to their planners. We had a difficult time finding such officials who would agree to participate in the project. Instead, elected officials reported that they received this kind of information directly from planners, who were better suited to speak about land issues. Interviewees also indicated that the short nature of political terms contributed to a focus on short-term goals vs. long-term planning issues. This contributes to an overall deficit among elected officials and community leaders in knowing how to address these issues.

"Often our elected leaders don't understand master plans or codes, so when challenged to change or support them, they can't do it."

"Most of my professional attention is given to trying to accommodate something I can't accomplish. I haven't been able to finish a major project in about three years."

Awareness of resources and education about how to use those resources is another issue. For example, planners may not be fully aware of available data resources. In other cases, planners knew about available resources but are unsure of how best to utilize them in their work, or felt that these resources were not easily accessible. Some planners felt data resources were hard to find since they were scattered throughout several web portals.

"As a practicing planner, I didn't realize all the good data those folks had."

Land planners were also responsible for many different kinds of tasks on an on-going basis, so there may be a risk that messages about resiliency planning have gotten lost as "one more thing" to deal with. Day-to-day tasks of planners include issues like seeking funding for their own departments, as well as dealing with zoning and permitting issues. Some planners also collaborated with other departments, e.g., the county planning office working with the Department of Transportation to establish and revise evacuation routes.

In summary, the major influences on land planning decision-making cited by participants included:
- Local political arena
    - o Government structure and jurisdiction, including a top-down or bottom-up approach to mandates
    - o Overall goals about what kind of community officials and residents want to create
    - o The level of understanding and knowledge about land use planning by elected officials and community leaders
    - o Input from stakeholders (environmental groups, business groups, housing advocates, arts community, tourism boards, residents, real estate brokers, and elected officials)
    - o The history of the area including past natural disaster events and precedents set by past policies
- Resources available
    - o A lack of funding, which limited the kinds and number of issues that are addressed and their timing
    - o Available data (e.g., GIS and water quality samples)
    - o Small staff sizes which limit the scope of the projects planners could take responsibility for
- Agency or State government culture
    - o FEMA guidelines or other policies, including State and local policies, some of which may conflict with each other
    - o Lack of communication between government agencies at all levels

Perceived Community-level Hazards and Risks

Planners were able to articulate a detailed list of potential hazards, including hurricanes, tornadoes, sea level rise, floods, fires, tsunamis, and others. They seemed well aware of the hazards that affect their areas and perceived the threats from these events as a high priority. Thus, lack of awareness of hazard issues among planners appears not to be a reason this type of planning does not occur.

However, hazard planning may receive insufficient attention due to issues such as funding. Funding is partly limited due to elected officials' and residents' lack of interest or urgency of addressing these potential hazards. Thus, available funding is not directed toward this type of planning, and is instead channeled to other projects. Strategic messaging about the importance of hazard and resiliency planning is one way to raise its prominence. Such messaging might change how elected officials and residents view these risks.

Community awareness of these natural hazards is also partly a function of history and connectedness (including negative past events within the community or elsewhere). Communities are starting to take these issues more seriously, but there is still a need to raise awareness. While issues like climate change and sea level rise were beginning to be addressed, planners felt there was a long way to go before these issues received an appropriate amount of attention and action.

"[Dealing with some of these larger issues] requires infrastructure change and adaptation. It scares the pants off these small communities, who don't have resources to really deal with them."

Climate Change Issues

Climate change as an issue can be described as emergent for planners. They tended to be aware of this issue, and generally concerned about it. However, they reported that the decision makers they report to, as well as the general public, tends not to be as interested in this issue. As a result, limited planning for climate change issues is currently taking place.

In some communities, local governments are beginning to look at studies to decide if they should incorporate findings about climate change effects into their long-range comprehensive plans. Significant action on this issue will likely require detailed data at the community-level demonstrating significant forthcoming negative effects.

"There's a concern with communities that have residential areas on the lake, but we're not seeing any adaptation for plans in those areas because effects aren't clear yet."

Factors that Support Risk Planning

Supportive citizens and political leadership were seen as key to effective risk planning. Participants felt a key tactic was to involve the public in a manner that gave them a stake in the decision-making process. Helping the public see the "big picture" is a challenge, but would ultimately help gain support for risk planning, according to interviewees. Another factor that may support risk planning is recognition of the effort. According to one participant, if communities were acknowledged for their efforts in risk and resiliency planning, they may be more encouraged to take these kinds of steps.

"If there were more opportunities for communities to be recognized for these kinds of efforts - positive reinforcement, a pat on the back without needing to wait for long term results [it would encourage this type of work]."

Awareness of grant opportunities can be a major asset to planners. One regional planner mentioned helping local planning agencies find funding through available grants as one of her responsibilities. Similar aid in other regions may help alleviate funding issues, which are quite common among efforts related to risk and resiliency planning.

Some communities had set a precedent to be more protective and to consider risk and resiliency issues in development; this made it easier for new planning to consider these issues as well. This was true in Hawaii, where

the culture surrounding land preservation was fairly deferential to history. In other States, local planners looked to past responses to events in order to decide how to respond to current hazards and risks.

"We follow the FEMA guide on hazard mitigation planning, and towns usually go through the guide based on events that have occurred."

There can be a window for effective planning after an emergency event because of increased resources and public awareness, but it is hard to have the resources fully in place before and after events to take advantage of this opportunity. This is partly due to how local governments view natural hazard events. While many interviewees said they felt natural hazard mitigation was important, many felt their views were not shared by community leaders. In many interviews, participants stated that decision makers dealt with these events as they occurred, and viewed them as a responsibility of emergency management (as opposed to being part of an on-going planning effort). If the effects of natural hazards were perceived to be more preventable, perhaps risk and resiliency planning would be addressed more often as a part of essential planning rather than as a part of emergency response efforts.

In general, there were many factors participants mentioned as supportive of risk planning. These included:
- sufficient funding
- greater emphasis on long-term thinking
- giving planners more authority to make decisions, review reports, etc.
- outreach to community members, including involving the public as stakeholders
- partnerships with environmental groups, politicians, State and Federal agencies, and increased collaboration in general
- positive recognition for risk planning
- better use of available maps and data, and making scientific information more available and accessible
- conducting hazard resiliency studies specific to individual communities and looking at local hazard trends
- having a county emergency management system
- better use of existing policies, e.g., that set the required distance between a structure and the shore line
- limiting commercial zoning
- wind ordinances

Planners also see many benefits to hazard and risk resiliency planning. Cited benefits include:
- improved public safety and decreased loss of life
- reduced property damage
- reduced infrastructure disruption issues
- improved evacuation routes
- economic efficiency
- providing public with park and recreational areas

Factors that Inhibit Risk Planning

There appears to be a strong need for specific local information; most communities did not have access to this type of detailed information. This includes knowledge about how to best use this kind of information and educating residents and potential developers about local land use laws, especially in areas where beachfront property may have been bought and managed remotely (e.g., Hawaii). Planners also discussed political factors and limited financial and staff resources as issues that inhibited risk and resiliency planning.

One identified gap in the risk and resiliency planning process relates to technical expertise; communities may not have the ability to use and interpret available scientific data. Effective risk planning may require expertise in numerous sciences such as geology, cartography, and statistics, as well as the use of technical tools such as GIS. Planners need to be able to not only locate and use such information, but to convey its meaning to higher-level decision makers and the public. Many planning departments do not have in-house resources in all these areas, nor do they have the funds to procure needed expertise on a consultant basis.

"Most departments need more scientific expertise."

As noted, local and regional planners are already concerned about hazard planning issues. Additional efforts to stress the importance of this kind of planning to this audience may not be necessary. Instead, efforts are needed to address the importance of these issues with residents and elected officials. Real estate agents and developers are also a target audience for this kind of communication.

"NOAA needs to educate real estate agents about these issues, [they are] the go-between of people buying property …A lot of developers are starting to understand now how environmentally sensitive it [development] is, but some of them don't understand."

Few communities reported having the resources (including funding and staff) in place to work on outreach and education issues, although they see the value in this. Planners talked about the benefits of recruiting the public as stakeholders. There was a perception that elected officials prioritized their agendas based on what issues were important to their constituents. Thus, if the public perceives resiliency and mitigation planning as more important, elected officials may address these issues more often as well. Accordingly, planners might receive increased funding and support to address land use issues.

One interviewee described how this might play out in a community with a piece of vulnerable infrastructure:

"A city manager of a rural town may have a vulnerable bridge, but not have information to make good decisions, plus no pressure from constituents, no pressure from mayor, etc. [As a result] prudent measures are not even begun to be planned for because of factors within the decision making process."

Even where planning occurs, plans may not be followed through on due to resource constraints. Comprehensive planning often occurs as the result of a mandate, but the mandates tend not to include implementation. Thus, although plans are developed for the first time in some communities as a result of these new mandates, many communities have not taken a major step toward implementing resiliency planning.

Other barriers include funding, inter-office communication, and public and political support. Funding was a ubiquitous issue in all discussions. While funding is an issue familiar to all government agencies, there is some indication that funding for risk and resiliency efforts and politics are linked. Participants felt that politics played a big role in how much attention and support risk and resiliency planning received. The issues planners address are partly based on what projects receive funding. In some cases, land issues did not often appear on the political agenda and remained marginal. In other cases, these issues received negative attention as residents fought to maintain land rights. This affected the amount of funding planners received to undertake projects dealing with resiliency and mitigation.

"Implementation is sometimes challenging because the highest value real estate tends to be in these areas [that need additional risk planning]. The politics of local real estate and land development can be a challenge. Efforts to restrict development in these areas have been limited due to lack of good science and politics."

Some participants discussed a gap in communication and collaboration between the departments and agencies they partnered with on projects. Participants said they had many partners in the work they performed as planners. While some worked closely and well with other organizations and government agencies, others reported some deficiency in the quality of communication between their departments and other departments or agencies. Mostly, when participants discussed problems communicating with their partners, problems related more to a lack of adequate communication channels and a mismatch of organizational culture than a lack of desire to collaborate.

"The Department of Public Works guys and emergency response guys, they get it on a fundamental basis, they know where the problems are, but they never interact with the planners in the community."

A lack of political will or public support hindered efforts to engage in resiliency planning; this was especially true where local planners were reacting to higher-level mandates (e.g., Federal mandates) without the political support from local or regional officials to implement or follow-through. In areas where planning departments were not pressured by the local government or citizens (e.g., rural areas), mitigation was not a high priority, leaving disaster events to be dealt with as they occurred. There may be a disconnect between the local governments' perception of resiliency planning as an emergency response issue rather than a long-term goal. This is an opportunity for

messaging aimed at elected officials differentiating long-term, systemic resilience and emergency response. Many planners think the emergency planning function would be better handled from a planning perspective.

"Requiring the hazard mitigation plan to be managed in the planning departments rather than the emergency management side of things would be better."

Existing development and land-rights are key issues; development in many sensitive areas has already occurred. Planners report that trying to address some of these issues now is often perceived as "taking away" development rights, and is met with significant resistance. In developed areas where properties were already purchased and developed, planners' efforts are thus limited to mitigation policies. Even where sensitive areas have been identified and not yet developed, many communities lack the financial resources to purchase and protect the land.

Altogether, there was not a great deal of discussion throughout the interviews about how planners were combating land-rights issues in high risk areas. This may present an opportunity to provide communities with information and guidance, as communities are not sure how to handle this important issue.

"We can mitigate what is built there, and we do … but there is not enough money to go around to buy these high-risk areas."

"Our knowledge of risks is 40 years too late … The stuff that was built incorrectly 40 years ago, we're dealing with it now."

Developers and land owners were most often cited as those who oppose and/or work against these policies. In some places, professionals in the real estate, building, and banking industries are more attuned to thinking about the natural hazard risks of shoreline properties. This was rare, however.

"You're hooked to the framework and can't get around them. You can't make builders/residents do more or less than the regulations, so you're stuck with what you've got … you go to the courts to get it sorted out."

Thus, a variety of factors inhibit risk planning. These include:
- Lack of resources and knowledge in planning departments
  - Minimal staff and budgets which limit the scope of projects
  - Cost implications deter department heads and officials from implementing policies
  - Planners' knowledge about how to use resources is sometimes limited, as is knowledge of available resources
  - A lack of technical assistance and knowledge to understand and use data
  - An overall limitation of local information, paired with a time gap between research of local risks and planners' knowledge and understanding of these risks
- Logistics
  - Lack of interaction between departments of public works, emergency response personnel, and planners
  - General lack of implementation after plans are developed
- Politics
  - Short-term thinking about local issues causes risk planning to rank lower in priority
  - Navigating bureaucracy can be difficult and may limit planners' ability to make decisions
  - Politicians worried about getting re-elected may neglect land use issues since the public views these issues as a low priority
- Land development issues
  - Land use entitlements limit restrictions that may have otherwise been adopted in high risk areas
  - Existence of numerous and sometimes conflicting standards
  - Existing development in high hazard areas causes policies to be limited to mitigation
  - Public resistance to limitation and restrictions on private property, combined with a desire to build in high-risk areas like shorelines
  - Opposition from groups like developers

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       o   Real estate agents' lack of knowledge about coastline policies

Major Influences on Risk and Resiliency Planning

Planners reported that a major influence on whether this type of work occurs is mandates or laws requiring such planning; such laws tend to emanate either from the Federal or State level. In addition, government officials at all levels control budgets, and thus governments have a large say in whether this type of work gets accomplished.

Above and beyond those overarching factors, specific groups and individuals can support and hinder planning efforts. Citizens, developers, environmental groups, and other interested parties also have a political influence in what matters get addressed and the outcomes of risk and resiliency planning efforts. The amount of influence, however, varies by location, as each State has its own system of land use decision-making. In some places, decisions are made at the regional level, whereas in other States the decision making process occurs at the municipal level. In areas where land use decisions are made at the municipal level, communities can have largely differing policies compared with neighboring communities.

"City managers and city council matter most, because they make the ultimate decisions and control funding."

The support or opposition of residents and area businesses is also a major influence on risk and resiliency planning, as are any restrictions or limitations related to land-rights. One interviewee noted that large businesses that make financial contributions to politicians would have more influence on policies related to hazard mitigation and resiliency planning.

Planners seem to feel that economics are a driving factor in how businesses, residents, and governments view risk and resiliency planning. Growth and tourism are factors that drive development. This was true especially in areas near the shoreline, which tend to be at higher risk for natural disaster events. Regional planners felt that the perceived economic benefits of development are seen as outweighing the benefits of policies that may help avoid the effects of natural hazards.

The availability of local data also influenced risk and resiliency planning at the community level. The manner in which this data is presented to community decision makers is of major importance. There seems to be a need for more effective communication of local data, including improved recommendations to the groups who have a major influence on policies regarding land use. This is seen as resulting in better decisions.

"Communities with more resources in terms of knowledge, data, etc. have better policies."

In sum, the three main parties that support risk and resiliency planning include:
- city managers, city councils, and county boards that support and encourage planning
- State government and Federal government officials
- environmental groups

While the major influences opposing risk and resiliency planning include:
- local property owners and homeowners' associations
- tourism boards
- developers

Current Risk and Resiliency Planning

Interviewees reported only limited current work related to risk and resiliency planning; however, they do report an increased awareness of the need for this type of planning. Nearly all interviewees recognize the importance of this kind of planning. Interviewees were optimistic that decision makers had started thinking about coastal risks and climate change, but they noted that planning in these areas was still in its infancy. In some areas, existing plans were only undergoing minor changes. In other areas larger efforts are taking place, such as increased permitting and other policies aimed at reducing the risk of coastal events.

"When a new house is built along the coast now, they need a permit, and I'm trying to get them to institute some policies like getting sand, seagrapes, and dunes."

Planning appears to be better developed for issues such as flooding (which is credited in part to the work of agencies such as FEMA), as opposed to climate change or sea level rise (where awareness of effects and mitigation strategies are more limited). Planning for climate change effects in particular was said to be in its early stages. There appears to be more awareness of issues related to sea level rise than to lake level decreases.

To the extent that risk and resiliency planning is taking place, it is largely occurring in the context of longer term (20-year or more) master plans that some communities are working on or in response to a mandate.

Impact of Takings, Property Rights, and the Disaster Mitigation Act

Takings and property rights are considered significant issues when it comes to hazard mitigation and resiliency planning; almost by definition, planning will involve restricting the development options for existing land owners. This kind of restriction is difficult to accomplish without impinging on the rights of existing property owners, and is widely regarded as a negative action. There was a great deal of concern surrounding this issue raised by interviewees. Participants mentioned that they and policymakers were afraid of being involved in lawsuits related to property rights. One participant felt that there was a need to protect local governments against these kinds of lawsuits.

"It's a huge challenge if we start to classify land as not suitable for development; we'll need really good statuary regulations to protect against suing."

Some communities are working to position development restrictions as protecting property rights, but this is rare. Zoning policies may make residents feel that their property rights are being infringed upon rather than protected. Participants believed that education was one solution. There may be an opportunity to develop messaging that frames zoning and hazard mitigation policies as a collaborative effort between local governments and residents. This may help change the current feeling that these policies are being imposed on residents without their consent or input. This issue reiterates the importance of recruiting residents as stakeholders in the mitigation and planning process.

"We try to make them see that zoning protects existing property rights issues. All you can do is try to provide as much education and try to make them see the benefits."

Awareness of the Disaster Mitigation Act (DMA) varies widely; interviewees who were aware of the Act report that it has had a significant effect, although the effect is sometimes occurring at the State vs. local level. Planners felt that the Act motivated State and local governments to consider developing mitigation plans because of its financial benefits. Developing mitigation plans, however, sometimes occurs solely at the State level and not at the local level, because governments are reacting only to the mandate's requirement for funding rather than reacting to the local need for this kind of planning. As noted, this also means that plans tend to be developed, not implemented.

Most interviewees report that DMA plans are largely developed by emergency planners as opposed to land use planners, and this limits its effectiveness because planning for disasters is not integrated into long-range plans. Several participants who were not familiar with DMA suggested we speak to the FEMA coordinator about this issue. The disconnect between land-use and emergency planners is likely one reason many interviewees were not aware of DMA.

Perceptions of Community-Level Planning

Some respondents reported that their communities had done a good job planning for risk and resiliency issues, but the majority of respondents believed that planning to date has not been adequate. Many participants felt that this kind of community level planning was difficult to achieve because most community level decision makers were only beginning to address the effects of climate change. A participant from the Mid-Atlantic Region felt that decision makers in his area did not fully recognize the legitimacy of such issues, while one participant from the Great Lakes

Region felt that there would be improvement in this kind of planning in the next few years.

"[Governments] recognize the risk, but with few exceptions, realize they are only just beginning to start planning."

"The county hasn't [planned for sea level rise]. I don't think they totally believe the impacts. There's no buy in yet."

A lot of the existing planning had been either in the form of flood plans or all-hazard plans; most planning documents are not yet taking into account factors such as climate change or long-term sea level rise. Existing planning in this area has also been coordinated by emergency planners like police departments and FEMA coordinators.

Even communities that are seeing the need for this type of planning were hindered in their efforts by lack of political and community-level support, lack of funding, lack of location-specific scientific data, and a lack of knowledge to use and interpret existing data. Short of major disaster events which likely would trigger additional planning, interviewees thought additional knowledge and information on risks, presented in a way that decision-makers could use and understand, would promote planning. Other factors participants felt would help improve community-level planning were technical assistance, community involvement, additional funding, and outreach to change the perceptions about the importance of this kind of planning.

"I think most communities have done work based on the best available information."

"Behavior plus decision making need to be a part of how policy change occurs."

Responsibility for Disaster Mitigation

Interviewees primarily cited local officials and emergency responders as being the groups that would be responsible if a disaster were to occur. Interviewees seemed to feel that planning departments were secondary.

Some organizations that were said to be responsible for handling disasters were:
- County Emergency Director
- City Manager
- Emergency Management and Emergency Response (e.g., fire rescue, police)
- Public Works
- Parks and Recreation (because some hazard areas, e.g., shorelines, are on public lands)
- Federal partners with FEMA (in rare cases, to address broader effects)

States officials were mentioned to a lesser degree, and Federal officials were mentioned only once throughout the entire interview process. When asked who was responsible in their community for responding to hazard events, one participant said that federal partners with FEMA were responsible for measuring the possible scope of hazards in their regions while emergency management responded to the effects of the disaster events. Another participant noted that emergency response tended to be somewhat unorganized and that there might be some finger pointing in the case of a disaster.

Personal Interest in Risk and Resiliency Planning

Interviewees tended to be highly personally motivated on this issue. Many noted that they cared about these issues and were passionate about them, e.g., "this is the work I do." Given their responsibilities in this area, many regional and county planners came to understand risk and resiliency planning while performing field work or from the data and information they received as a part of their work. Several others had become interested in these issues recently as a result of exposure to this subject matter. It was widely agreed that the more they learned about risk and resiliency planning, the more they saw a need for it and the more they wanted to learn about it.

"It's personally important to me, and it's not important to everyone, so it's a matter of showing them the benefits of caring."

"That's my job, the more I learn, the more I realize we need to address this issue and the more I realize we wouldn't be prepared when things change."

Sources of Information on Risk and Resiliency Planning

Interviewees reported that they had access to numerous sources of information on this topic, but they still reported information deficits. Their personal interest is a major motivator in finding information, and represents an asset to any group who is seeking to provide more information concerning land-use decisions and risk planning. These interviews indicated that planners at the regional and county level would welcome any additional information, especially if that information was made easily accessible.

The most helpful sources of information are local-specific data that are actionable from a planning perspective; maps were seen as useful, but even more so the data that underlie these maps. Existing brochures, pamphlets, and GIS data were thought to be useful as well. Planners reported that they lacked technical and staff resources to fully implement and use available data, however. In addition, the sheer number of existing resources, coupled with a lack of training on how to use available data, prevented information from being incorporated as much as possible. One planner specifically requested "best management practices" or more guidance about how communities should be dealing with changing lake levels. There is a need not only for information, but also for the technical resources (including staff and training) to use data. One interviewee reported that planners received training to use CanVis software, and have since implemented this software. Thus, training can lead to the greater utilization of data.

A few interviewees noted that what they really need is additional staff (from NOAA or elsewhere) who could work with communities engaged in planning efforts to acquire and use data. One planner felt that risk and resiliency information could be framed in different ways – messages designed for planning professionals and messages designed for the public and other non-expert stakeholders – and they could use assistance in preparing information in these formats.

Interviewees said it would be helpful to receive information via:
- Webinars
- local studies
- conferences
- local interaction with NOAA representatives in each region
- training for planners on how best to utilize resources

Some of the resources planners mentioned they currently used were:
- state programs
- digital coast images
- LIDAR
- Pacific Services Center
- Flood Smart
- DisasterSafety.org
- CanVis software

Communications with Others on Risk and Resiliency Planning

Current approaches to outreach and communication were mixed. In one area, the planner's approach was to involve as many groups, agencies, and members of the public as possible. The interviewee reported that while gaining initial participation was somewhat easy, retaining that interest throughout the planning process, particularly when revisions needed to be made, was more difficult. In some States, mandatory training for planners has been instituted to help improve their skills in managing these kinds of issues. In most cases, however, this type of work does not occur on a regular basis.

"We have had problems keeping the same level of interest throughout the entire process. It's hard to keep interest going to regular meetings, especially when we need them to edit plans."

Some communities had also engaged in efforts to educate elected officials and decision makers or community residents. Participants mentioned they've held successful workshops and collaborative meetings with residents and other agencies. Most reported outreach efforts were conducted as a part of the formal planning process, sometimes due to community involvement requirements.

"Creating workshops in these collaborative meetings [works well]. People like talking about it, especially if I'm going to go out to the towns to talk to them at their convenience."

There were some challenges in developing channels for communication with other planners, elected officials, and the general public. A few interviewees reported that it would be nice to do work like this but they simply didn't have time. Some felt that the process of revising plans became complicated as more and more entities provided input. Others attempted to provide an online tool to disseminate information but that effort was unsuccessful.

Some planners felt that identifying community leaders and recruiting them as ambassadors to the community would be helpful in framing risk and resiliency planning messages in a way that was relevant to community members. Overall, planners agreed that communication was important and agreed that there needs to be an improvement in how land risks are conveyed to the public and other stakeholders.

"Planners must know their audiences before they go out and try to educate others. We must convey risks accurately so folks can make informed decisions."

Conclusions from Interviews

These interviews suggest that there are ample opportunities for NOAA to better engage planners in risk and resiliency planning. Fundamentally, these interviews show a high-level of interest among planners in such work. Planners see the need, and also desire assistance. The main barriers to such planning are a lack of resources (including budgets, staff, political, and public support), paired with a lack of specific actionable information and the tools to use these resources. These represent challenges, but the challenges are not insurmountable.

We detail specific recommendations later in this report of how these barriers can be addressed. However, key action items from NOAA to the planning community could include:
- The provision of local data and resources to community leaders and planners
- High-touch delivery and training options to provide information to community planners
- Support for planners in educating others (including community leaders, decision makers, and the public) about the importance of hazard and resiliency planning; detailed information on the economic, environmental, and social benefits of such planning would also be well received
- Assistance facilitating communication between land use planners and emergency planners

FINDINGS FROM FOCUS GROUPS WITH LAND USE PLANNERS IN FOUR NOAA REGIONS

Purpose of Focus Groups

NOAA's Coastal Services Center is engaged in a research project to better understand the benefits and barriers that local land use planners and elected officials face when considering whether to implement hazard mitigation planning. To investigate this topic, Booz Allen Hamilton engaged in a three-part research process. This third phase of the research built on the findings from phase one (the literature review) and phase two (interviews) to conduct additional qualitative research to further explore identified barriers and benefits. For this final stage of research, Booz Allen Hamilton conducted four online focus groups with land use professionals, including planners at the regional and local levels.

Methodology to Conduct Focus Groups

Four online focus groups were held in February 2010 as part of an effort to gather insight about land use planning at the local level. One focus group was held with participants from each of the following four NOAA regions: Mid-Atlantic, Gulf of Mexico, Great Lakes, and Hawaii and Pacific Islands.

Participants were recruited through networking channels provided by NOAA, APA, and other sources. Each participant was invited to take part in an online discussion to explore issues related to land use planning. Additional details on each participant are included in Appendix D; twenty planners participated in the research. We were not able to recruit any elected officials to take part in the study.

Each online session lasted 90 minutes. A discussion guide was developed to explore topics of interest such as general land use planning decisions, decision making specific to risk and resiliency planning, and communication and outreach issues. The complete discussion guide appears as Appendix E to this report.

The focus groups were conducted by trained moderators using an online text-based forum. Transcripts from each session were used to prepare this report.

Detailed Focus Group Findings

Top Concerns of Land Use Planners and Decision-Making Timeframes

Focus group participants spoke at length about development issues they were currently addressing. Planners' duties included managing city resources such as land, water, and utilities. Much of the discussion was about growth and development. They discussed coordinating zoning permits and re-zoning plans, addressing water quality and water use issues, strategic redevelopment, and protecting areas with natural vegetation. Planners also were working to ensure that their communities were compliant with Federal and State mandates like meeting requirements for disaster planning. While hazard mitigation planning and comprehensive planning were included among the initial list of items planners worked on, these types of planning seemed to compete with other priorities.

Planners' top-of-mind duties included addressing some climate change issues such as sea level rise and shoreline erosion, as well as natural hazards such as hurricanes. This was especially true in areas where natural hazards were more common. For example, in the Gulf region planners reported that they struggled to maintain a balance between growth and open space conservation. While some planners said they were currently incorporating climate change issues into their plans, others said local decision makers were slow to respond to these types of needs.

The impact of economic issues on development was a recurring topic, with the economy cited as a major force on planning efforts. In many communities, planners said economic pressures to develop affected their main planning

objectives, even as there is some slowdown due to an unfavorable economy. Other communities focused on redevelopment to improve their economic interests. Conservation of natural areas appears to be negatively affected by efforts to improve the economy. For example, efforts to protect farmland and natural resource areas are diminishing due to efforts to improve the economy.

"Protecting natural resources from development [was a priority], at least until the recent economic downturn."

"Now that we don't get applications for malls, golf communities, and fast food ... we need to do some serious planning to stop Florida from collapsing economically altogether."

The typical timeframes planners cited ranged from six months to 30 years. Many short-term efforts ranged from six-month to five-year plans. These short-term efforts included actions like zoning, reviewing site plans, local land use plans, and permitting. Long-term projects included preparing comprehensive plans, addressing climate change effects, master plans, and proposals involving infrastructure like utilities extensions. Such projects tend to have 10-20 year planning horizons.

"I try to plan for the next generation, and try to see how things will be in 10-20 years. Sometimes we are the only ones in the room not thinking about the next quarter or the next fiscal year."

"I've also had experience with 1 year and 5 year plans - usually they are guided by the facts on the ground, the resources we have (or will have), the problems we see, and how those resources can best be used to address those problems."

Overall Influences on Land Planning Decision-Making: Supportive Factors and Barriers

Planners' activities and projects were widely influenced by available resources such as funding, available data, and staff. Planners execute tasks based on directives received from government agencies at the Federal, State, and local levels. While specific influences varied a great deal, some frequent influences cited were elected officials' agendas, State requirements, and funding.

According to participants, they did not often set their own agendas. Elected officials often set the local agenda related to land use planning. Politics, funding, and conflicting priorities limit the scope of planners' efforts to address hazard mitigation issues. This was one reason why hazard mitigation issues sometimes remain on the "back burner." Another reason is that elected officials and other governing bodies may be addressing other issues they regard as more pertinent, such as the economy and development, until a disaster event occurs.

Some of planners' main influences include:
- Judges, commissioners, county boards, and local government councils
- Regional planning administrations
- Water management districts (in States that have these agencies, like Florida and California, the water management district supervises and collaborates efforts regarding water issues within its jurisdiction)
- Laws and regulations
- The requirements of funding sources (i.e., meeting the goals of the National Sea Grant Program)
- Developers' requests and timelines
- Community members' concerns

"For us, it boils down to keeping local government compliant with Federal and State mandates. That's the first order of business."

All participants reported that they worked with many partners to accomplish their work. These partnerships existed

largely with other government agencies such as departments of transportation, emergency response, and institutions to protect environmental resources such as natural resource and environmental protection agencies. Some planners also mentioned working with private planning consultants.

Partnerships with universities and other agencies that provide data and technical resources were seen as particularly helpful. Some of the information planners said was useful included GIS data, aerial photography, other environmental data, land use information, and development trends. Planners used this kind of data to make decisions about land planning and provided this information to other, higher-level decision-makers. Partnerships that provided resources to planners were valued since some planners mentioned that this useful data would otherwise be out of reach due to a lack of resources (i.e., funding, technology, expertise, and cost). Some planners went on to say that their knowledge about using this kind of data was limited, so working with partners who had more expertise was useful in that way as well.

Some of the organizations planners said they partnered with were:
- Federal organizations
  o Navy
  o EPA
- State agencies
  o Department of Transportation
  o Department of Natural Resources
  o Department of Administration
  o Department of Environmental Protection
  o State office of planning
- Local government units
  o County conservation district
  o County planning board
  o Public works
  o Fire Marshall
  o Other planning departments
- Private planning consultants
- Community groups

Partnerships are sometimes a burden on planners, especially when there is a lack of coordination or conflicting priorities across and among agencies. Some planners complained that while the nature of their position required them to collaborate with other individuals, offices and agencies, the quality of communication between partners during collaborations was poor.

"I find getting assistance from the SAME person w/any Federal agency is like pulling teeth."

"Finding people to work with isn't the hard part. Finding people who understand and can navigate the process is more difficult. Collaboration is also a major issue in my opinion. [There are] lots of people doing lots of stuff, but not doing it together."

Perceived Community-level Hazards and Risks

Participants readily listed the kinds of natural hazards their communities faced; these included coastal issues, storm events, post-storm events, wildfires, and volcanic gas. They discussed many different kinds of risk events and acknowledged that these risks were important to address and plan for. Among planners, risk perception surrounding natural hazard events was high.

Many planners, however, seemed to think that other decision-makers did not have the same regard for these issues. Many felt that hazard mitigation was a subject avoided by non-planners until a disaster event occurred. In other

words, members of the public and planning officials place a lesser priority on these hazards, as do other professionals who are not land-use planners.

"I'd have to say that mitigation of exposure to hazards is still relatively low in the minds of most of our department staff."

"Natural hazards often get [the] short-shift in terms of priorities, until they directly affect human health, safety or welfare."

"It is a priority [only] when the natural disaster happens."

Some of the risks planners mentioned were:
- Natural hazards
  - Coastal storms
  - Flooding
  - Storm surge
  - Hurricane
  - Nor'easters
  - Severe wind events
  - Climate change events including sea level rise
  - Volcanic activity
  - Bluff and beach erosion
  - Earthquakes
  - Tsunamis
  - Landslides
  - Wildfires
  - Sedimentation
  - Drought
- Other risks
  - Terrorism
  - Hazardous materials
  - Chemical releases
  - Water contamination due to chemical releases (in Gulf Region)
  - Power outages

Climate Change Issues

Participants in the Mid-Atlantic, Gulf of Mexico, and Hawaii Pacific regions were most concerned about climate events such as sea level rise and increased storms or changing storm patterns; participants in the Great Lakes area were more focused on the impact of climate on water quality. Climate change issues were typically only addressed as long-range projects, and are typically not considered in day-to-day planning. In some cases, planners felt decision-makers in their communities did not consider climate change issues as a risk at all.

"It's hard to get interest on the longer range planning issues. Most people have their heads in the sand about sea level rise. If you read the scientific papers, you would be scared to death! Hampton Roads is second only to New Orleans for threat from SLR [sea level rise]."

Planners said they are already seeing some effects of climate change. These included effects on agriculture, septic systems, and flooding of coastal properties. In some cases, land-use planners reported that residents were becoming concerned about these effects. While awareness of these issues among the public and elected officials is increasing, it is still not high.

"It's interesting. People are starting to notice increased frequency and reach of flooding on private property and they're asking what government is going to do to stop it. In some cases I've had homeowners questioning why government allowed lots to be developed. [But] few [people are] taking responsibility for buying risky property."

"[Climate change is causing an] increase in failing septic systems due to rising water tables and subsidence."

Planners consider climate change issues important, and some have tried to raise these issues in their communities. One participant in the Mid-Atlantic region mentioned holding sessions with board members from different counties to discuss beliefs about climate change and sea level rise. Again, these efforts appear to be at the preliminary stages.

Factors that Support and Inhibit Risk Planning

Planners reported many factors that both support and inhibit risk planning. Their existing partnerships give planners some support in the form of added staff, data, or expertise. Factors that inhibit risk planning include limited staff and funding, lack of collaboration between partners, restraints due to politics, and low perceived priority on this kind of planning.

There were several factors that planners felt helped them complete their work. As mentioned previously, participants said that access to information like GIS data was helpful. In general, the easier it is to access local data, and the more specific such data are, the more useful it is to planners. Partnerships that resulted in access to these kinds of resources helped support efforts to conduct risk and resiliency planning.

Natural hazard planning was a source of frustration for many participants; they personally feel these issues are important, but perceive elected officials and residents as not paying sufficient attention compared to more immediate concerns such as the economy or housing. Many planners felt that natural hazards tended to be dealt with only on an emergency or as-needed basis. Planners felt that decision-makers tended to be very reactive.

The political will to engage in this type of planning varied community by community; some planners said they did not have enough political influence to direct efforts toward risk planning, while others said their department heads and the public supported these kinds of projects. Elected officials were said to be a major influence in risk and resiliency planning. They help set the agenda for hazard planning efforts that go above and beyond meeting state policies or Federal mandates. In communities where elected officials tend to focus more on short-term projects or tend to perceive natural hazard events as a relatively low risk, this can create a barrier to risk planning. Moreover, it makes it less likely that plans that are developed will be implemented.

It was very difficult for this type of planning to occur absent political and public support, although there was some perception that public support was increasing along with increased media coverage of these topics. There was a feeling among participants that elected officials tended to address the concerns of the public. Planners were accepting of this – many of them even said that this was the elected officials' duty. They did speculate, however, that elected officials seemed to address concerns that could be resolved with short-term projects. The nature of the elected term was thought to influence officials' tendency to avoid long-term projects such as those that would help mitigate the effects of a possible natural disaster event. Another point that was brought up was that elected officials may be unsure of the government's role to mitigate effects.

"Usually, the current administration or some council member will think of something they consider important enough to divert resources."

"They are conflicted as to what the role of local government is and what public services should be provided."

"A lot of those people could care less about smart growth. They want their ocean view and their cesspool, and they want it for bottom dollar, with no concern for the environment."

Economic growth and hazard mitigation were sometimes seen as competing; growth and development benefit the economy directly, while hazard mitigation was seen as providing a benefit only in the case of disaster. Planners felt that other decision makers and the general public were more interested in short-term benefits like growth and development rather than investing in projects that would yield long-term results like hazard mitigation. Planners believed that one way to neutralize this type of barrier was to increase officials' and residents' perceptions about risk planning's economic benefits. If the economic value of hazard planning was evident, perhaps it would attract more support from currently indifferent parties.

"If a wealthy developer wants to develop a coastal property that is going to generate significant property tax revenue for the County, the County has a tough decision."

"Some of the flooding issues we are having are tied closely with over development - one person's storm water going on another's land. People still view this as a fight with their neighbor rather than a sweeping government issue."

Current Risk and Resiliency Planning

Existing planning included projects such as building larger levees, rethinking zoning requirements, limiting development, and addressing issues related to takings. Many planners were also engaged in longer-term community development planning, and such plans might include thinking about risk and resiliency planning issues.

There was some risk planning occurring in the communities represented in these focus groups. Planners reported preparing emergency response protocols in response to mandates and hazard response drills. Some talked about having collaborated with their partners to develop hazard mitigation plans. One planner's community had even begun to develop a guide to help the community find the best ways to deal with redevelopment after a disaster event.

"The city has also been heavily involved with the Florida Department of Community Affairs efforts to develop a post-disaster redevelopment best practices guide."

There was a sense, however, that hazard and risk planning was sometimes not being implemented beyond the planning stage required by mandate. Implementation is limited due to a lack of funding and the difficulty of implementing "no growth" areas.

"One thing that's completely missing is disaster recovery policy. For example, if we have a major earthquake/tsunami, there are no policies in place to inhibit developers from buying up impacted areas for pennies on the dollar."

"Having an experience with a real storm (like Charley) makes everyone think about disasters, but doing something is a different matter."

Impact of Takings, Property Rights, and the Disaster Mitigation Act

Some planners felt their agencies were "gun shy" about infringing on private property because of the potential for litigation. Planners said their agencies were particularly concerned about imposing any policy that might result in litigation. Planners felt that individual property owners, real estate agents, developers, banks, and corporations might oppose actions they felt were limiting of property rights. They also felt that policies were easier to impose before a property was purchased as opposed to adding new requirements after a resident already owns the property.

"That is a huge barrier ... our lawyers are scared to death of getting into a takings case."

Property rights and takings issues were considered to be difficult to deal with. Generally, there was a lot of negativity regarding takings. Planners said that property owners felt it infringed on their rights, making local governments afraid of litigation. Planners would likely be open to suggestions from NOAA on combating problems arising from takings conflicts as they seemed to currently be lacking any effective strategies.

Many planners were not aware of the Disaster Mitigation Act (DMA) by name, although most are familiar with its requirements. This may be due to the disconnect between community and emergency planners, with emergency planners tending to be in charge of DMA requirements. There was also some discussion regarding counties or cities that did not previously have disaster mitigation or comprehensive plans. Planners said that DMA requirements caused a major increase in the presence of these plans locally.

"The Federal government leans on localities to do land use planning for them. We have a fairly large Air Force Base that the Feds want us to impose restrictions around. They don't want to mess with takings issues."

"Hazard mitigation in places that have vested development rights usually boils down to picking winners and losers. That is always going to be unpopular."

Sources of Information on Risk and Resiliency Planning

Overall, planners had a few, but not many, sources of information on these topics. They used what resources they had to learn more about their work but were very open to finding out about other resources. They said field work, information from national and local experts, local organizations, online sources, and the media had been useful in learning about hazard planning issues. Online search engines like Google were cited as a source of information, although specific Web sites tended not to be mentioned. Other sources of information included reading Federal rules and regulations, conferences, and scientific literature. It seemed that they learned much about hazard mitigation on the job.

Planners generally seemed very resourceful in piecing together information from many different sources. Participants talked about networking with colleagues and generally learning from others. Since planners were so open to working together or learning from each other, there may be an opportunity to use this kind of networking as a resource in disseminating information.

"Networking with colleagues, participating in planning initiatives, talking with stakeholders to better understand their needs, etc. It's sort of a holistic learning process."

Ideally, new information would be available through Web portals and e-newsletters. Anything to make new information easy to find and access would likely be appreciated. Providing data through a single or limited number of portals would make using this information easier and more convenient for planners. Planners said it would also be helpful to receive information via professional organizations like APA or at conferences and seminars. They also mentioned that workshops, electronic newsletters, or links to online resources would be helpful in receiving more information.

Information should be distributed by a source that is widely regarded as a credible and fact-based authority, respected by both planners and elected officials. NOAA is considered such a source. The NOAA Web site, however, was perceived by some as difficult to navigate due to the sheer volume of data it contains.

"I think that they [NOAA] are respected and provide valuable information."

"So many agencies have great spatial data, but they don't do a good job of marketing it and making it accessible."

Planners seek information that is as local and customized as possible. For example, FEMA maps, community-specific flood maps, climate change information, and spatial data are all highly valued. Data that was too broad in scope was not considered to be helpful since it did not provide planners with specific information they could implement in their own communities. One planner mentioned that information that was not focused on his geographic area was easy to dismiss.

"I believe there is enough information out there, it just needs to be applied locally."

"It would be nice if the national experts in the field could talk to planners via the APA, FPZA [Florida Planning and Zoning Association] and tell us some best practices or how these issues apply to us locally."

Public Outreach

Some planners talked about conducting public outreach in their communities, allowing for public discussion about planning and environmental issues. Some of the activities they mentioned were hands-on activities like workshops, site visits, and community forums. This type of outreach was often conducted as part of a formal community planning process. There was no mention of how many community members participated in these activities. Limited public outreach on hazard and risk topics also appeared to be carried out by groups such as universities; this was uncommon, however.

Planners would like to see more public outreach and education on this topic, as they viewed the public as a key partner and ally. However, planners reported they do not have access to communication professionals nor do they have consistent support in this area. They believe public support is crucial to conduct effective risk and resiliency planning. At the same time, however, work in this area is limited.

Conclusions from Focus Groups

Findings from the focus groups are largely consistent with our observations from the interviews. Planners are largely interested in and receptive to hazard and resiliency planning. However, their actual work in this area is constrained by competing priorities, time and budget constraints, and a perceived lack of political and social support to engage in large-scale planning efforts.

We detail specific recommendations in the next section of this report on how these barriers can be addressed. However, key action items from NOAA to the planning community could include:

- The provision of additional detailed information to communities to help them better understand their community-specific risks related to climate change and other natural hazards
- Additional guidance or assistance provided at the community level to assist communities in implementing policy changes in the immediate aftermath of a disaster (when public and elected official attention is high as is receptivity to change)
- Support for planners in educating others (including community leaders, decision makers, and the public) about the importance of hazard and resiliency planning; detailed information on the economic, environmental, and social benefits of such planning would also be well received
- Assistance facilitating communication between land use planners and emergency planners, especially as it relates to implementing disaster mitigation plans
- Advice or guidance in how to address potential takings issues

Overall Findings and Conclusions

The primary purpose of this research has been to better understand the benefits and barriers that local land use planners face when considering whether to implement hazard mitigation planning. Our research identified a rather compact list of benefits, and a much lengthier list of barriers.

Benefits identified tend to relate to the desire for professional satisfaction. Identified benefits include:

- **Intrinsic satisfaction –** Many planners are personally motivated to take action on risk and hazard issues. They are intimately familiar with the hazards faced by their communities, and are generally supportive of the need to do more. Few believe their communities are adequately prepared for hazard events. Thus, their natural inclination is to support this type of planning.

- **Saved lives and reduced economic losses –** Planners recognize that effective planning is the single most cost effective way to deal with hazards, as well as the strategy that is most protective of human life. Thus, they support hazard and resiliency planning because they believe it is effective.

- **Compliance with Federal and State mandates –** Planners recognize that hazard planning is increasingly mandated, and are supportive of these mandates. However, mandated hazard planning is typically done by emergency planners, not land use planners.

- **Meeting political and public demand, where existent –** In certain communities, there is a high level of public and political support for this type of planning (e.g., communities which have recently experienced disasters or cultures that place a high value on preservation of the natural environment). In such instances, planners are motivated to meet this demand.

Barriers to hazard and resiliency planning tend to be more external. Barriers include:

- **Lack of public support or political will –** Planners' work agendas are subject to external influence from elected officials and other community leaders. The result is that work in this area is limited unless there is a perceived or real demand for it. Such demand is minimal in most communities.

- **Limited budgets –** Funding to engage in this type of planning needs to be redirected from other priorities to enable effective planning. Typically, however, such redirects do not occur because elected officials and other leaders have not made this issue a priority.

- **Competing priorities –** Hazard planning activities compete with other priorities faced by planners, many of which are more urgent. In general, planners are more focused on day-to-day activities than long-term strategic planning. There is also more pressure to deal with daily issues than long-range events.

- **Limited actionable data –** Effective planning for hazards requires actionable local data. Many planners do not have access to this data because it does not exist for their communities, they do not know how to obtain it, they do not have the technical skills to access it, or they do not have the knowledge to use and interpret available data.

- **Disconnect with emergency planners and limited follow-through –** Many hazard plans are developed by emergency planners, absent any strategic input from land use planners. This disconnect makes it harder to implement plans once created. Indeed, few hazard plans appear to be implemented.

- **Existing development and property rights –** Many high-risk areas have already been developed. While planners can sometimes impose restrictions on new developments in such areas, it is very difficult to impose restrictions on existing properties. Additionally, many planners and officials are concerned about possible legal actions if development is restricted, thus fear of takings lawsuits restricts planning.

- **Bias in favor of growth –** Economic and other pressures within communities tend to be favor growth. This also makes it harder to restrict development or impose restrictions.

While our research has allowed us to catalog and describe these benefits and barriers, it was not designed to prioritize or rank these items. In other words, we cannot conclude which benefits are most motivating, nor do we know which barriers are most inhibiting of action. At the same time, the list of benefits and barriers identified in this research is suggestive of larger patterns. Primarily, we note that the identified benefits appear to be fairly well maximized. That is, planners as an audience are already highly receptive to messages about the importance of hazard and resiliency planning. Thus, messaging to encourage such planners to engage in greater work in this area should focus on addressing barriers. Accordingly, our recommendations focus on ways to minimize barriers (vs. maximizing benefits).

Recommendations

Our recommendations follow the principles of Community Based Social Marketing. Social marketing posits that the best way to change behavior (in this case, to engage in more hazard and resiliency planning) is to highlight benefits while reducing barriers. Social marketing also emphasizes prioritizing "low-hanging fruit," that is, if there are items that are relatively easier, quicker, or cheaper to act on, those items should be addressed first.

Another principle of social marketing is the need to segment and prioritize audiences. In this case, behavior change could come as a result of changes in the attitudes, actions, or opinions of three main audience groups: 1) planners, 2) elected officials, or 3) the general public. We believe planners are the best target audience for NOAA. While elected officials are in a powerful decision-making position on this issue, they tend not to be very interested. For example, we had a difficult time recruiting them to participate in our research. Also, elected officials are motivated by short time-horizons which make long-term planning issues less motivating. Thus, elected officials are a difficult target audience. At the same time, the public as a group is relatively powerless and unmotivated on this issue. The public is also an expensive audience to reach, since it is so vast. Thus, the public is also a difficult target audience. Planners, on the other hand, are personally motivated to engage in discussion on this topic, and also interested in and receptive to the type of detailed information NOAA has to provide. Planners also have the ability to serve as conduits to elected officials and the public to the extent that messaging to these groups is desirable and appropriate.

Since this research was commissioned by NOAA's Coastal Services Center (CSC), our suggestions focus on actions we believe are appropriate and feasible for CSC to undertake. We offer a catalog of possible recommendations to encourage additional hazard and resiliency planning. Suggestions are not ranked, but are presented for possible consideration and follow-up. As discussed previously, these suggestions focus on addressing identified barriers as opposed to emphasizing benefits.

Our recommendations are:

-   Work with a group of local planners and community leaders to identify specific data and information needs (we recommend selecting six to eight communities, distributed across NOAA's coastal regions, for follow-up information gathering). Ideally, this research would occur in the form of site visits or in-depth conversations with a variety of decision makers and planners in each community. The purpose is to identify what types of data would be most helpful in motivating communities to take action or in informing the activities of communities committed to this type of planning. NOAA should then match these needs with available resources to determine what data NOAA can provide to communities, and then catalog and describe available data to meet identified community needs. (*Barriers addressed: Limited actionable data, lack of public support or political will*)

-   Once the strongest and most relevant NOAA resources on this topic have been identified (and as new resources are created), use social media and other networking tools to push this information out to the larger planning community. Use listservs, member organizations such as APA, conferences, e-mail groups, and other communication vehicles to widely distribute resources and to encourage information sharing. These efforts will capitalize on interest in this topic, and also provide needed information to planners. (*Barriers addressed: Limited actionable data, disconnect with emergency planners*)

-   On a pilot basis, continue to work with some or all of these communities to provide high-touch delivery and training on available NOAA resources to meet identified community needs. Provide resources to these

communities in the form of expert advice and guidance in locating, interpreting, and using available data. Document the experience to determine the viability of conducting such high-touch delivery options on a larger scale basis. (*Barriers addressed: Limited actionable data, lack of public support or political will*)

- Make changes to the NOAA Web site to better promote available data for the purpose of community-specific land use planning. Make it easier for planners and officials to find and use these data by creating a specific Web portal for this information and by conducting Web site usability testing with planners. Once changes to the site have been made, work with planning organizations to publicize and highlight available data for planners. (*Barrier addressed: Limited actionable data*)

- Prepare detailed information on the economic, environmental, and social benefits of hazard and resiliency planning. Use real examples and information wherever possible to show how planning has benefited specific communities. Tailor this information to the needs of elected officials and other community decision makers. Work with planners to help them use this information to engage in discussions with their community leaders. Consider a high-touch pilot effort to determine the viability of this approach as well as more traditional information distribution efforts. (*Barriers addressed: Competing priorities, lack of public support or political will, bias in favor of growth*)

- Recognize that most planners do not have access to resources (including staff or budgets) to engage in public communication efforts, and provide basic support in this area. For example, prepare and distribute simple presentations on the benefits of hazard and resiliency planning (e.g., a PowerPoint presentation) that planners can use to engage in conversations with the public on this topic. Provide brochures and other information pieces that can be tailored to local communities. (*Barriers addressed: Limited budgets, lack of public support or political will*)

- Develop guidance or assistance for communities on how to implement policy changes in the immediate aftermath of a disaster, when public and elected official attention is high as is receptivity to change. Work with communities such as New Orleans to document lessons learned and best practices that others might follow. Once this information has been developed, pilot test the concept by offering technical assistance and guidance to communities in the aftermath of a disaster to help them implement policy changes. Consider forming or creating a "planning disaster response team" that could work with communities as needed. (*Barriers addressed: Limited budgets, lack of public support or political will*)

- Develop advice or guidance for communities on how to address issues related to takings. Sponsor a forum or discussion on this issue where planners can learn from one another and describe what has worked and not worked in their communities. Document best practices in this area and catalog approaches that communities might take. Distribute information to planners. (*Barriers addressed: Existing development and property rights, lack of public support or political will*)

- Encourage planners to see the development or renewal of master plans as an opportunity to conduct risk or resiliency planning. Document and publicize successes in this area to encourage planners to take advantage of these natural windows of opportunity, as many communities update these on regular intervals. (*Barriers addressed: Competing priorities, lack of public support or political will, bias in favor of growth*)

- Encourage channels of communication between emergency planners and land use planners. Identify a community or communities that have implemented a disaster plan that was developed in response to a mandate, and document the implementation process. Widely share and distribute this information as a means to encourage others to implement their own disaster plans. (*Barrier addressed: Disconnect with emergency planners*)

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Interviews

Several dates during January 2010

Several locations throughout the U.S.

Telephone interviews with individuals

Recruited: 11

Participated: 11

Name	Title	Location	Participation
Angela	Regional Planner	Wisconsin	Participated
Jim	Planner	Hawaii	Participated
Joe	Assistant Sea Grant Director	Oregon	Participated
Donna	Consultant	New Jersey	Participated
Eugene	Hazard Mitigation Planner	Florida	Participated
Jim	Hazards Planning Research Center Manager	Washington, D.C.	Participated
Joseph	Supervising Planner	New Jersey	Participated
Mariah	Planning and Zoning Department Director	Wisconsin	Participated
Matt	Department of Land Development Representative	Oregon	Participated
Mike	Natural Resources Manager	Florida	Participated
Rocky	Land Use Planner	Maryland	Participated

Date: [Insert date]

Interviewee name: [Insert interviewee, title]

Purpose: To identify factors that drive barriers to and benefits from the various risk and resilience behaviors of land use planners, officials and decision-makers.

Introduction (on phone): Thank you for agreeing to speak with me today. We are working on a project on behalf of NOAA's Coastal Services Center to better understand the ways in which local planners and local officials make decisions. We are hoping you can provide us with your feedback related to these issues. I have a series of questions I would like to ask you. There are no wrong answers; we are just looking for your personal opinions and experiences. The interview will take about an hour.

Overarching Questions

I would like to start by asking about your experiences in general related to land use planning decisions.

1. In your opinion, what are some of the major land use issues faced by your community? Has your thinking about these issues changed over the last 5 years? Why or why not? {Note whether hazard and resiliency issues come up, including climate and sea level rise/lower lake levels, but don't discuss unless mentioned initially}

2. What helps you to make or support effective planning decisions?

3. What are the main challenges or barriers you encounter that prevent you from doing this work effectively? How do you deal with these barriers?

4. Do these major issues receive most of your professional attention (as it relates to land use planning)? If not, what factors influence which issues get your attention? {Probe for political issues, professional judgment, peer pressure, organizational structure, community influence, risk assessment and evaluation, cost, etc.}

5. What timeframe are you typically thinking about when setting land use policies? For example, 5-year, 10-year, 20-year, 50-year outcomes?

Land Use Planning & Hazard Mitigation Questions

Now I want to talk specifically about hazard mitigation issues and resiliency planning, that is, planning that helps a community to recover more quickly after a negative event.

6. What types of natural hazards or risks does your community face?

7. What makes it difficult to institute or even contemplate disaster mitigation policies such as:
   a. Limited development approaches such as prohibiting development in high-hazard areas
   b. Stricter building codes in high-risk areas
   c. Keeping infrastructure out of hazard areas
   d. Conducting hazard or resiliency studies specific to your community

8. What makes it easier to institute or even contemplate issues such as:
   a. Limited development approaches such as prohibiting development in high-hazard areas
   b. Stricter building codes in high-risk areas
   c. Keeping infrastructure out of hazard areas
   d. Conducting hazard or resiliency studies specific to your community

9. What good things might happen if you instituted hazard or resiliency policies such as these?

10. What bad things might happen if you instituted hazard or resiliency policies such as these?

11. Who would be very supportive if you instituted hazard or resiliency policies such as these?

12. Who would be less supportive, or even oppose you, if you instituted policies such as these?

13. Thinking about all those people we just talked about - the supporters and those less supportive - whose support matters most to you and why? Whose opposition would matter the most and why?

14. Overall, what factors are most influential in determining whether your community has hazard or resiliency policies?

15. How much of a priority are these issues for your community vs. the others that we have already discussed?

16. Is your community engaged in any of this kind of work now? What about work specifically related to climate adaptation? Sea level rise/lower lake levels? {Probe for specifics}

17. Do issues related to takings and property rights issues (including concerns about potential legal actions) impact how your community sets policy in this area? If yes, how so?

18. Did the Disaster Mitigation Act of 2000 impact the work your community does in this area? {If they are not aware of DMA, briefly describe that it requires communities to engage in this type of planning to receive Federal assistance, and ask whether they work with disaster planners}

19. Do you think your community has adequately planned for hazards? For climate issues? For sea level rise/lower lake levels? Why or why not? [if no] What would have to change for your community to better plan for these issues? {Probe for public education, buildout analysis, safe growth audit}

20. If a hazard event occurred in your community, what institutions, agencies, or groups do you think would be most responsible for dealing with the negative outcomes?

Communication Questions
This has been a great discussion. We're almost done. You've brought up some great points about barriers and benefits to planning. I'd like to ask your thoughts on outreach and communication:

21. Thinking about yourself, what makes you more or less interested in this type of planning?

22. Where and how do you learn about hazard planning issues? Are these sources of information adequate? What more or better information do you need? {If maps are not mentioned, probe specifically for reactions to maps} What would be the best way to get you this kind of information?

23. Have you communicated with your stakeholders about hazard and resiliency planning? If so, what did you do? Who did you reach? What worked well? What didn't work well?

Wind up/Conclusion
That is all the questions I have. Is there anything else you wanted to discuss?

We really appreciate your time in talking with us today. Your thoughts will help NOAA to do a better job providing communities with the information they need to conduct effective hazard and resiliency planning. As part of this research effort, we're also conducting some online focus groups and are looking for local land use planners and officials in four NOAA regions to help us: the MidAtlantic, Great Lakes, Gulf of Mexico, and Hawaiian & the Pacific Islands. Would you be willing to contact a few of your colleagues in those geographical areas who you think might be interested in joining one of our focus groups? (We can send you information to share.) Or, are there names of people you could share with us now?

Thank you again for your assistance and time with this project. If we have any additional questions, may we call you?

If you have any additional questions for us, please contact Christine Brittle or Ledvi Beza. Thanks again. We really appreciate your help.

Mid-Atlantic Region Online Focus Group

Tuesday, February 9

Recruited: 7

Participated: 5

Name	Title	Location	Participation
Ray	Planner Coordinator	Maryland	Participated
Lewis	Director of Regional Planning	Virginia	Participated
Kevin	Environmental Engineer	Virginia	Participated
Gary	City Planner	Delaware	Participated
Clay	Administrator, City Department of Planning	Virginia	Participated
John	District Planner	Maryland	Did not participate
Betsy	CFM, Planner I	Maryland	Did not participate

Gulf of Mexico Region Online Focus Group

Wednesday, February 10

Recruited: 7

Participated: 6

Name	Title	Location	Participation
Tony	Senior Planner	Florida	Participated
Mitchell	Urban Planner	Florida	Participated
William	Zoning and Code Compliance Director	Florida	Participated
Pat	Director, Planning and Zoning	Louisiana	Participated
Kelly	CFM, Floodplain Administrator	Texas	Participated
Gail	Chief Planner Land Development	Florida	Did not participate
Adrienne	Director of Community Development	Alabama	Did not participate

Great Lakes Region Online Focus Group

Wednesday, February 10

Recruited: 7

Participated: 6

Name	Title	Location	Participation
Thomas	Principal Planner	Illinois	Participated
Lesa	Planner	Indiana	Participated
Carol	Planning Commission member	Pennsylvania	Participated
John	Associate Planner	Michigan	Participated
Kathy	Regional Planner	Wisconsin	Participated
Julia	Planner	Pennsylvania	Participated
Amy	Environmental Planner	Pennsylvania	Did not participate

Hawaii and Pacific Islands Region Online Focus Group

Thursday, February 11

Recruited: 6

Participated: 3

Name	Title	Location	Participation
Larry	Planner	Hawaii	Participated
Andy	Coastal Processes and Hazards Specialist	Hawaii	Participated
Anna	CRM Planner	North Mariana Islands	Participated
Dana	Planning Dept.	Hawaii	Did not participate
John	CRM Director	North Mariana Islands	Did not participate
Maria	Land Use Planner	Hawaii	Did not participate

Date: [Insert date]

NOAA Region:
- Mid-Atlantic: Delaware, Maryland, New Jersey, New York, Pennsylvania, Virginia
- Great Lakes: Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, Wisconsin
- Gulf of Mexico: Alabama, Florida, Louisiana, Mississippi, Texas
- Hawaiian & Pacific Island: Hawaii, American Samoa, Commonwealth of the Northern Mariana Islands, Guam

Purpose: To identify factors that drive barriers to and benefits from the various risk and resilience behaviors of land use planners, officials and decision-makers.

Target Audience: Local planners and local elected officials with input into planning issues

Research Goals:
- Examine risk and resilience planning issues compared to other local planners' duties
- Uncover barriers to creating risk and resilience plans
- Identify benefits from having a risk or resilience plan
- Examine possible motivators to promote risk and resilience planning

Introduction: Thanks for agreeing to participate today. We are working on a project on behalf of NOAA's Coastal Services Center to better understand the ways in which local planners and local officials like yourself make decisions.

I have a series of questions I would like to ask you. There are no wrong answers; we are just looking for your personal opinions and experiences. The discussion will take about 90 minutes.

Once I type a question, please feel free to respond immediately. It's helpful for me if everyone tries to respond to every question. Even if you just say "I don't know" or "I've never thought about that."

Don't worry about your spelling or punctuation, just focus on trying to help us understand your reactions.

Feel free to respond to one another after you see what everyone else has to say. I'll let you know if we need to change topics or move on so we can finish on time.

Ice Breaker {5 minutes}

Let's start by all getting to know each other a bit. Everyone here is a local planner or a local elected official who works on planning issues in the {XX} Region.

1. Please tell us your name and where you work (city and state).

2. Welcome! And please also tell us one thing you like a lot about the area where you live.

Overarching Questions {20 minutes}

Terrific, I look forward to getting to hear more from all of you. Let's start by getting a sense of some of the issues you all are working on right now.

3. What is the land use issue you deal with most often in your community?

4. What or who determines the issues you work on?

5. What departments or agencies do you find yourself working with most often on planning issues?

6. What are some of the things that help you do your job well?

7. And what are some of the things that keep you from doing your job well?

8. How far in the future are you usually thinking when you make land-use plans and decisions? For example, 6-months, 1-year, 5-year, 10-year, 20-year, 50-years?

Thanks, this is really helpful.

Land Use Planning & Hazard Mitigation Questions {50 minutes}

Now I want to talk specifically about hazard mitigation issues and resiliency planning, that is, planning that helps a community to recover more quickly after a negative event. Please think about this in context of where you work, that is your county, city, etc.

9. What types of natural hazards or risks does your community face?

10. How does dealing with these hazards compare in importance with the other planning issues you deal with? In other words, where does it fall on your priority list?

11. Who is in charge of planning for these types of events in your community? If the answer is someone outside of your department, how often (if at all) do you interact with these people?

12. Has your community done anything to prepare for hazard events? (It's OK to say "we haven't" if that's the case.) If you have done something, please tell us what you did and how you think that benefited the community.

13. Has your community thought at all about the local effects of climate change?
    a. [If not mentioned] What about the effects of sea level rise/lower lake levels?

14. Is your community currently seeing any impacts of climate change?

15. Let's make a list of some of the policies that could help mitigate the effects of a disaster. For example, you could limit or prohibit development in high-risk areas. What else could you do?
    a. Anything else?
    b. [As needed, ask about other specific policies discussed in the interviews]

16. What helps you make policies like this?

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      a.   [If it's not mentioned, ask "Is there more of this planning since the Disaster Mitigation Act of 2000?"]

17. What stops you from making policies like this?
      a.   [If it is not mentioned, ask "Are takings or property rights an issue?"]
      b.   [Is it a barrier to planning that a lot of high-risk areas are already developed?]

18. Who would be very supportive if you instituted policies like this?

19. Who would be less supportive, or even oppose you, if you instituted policies like this?

20. Thinking about all those people we just talked about - the supporters and those less supportive - whose opinion matters most in your community? Why?

21. What would have to change for your community to better plan for these issues?

Communication Questions {10 minutes}

This has been a great discussion. We're almost done. I'd like to ask your thoughts on outreach and communication:

22. What determines whether you personally are interested in planning like this?

23. Where (if anywhere) do you learn about hazard planning issues?

24. Where (if anywhere) do you learn about the impacts of climate change?

25. Is there other information you wish you had on this topic?
      a.   If so, where would you like to get it?

26. Can you tell me more about the specific kinds of local information you would find useful?

27. Have you ever seen any of NOAA's resources on this topic? If so, what did you think of them?

28. Do you ever try to do outreach with your community around this type of hazard planning? If so, how has that gone?

Wind up/Conclusion {5 minutes}

Thank you so much. That is all the questions I have. Is there anything else anyone wanted to discuss?

We really appreciate your time in talking with us today. Your thoughts will help NOAA to do a better job providing communities with the information they need to conduct effective hazard and resiliency planning. Thanks again! Have a nice day.